

Fauna of India



DERMAPTERA **PART - II**

G. K. SRIVASTAVA



This volume is the second part of three part series on Dermaptera under the Fauna of India series covering India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. It deals with Anisolaboidea which included two families, 9 subfamilies, 20 genera and 83 species. Some important modifications in the classification of the order are proposed. The description of the species are based upon fresh specimens collected by the author and already present in the Zoological Survey of India and other world Museums and Institutes. It is hoped this volume will be of great help to research workers and others interested in the group.

FAUNA OF INDIA
AND
THE ADJACENT COUNTRIES

DERMAPTERA
PART – II
Superfamily ANISOLABOIDEA

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Kolkata

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FOREWORD

Much of the information on Dermaptera from India and adjacent countries is through scattered papers. It is one of the aims of the Zoological Survey of India to bring out consolidated publications on various groups of animals of which the *Fauna of India* series is the foremost.

The present volume is second in the series of *Fauna of India* Dermaptera, Part I by Dr. G. K. Srivastava. Treatment of the subject is exhaustive but on the same lines of previous part. In this volume altogether 83 species belonging to 20 genera under nine subfamilies and two families *viz.* Anisolabididae and Labiduridae of superfamily Anisolaboidea are dealt with. Observations recorded for various species are based on a large number of specimens in the Zoological Survey of India and other world Museums and Institutes.

Dr. Srivastava is engaged in the study of Dermaptera for a little over three decades and is an authority on the subject. It is hoped that this volume would be of a great help to workers and others interested in this group of insects.

Kolkata
March, 2003

J.R.B. Alfred
Director
Zoological Survey of India

PREFACE

This is the second part of the three part series on Dermaptera under the *Fauna of India* series. The species occurring in India, including Andaman and Nicobar and Lakshadweep group of Islands, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka belonging two families, namely Anisolabididae and Labiduridae under the superfamily Anisolaboidea are dealt with. The concluding Part III would deal with superfamily Forficuloidae.

Some important modifications in the classification of the order at supergeneric level are proposed. Two suborders Catadermaptera and Eudermaptera proposed by Steinmann are treated as two sections under suborder Forficulina of free living Dermaptera. Important additions to subfamilies are Irdexinae, Homotaginae, Rudraxinae and Placolabidinae. A fresh key to supergeneric taxa from the area is prepared incorporating above subfamilies.

Treatment of the main text is on the pattern of Part I under this series. Altogether, 83 species belonging to 20 genera, 9 subfamilies and two families of Superfamily Anisolabiodea are treated. The description of each species provides synonymies followed by the diagnostic features giving information on distribution, types and general remarks. Under distribution the localities of such identified specimens which have not been reported earlier are mentioned with their repositories.

Species is a living entity in nature and its dynamism is exhibited through intraspecific variations within the individuals of same and different populations. This aspect is discussed, in detail, wherever possible.

Various locality records for species mentioned in literature were checked through specimens, if available from the area under study. However, in certain cases records from other areas were confirmed through photographs given by Sakai in his publication under the title *Dermapterorum catalogus*.

Observations for various species are based upon fresh and already preserved specimens in the Zoological Survey of India and other institutes in the country and abroad.

Kolkata
November, 2001

G. K. Srivastava

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INTRODUCTION

The present work forms the second part of the *Fauna of India, Dermaptera Pt. I Superfamily Pygidicranoidea* published in the year 1988 by the author. It deals with two families, Anisolabididae and Labiduridae, under superfamily Anisolaboidea. The third and the last part would include superfamilies Apachyoidea and Forficuloidea.

For the sake of completion, under the headings 'Abbreviations used' and 'References' besides additional ones all those already mentioned in Pt. I are given.

Altogether 83 species belonging to 20 genera, 9 subfamilies are treated in this part. It includes, the description of a new species, *Gonolabis krishnappai* besides synonymising, *Labidurodes orientalis* Ramamurthi, 1968 under *Titanolabis maindroni* (Borelli, 1911); *Epilandex bazyluki* Steinmann, 1979 under *Epilandex burri* (Borelli, 1921); *Metisolabis fulgens* Steinmann, 1989 under *Metisolabis caudelli* (Bolivar, 1897) and *Labidura cryptera* Liu, 1946, *L. elegans* Liu, 1946 and *L. orientalis* Liu, 1946 under *Labidura riparia* (Pallas, 1773). The description of various taxa is on the same lines as in the previous part.

Steinmann (1989a) proposed two Suborders and three Sections to accommodate seven families which were earlier included under Suborder Forficulina. Some modifications in supergeneric classification have been proposed, details of which are provided in the following pages.

The synonymies given under each species were verified with the specimens recorded from India and adjacent countries. However, for records from other areas, which could not be checked with actual specimens, the work of Sakai (1987) providing photographs of such specimens, preserved in various world museums was of a great help.

SYSTEMATIC LIST

Superfamily ANISOLABOIDEA
Family ANISOLABIDIDAE
Subfamily PLATYLABIINAE
Genus *Platylabia* Dohrn, 1867

P. nathani Srivastava, 1982

P. brindlei Srivastava, 1982

Subfamily TITANOLABIDINAE

Genus *Titanolabis* Bur, 1910

T. maindroni (Borelli, 1911) (= *Labidrodes orientalis* Ramamurthi, 1968)—**Syn.n.**

Subfamily NISOLABIDINAE

Genus *Epilandex* Hebard, 1927*E. burri* (Borelli, 1921) (= *E. bazyluki* Steinmann, 1979)—**syn.n.**Genus *Aborolabis* Srivastava, 1969*A. emarginata* Srivastava, 1974*A. meghalayaensis* Srivastava, 1993*A. nepalensis* (Brindle, 1974)*A. kalaktangensis* Srivastava, 1972*A. sikkimensis* Srivastava, 1993*A. pervicina* (Burr, 1913)Genus *Euborellia* Burr, 1910*E. dattai* Srivastava, 1977*E. rajasthanensis* Srivastava, 1977*E. annulipes* (Lucas, 1837)*E. compressa* (Borelli, 1907)*E. plebeja* (Dohrn, 1863)*E. femoralis* (Dohrn, 1863)*E. annandalei* (Burr, 1906)*E. annulata* (Fabricius, 1793) (= *E. stål*i (Dohrn 1864)*E. abbreviata* Srivastava, 1977*E. manipurensis* Srivastava, 1979

Uncertain species

E. kumaoensis Gangola, 1968*E. askotensis* Gangola, 1968Genus *Mongolabis* Zacher, 1911*M. vallakadaiensis* (Ramamurthi & David, 1973)Genus *Anisolabella* Zacher, 1911*A. dohrni* (Kirby, 1891)*A. greeni* (Burr, 1899)*A. nandii* (Srivastava, 1987)

A. carinatus (Srivastava, 1987)

A. montshadskii (Bey-Bienko, 1959)

A. denticulatus (Srivastava, 1987)

Genus ***Gonolabis*** Burr, 1900

G. electa Burr, 1910

G. penicillata (Borelli, 1911)

G. emarginata (Ramamurthi & David, 1973)

G. analis (Ramamurthi & David, 1973)

G. sisera (Burr, 1914)

G. burri (Srivastava, 1970)

G. punctata (Srivastava, 1978)

G. krishnappai **Sp. n.**

G. nilgiriensis (Srivastava, 1978)

Genus ***Apolabis*** Burr, 1915

A. aborensis (Burr, 1913)

A. castetsi (Bormans, 1897)

A. genitalis (Kapoor, 1967)

A. ramachandrai (Ramamurthi & David, 1973)

Genus ***Anisolabis*** Feiber, 1853

A. rubella Brindle, 1977

A. kudgae Burr, 1901

A. deplanata Srivastava, 1985

A. bhowmiki Srivastava, 1991

Uncertain species

A. gaudens Burr, 1904

Subfamily **BRACHYLABIDINAE**

Genus ***Metisolabis*** Burr, 1910

M. bifoveolata (Bolivar, 1987)

M. caudelli (Burr, 1908) (= *Metisolabis fulgens* Steinmann, 1989)—**Syn.n.**

Genus ***Ctenisolabis*** Verhoeff, 1902

C. fletcheri Burr, 1910

Uncertain species

C. pusilla Steinmann, 1879

Genus ***Brachylabis*** Dohrn, 1864

B. philetas Bur, 1901

B. willeyi (Burr, 1910)

B. formicoides (Burr, 1911)

Subfamily ANTISOLABIDINAE

Genus ***Antislabis*** Burr, 1911

A. ceylonica (Brindle, 1977)

A. kelangi (Brindle, 1969)

Subfamily ISOLABOIDINAE

Genus ***Isolaboides*** Hincks, 1958

I. burri (Borelli, 1909)

I. immsi (Burr, 1913)

I. rimosus Steinmann, 1983

Uncertain species

G. tenera (Burr, 1910)

G. elegans (Hebard, 1917)

Family LABIDURIDAE

Subfamily ALLOSTETHINAE

Genus ***Allostethus*** Verhoeff, 1904

A. anamalayanus Ramamaurthi, 1968

Genus ***Gonolabidura*** Zacher, 1910

G. astruci Burr, 1911

G. minor Burr 1914

G. nathani Brindle, 1965

G. biswasi Srivastava, 1992

Subfamily NALINAE

Genus *Nala* Zacher, 1910

N. lividipes (Dufour, 1802)

N. nepalensis (Burr, 1907)

N. basalis BeyBienko, 1970

Subfamily LABIDURINAE

Genus *Labidura* Leach, 1815

L. riparia (Pallas, 1773) (= *L. cryptera* Liu, 1946; *L. elegans* Liu, 1946 and *L. orientalis* Steinmann)—**Syn.n.**

L. dharchulensis Gangola, 1968

Genus *Forcipula* Bolivar, 1897

F. lurida Bolivar, 1897

F. tuberculata Srivastava, 1977

F. quadrispinosa (Dohrn, 1863)

F. trispinosa (Dohrn, 1863)

F. despinosa Hebard, 1917

F. borellii Chopard, 1924

F. aborensis Brindle, 1966

F. indica Brindle, 1966

F. elongata Srivastava, 1986

F. clavata Liu, 1946

F. abbreviata Srivastava, 1986

Uncertain species

F. leonardi Steinmann, 1981

ABBREVIATIONS USED

ANSP – Academy of Natural Sciences of Philadelphia, U.S.A.

AZL – Academy of Zoology, Leningrad, USSR.

BMNH – British Museum (Natural History), London, England.

BMNS – Bombay Natural History Society, Bombay, India.

- BPM – Bernice Pahui Bishop Museum, Hawaii.
- CAS – California Academy of Sciences, San Francisco, U.S.A.
- CASP – Institute of Entomology, Chinese Academy of Sciences, Peking, China.
- DTDSN – Dept. of Zoology, Th. D.S.B. Government College, Nainital, U.P., India.
- FNH – Field Museum of Natural History, Chicago, Illinois, U.S.A.
- FRI – Forest Research Institute, Dehra Dun, India.
- HNAB – Zoology Department, Hungarian Natural History Meseum, Budapest Baross U, Hungary.
- IARI – Indian Agricultural Research Institute, New Delhi, India.
- IPEG – Institute für Pflanzenschutzforschung, Abteilung Taxnomie der Insekten, Eberswalde–Finow, DDR.
- IRSNB – Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium.
- ITZA – Institut voor Taxonomische Zoölogie, Zoölogisch Museum Universiteit van Amsterdam, Afdeling Entomologie, Amsterdam, Netherland.
- IZAP – Institute Zoologique, Académia Polonaise des Sciences, Warszawa, Poland.
- MCZH – Museum of Comparative Zoology, Harvard University, Cambridge, Mass, U.S.A.
- MIZT – Museo ed Istituto di Zoologia Sistemica della Universita di Torino, Torino, Italy.
- MHNG – Muséum d'Histoire Naturelle, Geneva, Switzerland.
- MM – Manchester Museum, Manchester, England.
- MNHP – Museum National d'Histoire Naturelle, Paris, France.
- MSNG – Museo Civico di storia Naturale "Giacomo Doria", Genova, Italy.
- MZL – Musee Zoologique, Lausanne (Switzerlad).
- MZM – Museum of Zoology, The University of Michigan, Ann Arbor, U.S.A.
- MZSC – Museum of Zoology, National Central University, China.
- NMB – Naturhistorisches Museum Basel, Basel, Switzerland.
- NMWA – Naturhistorisches Museum Wien, Wien, Austria.
- NRSS – Naturhistoriska Riksmuseet, Stockholm, Sweden.
- PM – Peking Museum, Peking China.

- RNHL – Rijksmuseum van Natuurlijke Histoire, Leiden, Netherlands.
SMF – Senckenberg Museum, Frankfurt a. M., Germany.
SMTD – Staaliches Meseum für Tierkunde, Dresden, Germany.
USNM – The United States National Museum, Washington, D.C., U.S.A.
UZMC – Universitetes Zoologiske Museum, Copenhagen, Denmark.
ZILA – Zoological Inatitute, Lund, Sweden.
ZMHB – Zoologisches Museum für Naturkunde der Humboldt-Univ., Berlin, DDR.
ZMS – Zoology Department, Museum, J & K University, Srinagar, Jammu & Kashmir, India.
ZSI – Zoological Survey of India, Calcutta, India.
ZSM – Zoologische Staatasmmlung, Munchen, Germany.
ZSZM – Zoologisches Staatsinstitut und Zoologisches Museum, Hamburg, Germany.
ZUSL – Zoology Department, University of Sri Lanka, Colombo, Sri Lanka.

CLASSIFICATION

The suprageneric classification followed in the present work is after Steinmann (1975) with certain modification by Srivastava (1988).

Steinmann, (1989a) divided the Order Dermaptera into two Suborders, *viz.* Catadermaptera and Eudermaptera which are treated here as two Sections. And three sections, namely Protodermaptera, Mesodermaptera and Paradermaptera included under Catadermaptera by him are not considered valid.

The superfamily, family and subfamily names used are Anisolaboidea, Anisolabididae and Anisolabidinae in place of Carcinophoroidea, Carcinophoridae and Carcinophorinae for the sake of priority.

Important additions to subfamilies are Irdexinae, Homotaginae and Rudraxina erected by Srivastava (1985, 1995). Besides, Placolabdinac has been proposed by Srivastava (1999) for the reception of *Placolabis* Bey-Bienko.

Following is outline of classification of free living Dermaptera included under Suborder FORFICULINA.

Order	DERMAPTERA
Suborder	FORFICULINA
Section	CATADERMAPTERA (= PROTODERMATERA) (= MESODERMATERA) (= PARADERMAPTERA)

Superfamily	PYGIDICRANOIDEA
Family	PYGIDICRANIDAE Verhoeff

ANATAELINAE Burr

CHALLINAE Steinmann

ESPHALMENINAE Burr

BRINDLENSIINAE Srivastava

BLANDICINAE Burr

PYRAGRINAE Burr

KARSCHIELLINAE Burr

PYGIDICRANINAE Verhoeff

CYLINDROGASTRINAE Maccagno

DIPLATYMORPHINAE Boeseman

DIPLATYINAE Verhoeff

ECHINOSOMATINAE Burr

PROLABISCINAE Bey-Bienko

Superfamily	ANISOLABOIDEA
Family	ANISOLABIDIDAE Verhoeff

PLATYLABIINAE Burr

GONOLABIDINAE Popham and Brindle

TITANOLABIDINAE Srivastava

ANOPHTHALMOLABIDINAE Steinmann

PLACOLABIDINAE Srivastava

ANISOLABIDINAE Verhoeff

BRACHYLABIDINAE Burr

ISOLABIDINAE Steinmann

ANTISOLABIDINAE Brindle

PARISOLABIDINAE Verhoeff

IDOLOPSALIDINAE Steinmann

ISOLABOIDINAE Brindle

Family LABIDURIDAE Verhoeff

ALLOSTETHINAE Burr

NALINAE Steinmann

LABIDURINAE Burr

Superfamily APACHYOIDEA

Family APACHYIDAE Verhoeff

APACHYINAE Burr

Section EUDERMAPTERA

Superfamily FORFICULOIDEA

Family SPONGIPHORIDAE

(= LABIIDAE Burr)

RAMAMURTHINAE Steinmann

RUDRAXINAE Srivastava

PERICOMINAE Burr

HOMOTAGINAE Srivastava

SPONGIPHORINAE Burr

IRDEXINAE Srivastava

NESOGASTRINAE Verhoeff

VANDICINAE Burr

STRONGYLOPSALINAE Burr

SPARATTINAE Burr

GERACINAE Brindle

COSMOGERACINAE Brindle

CAECOLABIINAE Steinmann

ISOPYGINAE Hincks

LABIINAE Burr

Family CHELISOCHIDAE Burr

CHELISOCELLINAE Steinmann

CHELISOCHINAE Burr

Family FORFICULIDAE Stephens

ANCISTROGASTRINAE Verhoeff

(= SARCINATRICINAE Steinmann)

(= RHYACOLABINAE Steinmann)

COSMIELLINAE Steinmann

OPISTHOCOSMIINAE Verhoeff

DIAPERASTICINAE Burr

ALLODAHLIINAE Verhoeff

ANECHURINAE Burr

EUDOHRNIINAE Burr

NEOLOBOPHORINAE Burr

FORFICULINAE Stephens

KEY TO THE SUPER-GENERIC TAXA REPRESENTED FROM INDIAN SUBCONTINENT

(modified after Steinmann, 1975 and Srivastava, 1988)

- 1(30). Male genitalia with basal portion (proparameres) divisible into two halves (may be separated apically or united throughout) with two functional distal lobes, sometimes one of them reduced CATADERMAPTERA
- 2(9). Neck blattoid type i.e., anterior and posterior cervical sclerites anterior to prosternum separated from each other but hind margin of posterior sclerite may be separate or fused with apical margin of prosternum PYDIGICRANOIDEA (PYGIDICRANIDAE)
- 3(4). Antennal segments 4-5 transverse, 25 segmented or more PYGIDICRANINAE Verhoeff
- 4(3). Antennal segments 4-6 longer than broad, 20 segmented or less
- 5(6). Femora compressed with sharp longitudinal ridges; male genitalia with parameres armed internally in various ways DIPLATYINAE Verhoeff

- 6(5). Femora not compressed, usually smooth, occasionally with a faint ridge; male genitalia with parameres simple (unarmed)
- 7(8). Body convex, covered with thick characteristic setae and long pubescence; femora occasionally with a faint ridge; pygidium with hind margin projecting; forceps cylindrical..... ECHINOSOMATINAE Burr
- 8(7). Body depressed, glabrous and smooth; femora devoid of any ridge; pygidium vertical with hind margin not projecting; forceps trigonal in basal one third, afterwards depressed PROLABISCINAE Bey-Bienko
- 9(2). Neck forficuloid type, i.e., anterior and posterior cervical sclerites fused and the hind margin of latter joined with anterior margin of prosternum
- 10(29). Pygidium in both sexes vertical with its hind margin not free; forceps partially trigonal near base and moderately depressed afterwards or cylindrical ANISOLABOIDEA
- 11(24). Male genitalia, if virga present, usually not wider at base and without a sinuous inner tube; otherwise denticulate pads present ANISOLABIDIDAE Verhoeff
- 12(13). Body strongly depressed; male forceps strongly curved. female ones elongated PLATYLABIINAE Burr
- 13(12). Body not strongly depressed; weakly or strongly convex; forceps various
- 14(15). Meso-and Metasternum oblong and both with posterior margin convex or tongue shaped..... TITANOLABIDINAE Srivastava
- 15(14). Meso-and Metasternum quadrate, former briefly convex or truncate posteriorly and latter narrowed posteriorly with hind margin truncate
- 16(17). Mesosternum briefly convex posteriorly ANISOLABIDINAE Verhoeff
- 17(16). Mesosternum truncate posteriorly
- 18(21). 1st antennal segment equal or longer than the distance between antennal bases
- 19(20). Mesonotum laterally with a well defined ridge or convexity along its whole length, often obsolete in posterior half..... BRACHYLABIDINAE Burr
- 20(19). Mesonotum without any ridge laterally ANTISOLABIDINAE Steinmann
- 21(18). 1st antennal segment shorter than the distance between antennal bases
- 22(23). Male genitalia with one distal lobe atrophied and virga much reduced ISOLABOIDEAE Brindle
- 23(22). Male genitalia with both distal lobes and virga well developed PARISOLABIDINAE Verhoeff

- 24(11). Male genitalia with distinct virga, dilated at base with a distinct inner sinuous tube LABIDURIDAE Verhoeff
- 25(26). Mesosternum strongly narrowed posteriorly with tip extending up to middle of metasternum ALLOSTETHINAE Burr
- 26(25). Mesosternum posteriorly wider, not strongly narrowed posteriorly
- 27(28). Elytra with a sharp ridge along the costal margin; legs relatively short, posterior femora not longer than pronotum NALINAE Steinmann
- 28(27). Elytra without any sharp ridge along the costal margin; legs longer, posterior femora longer than pronotum LABIDURINAE Burr
- 29(10). Pygidium in both sexes forming a flat process with hind margin free; forceps with branches broad and flat
..... APACHYOIDEA (APACHYIDAE) (APACHYINAE)
- 30(1). Male genitalia with a median basal portion (proparamere) and single distal lobe EUDERMAPTERA (FORFICULOIDEA)
- 31(40). Second tarsal segment simple SPONGIPHORIDAE Burr
- 32(35). Second tarsal segment longer than broad
- 33(34). Hind second tarsal segment, in profile, almost of uniform width, only scarcely narrowed basally and slightly shorter than third, first segment slightly longer than the combined length of last two segment
..... HOMOTAGINAE Srivastava
- 34(33). Hind second tarsal segment, in profile, narrow basally, about half as long as the third, first segment slightly shorter than the combined length of second and third SPONGIPHORINAE Burr
- 35(32). Second tarsal segment broader than long or about as broad as long
- 36(37). Hind tarsi comparatively long & slender, 1st segment over five times longer than broad; elytra smooth, occasionally costal margin with a row of small tubercles, each with a thick setae IRDEXINAE Srivastava
- 37(36). Hind tarsi comparatively short and thick, 1st segment three to four times longer than broad
- 38(39). Body strongly depressed or flattened, head flat; pronotum anteriorly narrowed forming a sort of neck SPARATTINAE Burr
- 39(38). Body weakly depressed or convex; head convex; pronotum gently narrowed but not forming a sort of neck LABIINAE Burr
- 40(31). Second tarsal segment dilated or produced in the form of a narrow lobe below the third segment

- 41(44). Antennae 17-22 segmented; second tarsal segment spiniform, extending below third up to the middle, visible from sides only CHELISOCHIDAE Burr
- 42(43). Elytra along the costal margin with a sharp ridge, often not complete..... CHELISOCELLINAE Steinmann
- 43(42). Elytra along the costal margin without any ridge CHELISOCHINAE Burr
- 44(41). Antennae 12-16 segmented; second tarsal segment lobed, visible from above on either side of third segment FORFICULIDAE Stephens
- 45(48). Antennal joints long and slender, 4th longer than the 3rd or almost equal, both of similar build, i.e., slender
- 46(47). Elytra with a sharp ridge along the costal margin..... COSMIELLINAE Steinmann
- 47(46). Elytra without any ridge along the costal margin OPISTHOCOSMIINAE Verhoeff
- 48(45). Antennal joints shorter and wider, occasionally apical ones long and slender, 4th shorter or almost equal to 3rd but former always stouter
- 49(52). Mesosternum broader than long
- 50(51). Elytra with a sharp ridge along the costal margin..... ALLODAHLIINAE Verhoeff
- 51(50). Elytra without any ridge along the costal margin ANECHURINAE Burr
- 52(49). Mesosternum about as broad as long
- 53(54). Forceps generally curved or elongated, cylindrical, not deplanate at base.... EUDOHRNIINAE Burr
- 54(53). Forceps in most of the species deplanate in basal half or less, afterwards cylindrical or depressed FORFICULINAE Burr

SYSTEMATIC ACCOUNT

Superfamily ANISOLABOIDEA

Anisolaboidea Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22 (name for Carcinophoridae); Steinmann, 1989, *Catalogue of World Dermaptera* : 190 (under Mesodermaptera).

This superfamily is characterised by the shape of pygidium, in both the sexes, vertical with hind margin fused and forceps, trigonal in basal part, afterwards depressed.

Family ANISOLABIDIDAE

Anisolabi (di) dae Verhoeff, 1902, *Sber.Ges.naturf., Freunde Berl.*, **1901** : 9 (Type genus : *Anisolabis* Fieber, 1853); Verhoeff, 1902, *Zool. Anz.*, **25** (665) : 185; Zacher, 1909, *Zool. Jb.*, **30** : 370 (Partim); Sakai, 1982, *Bull. Diato Bunka Univ.* **20** : 12.

Carcinophoridae; Popham, 1965 *Entomologist*, **98** : 132 (Type genus : *Carcinophora* Scudder, 1876); Kapor, 1967, *Agra Univ. J. Res (Sci)*, **16**(1) : 7; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 3; Sakai, 1982, *Bull Diato Bunka Univ.*, **20** : 22; Brindle, 1971, *Ent. scand., Suppl.*, **1** : 215; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17; Steinmann, 1977, *Annals-hist.nat.Mus.natn.hung.*, **69** : 89 (Key to subfamilies and genera); Steinmann, 1989, *Das Tierreich*, **105** : 2 (Revision; key to subfamilies, genera and species).

Anisolabididae Kevan, 1983, *Men. Lyman Ent. Mus.*, **13** : 257 (emendation of Anisolabidae); Brindle, 1987, *Courier Forsch.Inst.Senckenberg*, **93** : 336; Sakai, 1996, *Dermapterorum Cat.*, **31** : 14; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 73.

Size large to very small; body strongly flattened or normal i.e. weakly depressed. Winged or apterous; often elytra abbreviated and wing wanting. Neck forficuloid type, i.e. anterior and posterior cervical sclerites fused and the hind margin of latter joined with anterior margin of prosternum. Forceps short and simple and in males slightly or strongly curved. Male genitalia with paired penis lobes, from each arises distal lobes, sometimes one of them reduced and flexed forward.

Distribution : World wide.

Subfamily PLATYLABIINAE

Palicinae Burr, 1910, *Fauna British India, Dermaptera* : 67 (Type genus—*Palex* Burr, 1910); Burr, 1910, *Trans. R. ent. Soc. Lond.*, **1910** : 162.

Platylabiinae Burr, 1911, *Genera Insect.*, **122** : 43 (Type genus—*Platylabia* Dohrn, 1867); Popham and Brindle, 1966 *Entomologist*, **99** : 245; Sakai, 1970 *Dermapterorum Cat. Prael.*, **1** : 15; Steinmann, 1975, *Acta zool. hung.*, **21** : 204; Steinmann, 1989, *Das Tierreich*, **105** : 6; Steinmann 1989, *World Catalogue Dermaptera* : 192; Srivastava, 1976, *Rec. zool. Surv. India., Occ. pap.*, **2** : 9.

This subfamily is characterised by strongly depressed body; forceps sickle shaped and genitalia with paired penses, both disal lobes well developed, one of them flexed forward, and virga distinct.

Type genus : *Platylabia* Dohrn, 1867.

Distribution : Oriental Region, especially in South East Asia.

Genus *Platylabia* Dohrn

Platylabia Dohrn, 1867, *Stettin. ent. Ztg.*, **28** : 347 (Type-species : *P. major* Dohrn, 1867—Designated by Kirby, 1891).

Labidophora Scudder, 1876, *Proc. Boston Soc. nat. Hist.*, **18** : 297 (New name for *Plytylabia* Dohrn because of its similarity with *Platylabus* Wesmael, 1845).

Palex Burr, 1910, *Fauna British India, Dermaptera* : 68 (Type-species : *Palex sparattoides* Bormans, 1900 = *Platylabia major* Dohrn, 1867).

Body strongly flattened. Head transverse, smooth. Antennae 24-segmented, 1st stout, subclavate, shorter than the distance between antennal bases; 2nd about as long as broad; 3rd long and slender; 4th globular or subcalvate; 5th longer than 4th, subclavate; 6th longer than 5th; shorter or as long as 3rd, remaining gradually increasing in length and thinning. Elytra and wings well developed, latter often abbreviated. Legs normal, hind metatarsus shorter than protarsus, latter almost equal to combined length of meso- and metatarsus. Prosternum about three times longer than broad, not constricted between fore coxae; meso-sternum quadrate hind margin straight and metasternum transverse faintly emarginate in middle posteriorly. Pygidium vertical. Male genitalia with parameres narrow or flattened, distal lobes, paired one of which directed forward; virga present.

Type-species : *Platylabia major* Dohrn, 1867 (Designated by Kirby, 1891, *J. Linn. Soc. (Zool.)* **23** : 518).

Remarks : The genus *Platylabia* was described by Dohrn (1867) with four new species of which first one, *P. major*, is now considered as the type of the genus and all others belong to other genera. The original description of *P. major* is based on a female from Celebes. Subsequently this species was found to occur throughout the Oriental Region. Zacher (1910, fig. 11) for the first time figured the male genitalia of this species which possesses parameres about three times longer than broad, slightly broadened and turned externally near apex and provided with a faint tubercle close to inner apical angle. Distal lobes are provided with a distinct fine tubular virga. Therefore, those specimens which possess similar genitalia and agree with the original description and other subsequent diagnostic characters provided by Dubrony A. de (1879) and Burr (1910) are referred to this species. Two other species have been described by Srivastava (1981) which differ from the type species by the shape of male parameres besides other peculiarities. Unfortunately females of all the three species look almost alike and cannot be satisfactorily placed to a particular species in the absence of males.

Only two species, viz., *P. nathani* Srivastava and *P. brindleyi* Srivastava are known from India and *P. major* (Dohrn), although widely recorded from the Oriental Region, has not been so far reported from India.

Distribution : Oriental Region.

Key to the species (based on males only)

- 1(2). Pronotum with sides straight; parameres narrower, apices obtuse; distal lobes with virga short and curved *P. nathani* Srivastava

- 2(1). Pronotum with sides feebly convex in middle; parameres comparatively broader, anteriorly with a small tubercle near inner apical angle; distal lobes with virga tubular (not curved) *P. brindlei* Srivastava

***Platylabia nathani* Srivastava**

(Figs. 1-3)

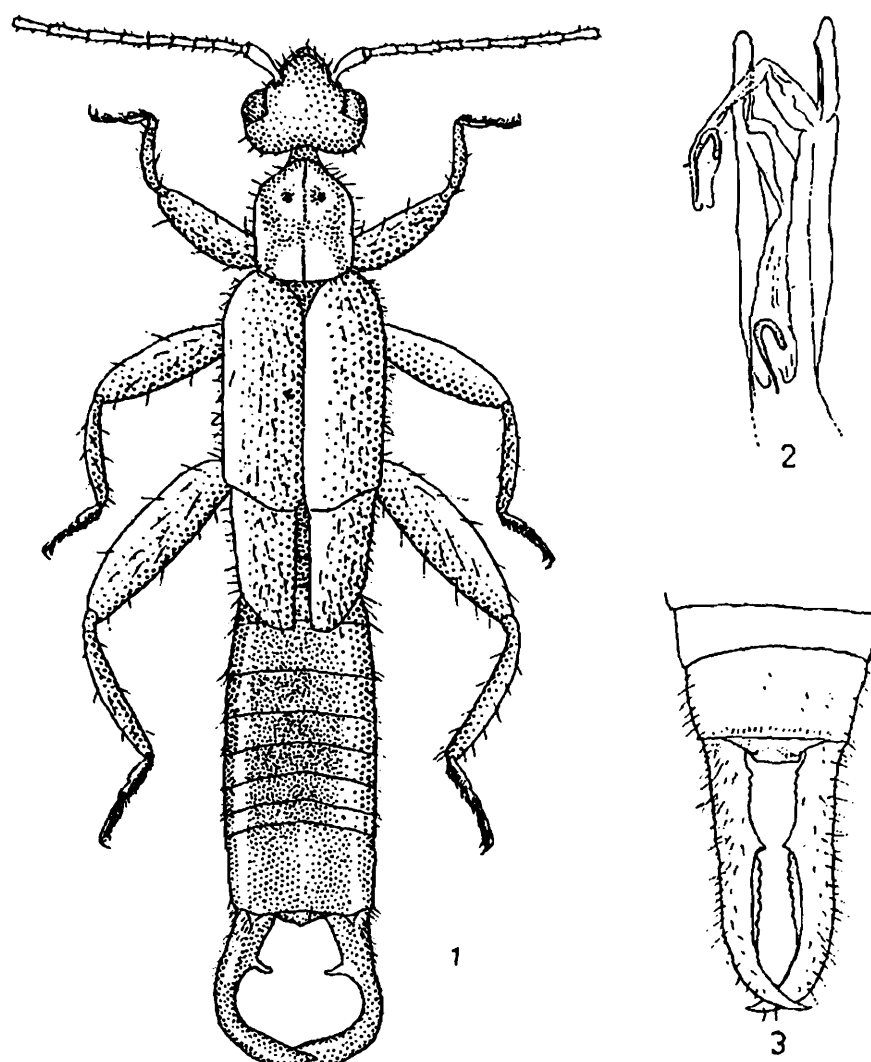
Platylabia major (néc Dohrn) Srivastava, 1970, *Eos, Madr.*, **56** : 325 (Male, Female, India : Anamalai Hills, Cinchona, 3500 ft., May, 1968).

Platylabia nathani Srivastava, 1981, *Bull. zool. Surv. India*, **4** (1) : 106, figs. 6-10 (Male, Female; India : Tamil Nadu, Cinchona, 3500 ft.).

Whole body depressed, finely pubescent. General colour orange, often shaded with black on various body parts; elytra and wings black.

Male : Head triangular, transverse, obscurely punctate, sutures obsolete, hind margin emarginate in middle. Eyes only slightly shorter than the post-ocular area. Antennae partly broken (left antenna missing, on the right side only 14 segments remaining); 1st stout, gently expanded anteriorly, shorter than the distance between the antennal bases and longer than eye; 2nd small, about as long as broad; 3rd long, slender; 4th stout, gently expanded anteriorly; 5th slightly longer than the preceding; 7th equal to 3rd but stouter, beyond this segments gradually thinning and increasing in length distally. Pronotum smooth, longer than broad, anteriorly convex, forming a sort of neck, sides depressed, straight, parallel, hind margin subtruncate, median sulcus distinct; prozona weakly raised and metazona depressed. Legs normal. Elytra well developed, obscurely punctate; a small triangular scutellum present. Wings normal, of same texture as the elytra. Abdomen almost parallel sided, faintly punctate, lateral tubercles on 3rd and 4th tergites obsolete, sides of segments convex. Penultimate sternite broadly rounded posteriorly with a faint emargination in middle. Ultimate tergite transverse, almost smooth, medially depressed, laterally compressed with dorsal border sharp, hind margin almost straight. Pygidium vertical, convex above, transverse, narrowed apically with a faint tubercle in middle. Forceps remote at base, sickle-shaped, apices crossing, pointed, trigonal in basal one third, afterwards depressed, armed internally with a sharp triangular tooth at about middle with its tip bent downwards. Genitalia with parameres narrow, a little over three times longer than broad, almost of uniform width throughout, apex obtuse, distal lobes with a short and curved virga.

Female : Agrees with males in most characters except that the penultimate sternite and ultimate tergite narrowed posteriorly; pygidium vertical, convex above, but concave in middle basally, hind margin somewhat undulate; forceps with branches, depressed, straight, tapering apically, internal margin dorsally forming a sharp serrated flange terminating into a triangular tooth in middle, ventral margin serrated.



Figs. 1-3 : *Platylabia nathani* Srivastava, Holotype Male; 1. Dorsal view; 2. Genitalia; Paratype Female; 3. Ultimate tergite and forceps.

Measurements (in mm)

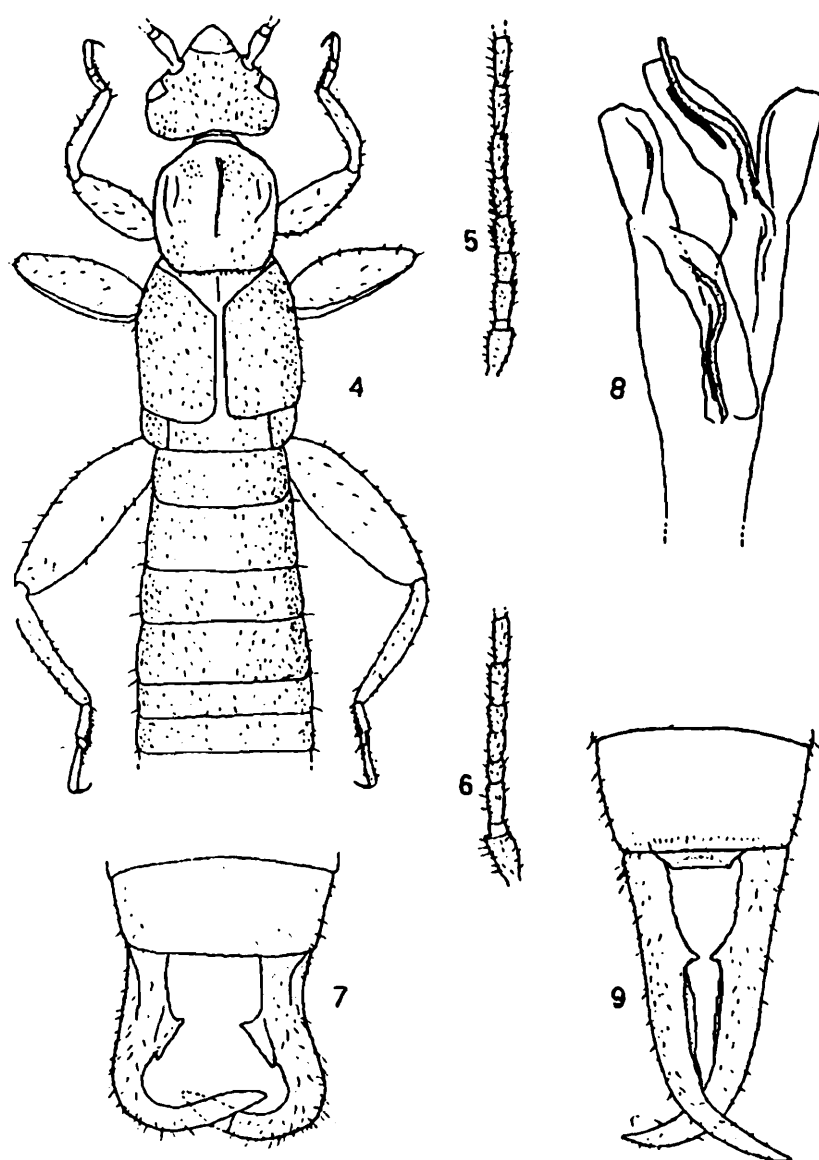
	Male	Female
Length of body	8.4	8.5
Length of forceps	1.4	2.3

Types : Holotype Male (genitalia mounted between two coverslips and pinned with the specimen), Paratype 1 Female, in Z.S.I.

Distribution : Known from type locality only.

***Platylabia brindlei* Srivastava**
(Figs.4-9)

Platylabia brindlei Srivastava, 1981, *Bull. zool. Surv. India*, 4 (1) : 108, Figs. 11-16 (Male, Female; India, Meghalaya Cherapunji nr Mawasmai cave).



Figs. 4-9 : *Platylabia brindlei* Srivastava, Holotype Male; 4. Anterior portion of body; 5 6. A few basal antennal segments of right and left side; 7. Ultimate tergite and forceps; 8. Genitalia; Paratype Female; 9. Ultimate tergite and forceps.

Form depressed, finely pubescent. General body colour brownish black, head, pronotum, elytra and wings black; antennae fuscous brown with one or two preapical segments whitish; legs blackish brown; a few apical tergites and forceps brownish.

Male : Head transverse, smooth, hind margin emarginate, sutures obsolete. Eyes distinctly shorter than the post-ocular length. Antennae 24-segmented or more (appear to be partly broken, only 24 segments, on the left side and 18 segments on the right present); 2nd small, shape of remaining segments similar to preceding species. Pronotum longer than broad, anteriorly convex, sides depressed but convex, hind margin subtruncate, median sulcus distinct; prozona weakly raised and metazona depressed. Elytra normal, meeting along the median line; a triangular scutellum visible. Wings abbreviated, scarcely projecting beyond the elytra as narrow lateral lobes. Legs normal. Abdomen depressed, gradually enlarging from base to apex,

depressed, thickly pubescent, smooth, sides of segments convex. Penultimate sternite broadly rounded with a faint emargination in middle. Ultimate tergite transverse, obscurely punctate, depressed along the median line, sides compressed, hind margin almost straight. Pygidium vertical, strongly transverse, depressed, narrowed posteriorly, hind margin straight. Forceps sickle-shaped, trigonal in basal one third, apices pointed and crossing, internally armed at middle with a sharp, oblique flange, terminated at both ends by sharp tooth. Genitalia with parameres broad, a little over two times longer than broad, a faint tubercle present apically close to inner apical angle; distal lobes with a stout, tubular virga and an additional chitinous rod.

Female : Agrees with male in most characters except that the penultimate sternite and ultimate tergite narrowed posteriorly, latter striate near hind margin; pygidium weakly transverse, vertical; forceps depressed, almost straight, internally armed at middle with a triangular tooth and margin dorsally as well as ventrally serrated.

Measurements (in mm)

	Male	Female
Length of body	9.1	9.9
Length of forceps	1.6	2.7

Types : Holotype Male (genitalia mounted between two coverslips and pinned with the specimens), Paratype 1 Female in Z.S.I.

Remarks : Some variations in the relative length of antennal segments 4th to 7th of both sides have been noted (figs. 5, 6) in the Holotype.

Distribution : Known from type locality only.

Subfamily TITANOLABIDINAE

Titanolabidinae Srivastava, 1963, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **84** : 97.
(Type genus—*Titanolabis* Burr, 1910 = *Homoeolabis* Borelli, 1911).

Remarks : This subfamily can be easily separated from other subfamilies by the shape of sternal plates especially mesosternum being oval and metasternum tongue shaped posteriorly between hind coxae. The above characters are considered of value at supergeneric level in this work.

Sakai (1987, Vol. xx, p. 2266) considers this subfamily similar to Anisolabidiinae on basis of male genitalia but he overlooked the importance of sternal plates as much more stable taxonomic character.

Genus *Titanolabis* Burr

Titanolabis Burr, 1910, *Trans. ent. soc. Lond.*, **1910** : 168 (Type-species : *Forcinella colossea* Dohrn, 1864); Burr, 1911, *Genera Insect.*, **12** : 27; Srivastava, 1982, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **84** : 98.

Homoeolabis Borelli, 1911. *Boll. Musei Zool. Anat. Comp. R. Univ. Torino*, (640) **24** : 1 (Type-species : *Homoeolabis maindroni* Borelli, 1911).

Build very stout, size medium to large. Head globose, frons convex with faint sutures. Antennae stout, 11-segmented, basal segment stout, about as long as the distance between antennal bases; 2nd short, about as long as broad; 3rd long; 4th subclavate, shorter than 3rd; 5th longer than preceding, 6th onwards slightly increasing in length. Elytra may be present as narrow, lateral ovate flaps on mesonotum or absent. Ultimate tergite and forceps almost identical in both sexes. Genitalia with parameres short, somewhat similar to *Anisolabis* Fieber, about four and half times longer than broad and distal lobes about as long or distinctly longer than the proparameres.

Distribution : Oriental and Australian Regions.

***Titanolabis maindroni* (Borelli)**

(Figs. 10-14)

Homoeolabis maindroni Borelli, 1911. *Boll. Musei Zool. Anat. comp. R. Univ. Torino*, (604) **24** : 2 (Male; Pondicherry); Burr, 1911. *Genera Insect.*, **122** : 28, pl. 2, figs. 15, 15a; Burr, 1911, *J. Asiat. Soc. Beng.*, (N.S.), **7** : 778; Burr, 1915, *J.R.micr. Soc.*, **1915** : 531, pl. 10, fig. 1; Borelli, 1912, *Bull. Mus. Hist. nat. Paris*, **18**(4) : 228; Hebard, 1923, *Mem. Dep. Agri. ent. Ser.*, **7** : 202; Brindle, 1971, *Ent. Tdskr.*, **92**(1-2) : 217, figs. 15, 19 (Male genitalia); Srivastava, 1982, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **86** : 98, 99.

Titinolabis maindroni Sakai, 1987, *Dermaterorum Cat.*, **20** : 2269; Srivastava, 1989, *Fauna of Orissa : State Fauna Series*, No. **1** : 156, figs. 17-18 (Male; Orissa).

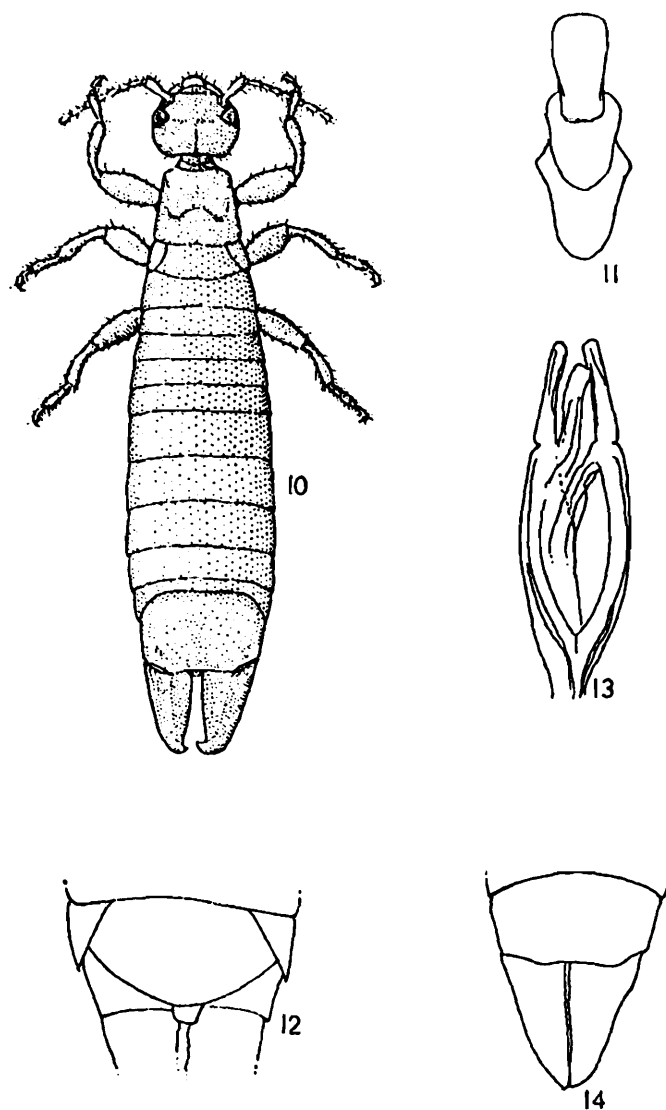
Labidurodes orientalis Ramamurthi, 1968 *Zool. Anz.*, **181** (1-2) : 130, figs. 1-3 (Male, Female; India : Karnataka, Coimbatore)—**syn.n.**

Anisolabis (Anisolabis) orientalis; Sakai, 1987, *Dermapterorum Cat.*, **20** : 2113.

Anisolabis orientalis; Steinmann, 1989, *Das Tierreich*, **105** : 144, figs. 234 & 235.

General colour blackish brown, mouth parts, antennae and legs light yellowish brown.

Male : Head globose, convex above, smooth, sutures fine. Eyes prominent, only slightly shorter than the post-ocular area. Antennae stout, 11-segmented, 1st stout, narrowed basally, about as long as the distance between antennal bases; 2nd short, about as long as broad; 3rd long and slender; 4th stouter, subclavate and shorter than the preceding; 5th stout, longer than the preceding; 6th onwards gradually thinning and increasing in length, each segment narrowed basally. Pronotum longer than broad, widened posteriorly, all margins straight, sometimes hind margin subtruncate; prozona tumid, differentiated from weakly convex metazona by a transverse depression, median sulcus well marked on prozona and faint on metazona. Mesonotum transverse, smooth, hind margin briefly rounded, elytra present as narrow, ovate, lateral flaps. Metanotum transverse, smooth, hind margin broadly & faintly sinuate. Prosternum longer than broad, gently constricted laterally in posterior one third, hind margin



Figs. 10-14 : *Titanolabis maindroni* (Borelli), Male; 10. Dorsal view; 11. Sternal plates; 12. Penultimate sternite with base of forceps; 13. Genitalia; Female; 14. Ultimate tergite and forceps.

truncate. Mesosternum about as long as broad, broadest near base, narrowed apically with hind margin convex and metasternum oval, comparatively broader in basal half but produced as a narrow tongue shaped lobe between hind coxae. Legs short and stout. Abdomen spindle shaped, finely punctulated, convex, sides of segments 6-9 obtuse angled posteriorly and finely tuberculated. Penultimate sternite smooth, transverse, posterior margin broadly rounded but obtusely produced in middle. Ultimate tergite transverse, moderately convex above, gently depressed posteriorly in middle and the area above the bases of forceps striated, sides straight, hind margin between the branches of forceps truncate and laterally oblique. Forceps stout, subcontiguous, trigonal at base above, afterwards depressed, tapering apically, almost straight in basal half, afterwards gently incurved with apices hooked, crossing or touching and turned upwards, inner margin finely serrated. Genitalia with parameres narrow, about one third as broad as long; tip obtuse; distal lobes with a fine virga.

Female : Agrees with males in most characters except that the penultimate sternite narrowed posteriorly.

Measurements : (in mm)

	Male	Female
Length of body	15.0–21.0	12.1–20.0
Length of forceps	2.0–2.5	1.7–3.4

Types : Holotype male of *Homoeolabis maidroni* Borelli, 1911 at MIZT.

Holotype Male, Allotype Female and Paratypes 1 Male and 1 female of *Labidurodes orientalis* Ramamurthi, 1968 stated to be in the authors collection.

Distribution : INDIA : Orissa, Karnataka, Tamilnadu, Pondicherry and Kerala.

Also known from Sri Lanka.

Remarks : This species appears to be well distributed in Peninsular India. Both sexes are remarkably similar in appearance and the globose head is strikingly different from other Anisolabids.

Labidurodes orientalis Ramanurthi, agrees in most of the external features and male genitalia with this species and is considered here as a synonym.

Subfamily ANISOLABIDINAE

Anisolabi (di) dae Verhoeff, 1902, *Sber. Ges. naturf. Frunde Berl.*, **1902** : 9 (partim); Zacher, 1911, *Zool.Jb.*, **30** : 370 (partim).

Psalinae Burr, 1909, *Dt. ent. z.*, 1909 : 325 (Type genus : *Psalis* Serville, 1831; Burr, 1911, *Genera Insect.*, **122** : 7 (under Labiduridae); Bey-Bienko, 1936, *Fauna de L'URSS, Dermaptera* : 85 (under Labiduridae); Hincks 1949, *Acta zool. Lillioana*, **7** : 628 (under Labiduridae).

Anisolabinae Zacher, 1911, *Zool. Jb.*, **30** : 370.

Landicinae Burr, 1915, *J.R.micr. Soc.*, **1915** : 445 (Type genus : *Landex* Burr, 1915); Boeseman, *Zool. Verh., Leiden*, **21** : 46.

Psalidae Burr, 1915, *J.R. micr. Soc.*, **1915** : 522.

Carcinophorinae Hincks, 1954, *Ark. zool.*, **39A** : 4 (Type-genus : *Carcinophora* Scudder, 1876); Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 22; Brindle, 1971, *Ent. scand., Suppl.*, **1** : 225; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 20; Steinmann, 1977, *Annls. hist.-nat. Mus. natn. hung.*, **69** : 90 (Key to genera); Steinmann, 1989, *Das Tierreich*, **105** : 15 (Revision).

Anisolabidinae, Sakai, 1987, *Dermapterorum Cat.*, **19-20** : 1642; Srivastava, 1999, *Rec. zool. Surv. India*, **97(1)** : 76.

Build stout. Antennae multisegmented, generally having 15 to 22 segments. Prosternum longer than broad; metasternum quadrate with hind margin briefly convex and metasternum transverse, narrowed posteriorly with hind margin truncate. Elytra and wings well developed, abbreviated or wanting. Legs short and stout. Forceps

short, stout and trigonal in basal half, in males, generally incurved in apical half and in females, simple and straight. Male genitalia with proparameres fused at base and separated apically; left distal lobe generally short, directed apically and right distal lobe elongated, directed basally, often chitinous pads with fine teeth present; virga may be discernible or absent.

Type genus : *Anisolabis* Fieber, 1853.

Distribution : All over the world but more common in tropical and subtropical parts.

Key to the genera (based on males)

(Partly modified after Srivastava 1999)

- 1(2). Parameres long, over ten times longer than broad, narrow, sometimes broader at base EPILANDEX Hebard
- 2(1). Parameres ten times or less longer than broad
- 3(4). Parameres armed internally at base or middle with a tooth.....
..... ABOROLABIS Srivastava
- 4(3). Parameres unarmed internally
- 5(12). Parameres about as long as broad to two and half times longer than broad, generally broad and flattened
- 6(7). Parameres about as long as broad or slightly longer than broad and flattened
..... EUBORELLIA Burr
- 7(6). Parameres about one and half to two and half times longer than broad, usually flattened and broad
- 8(11). Parameres about one and half times longer than broad, broadened in middle, narrowed apically
- 9(10). Parameres somewhat square or sometimes with inner margin oblique, narrowed towards apex forming a sort of snout, external apical angle projecting or spiniform MONGOLABIS Zacher
- 10(9). Parameres oval or squarish, narrowed apically but not forming a snout, tip may be pointed or obtuse, external margin forming a continuous arch or semicircular ANISOLABELLA Zacher
- 11(8). Parameres about two and half times longer than broad, almost of uniform width throughout GONOLABIS Burr
- 12(5). Parameres three to seven times longer than broad, usually narrower, feebly broadened in middle with tip obtuse
- 13(14). Parameres three times longer than broad or slightly less, broadened at base externally with tip acuminate APOLABIS Burr

- 14(13). Parameres more than four to seven times longer than broad, often slightly broadened in middle with tip obtuse ANISOLABIS Fieber

Genus *Epilandex* Hebard

Epilandex Hebard, 1927, *Proc. Acad. nat. Philad.*, **27** : 26; (Type species : *Landex burri*, Borelli, 1921); Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 348; Hincks, 1954, *Verh. naturf. Ges. Basel*, **65**(1) : 12; Ramamurthi, 1963, *Ann. Mag. nat. Hist.*, (13) **6** : 672; Ramamurthi, 1967, *Ent. Meddr*, **35** : 234 (Key to species); Popham and Brindle, 1966, *Entomologist*, **99** : 276; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 13; Brindle, 1970, *Pacif. Insects*, **12**(3) : 653 (revision); Brindle, 1976, *Ent. Mitt. Zool. St. Inst. zool. Mus. Hamb.*, **4**(8) : 400; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 27; Srivastava, 1976, *Pacif. Insects*, **17**(1) : 104 (revision, key to species); Steinmann, 1977, *Annals hist.-nat. Mus. natn. hung.*, **69** : 90; Steinmann, 1978, *Dt. ent. Z.*, **25** : 81; Steinmann, 1979, *Folia ent. hung.*, **32** : 156 (key to species); Steinmann, 1984, *Ent. Abh. st. Mus. Tierk. Dresden*, **48**(7) : 65; Steinmann, 1989, *Das Tierreich*, **105** : 17 (revision, Key to species); Steinmann 1989, *World Catalogue of Dermaptera* : 257; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 30; Sakai, 1987, *Dermapterorum Cat.* **19-20** : 224.

Size small, build stout. Antennae 17-segmented; 1st segment about as long as the distance between antennal bases; 2 short, about as long as broad; 3rd long & cylindrical; 4th & 5th subconical, almost equal or a trifle longer than 4th but both shorter than 3rd; 6th onwards segments gradually increasing in length distally but each one narrowed at base and expanded apically. Elytra and wings well developed but wings sometimes wanting. Prosternum longer than broad; mesoternum quadrate, convex posteriorly; metasternum transverse, narrowed posteriorly between hind coxae with hind margin truncate. Male genitalia with parameres more than 10 times longer than its width, narrowed apically with tip acuminate often recurved; distal lobes well developed, virga tubular, at base with accessory chitinous plates.

Type species : *Landex burri* Borelli, 1921.

Distribution : Oriental and Australian Regions.

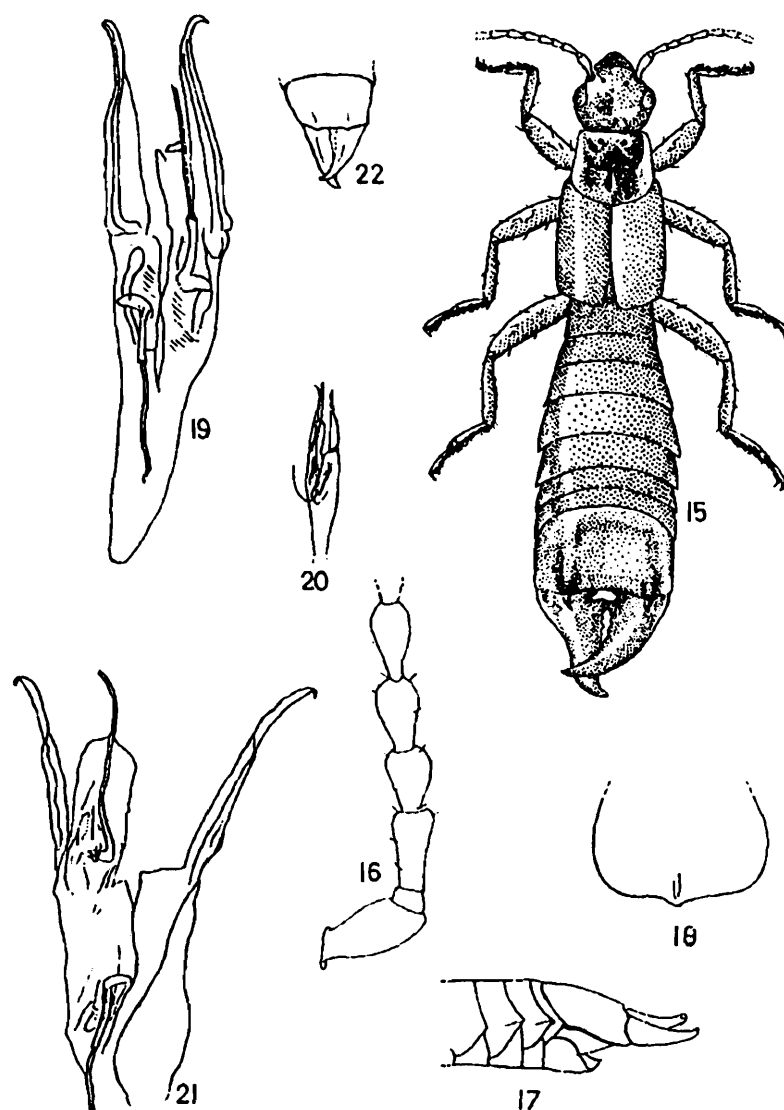
Remarks : The type Female of *Labidura femoralis* Dohrn, 1863 from Sri Lanka preserved at IZAP was examined. On the basis of antennal segments it can be said with certainty that it is a member of *Euborellia* Burr, 1910 and distinct from the females of *Epilandex burri* (Borelli, 1921).

Epilandex burri (Borelli)
(Figs. 15-22)

Labidura femoralis (pars); Dubrony (néc Dohrn), 1879, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **14** : 353, fig (1 male; Australia : Somerset)

Landex burri Borelli, 1921, *Bull. Mus. Hist. nat. Paris*, **27** : 79 (Male, Female; Bangkok, Siam); Borelli, 1926, *Res. biologicae*, **1** : 65.

Epilandex burri; Hebard, 1927, *Proc. Acad. nat. Sci. Philad.*, **79** : 27; Borelli, 1932, *J. Fed. Malay St. Mus.*, **17** (1) : 181; Boeseman, 1954, *Zool. Verh., Leiden*, **21** : 46 (in family Landicinae); Ramamurthi, 1963, *Ann. Mag. nat. Hist.*, (13) **6** : 672; Ramamurthi, 1968,



Figs. 15-22 : *Epilandex burri* (Borelli), Male; 15. Dorsal view; 16. A few basal antennal segments; 17. Sides of abdominal segments with forceps; 18. Hind portion of penultimate sternite; 19-21. Genitalia; (fig. 20. After Steinmann, 1979, showing genitalia of *Epilandex bazyluki* Steinmann); Female; 22. Ultimate tergite and forceps.

Zool. Anz. **181** : 131; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16** (1) : 13; Kapoor, 1969, *Entomologist*, **102** : 177; Brindle, 1971, *Ent. scand. Suppl.*, **1** : 218, fig. 17 (Male genitalia), 24 (forceps); Brindle, 1977, *Revue suisse zool.*, **84** (2) : 455; Srivastava, 1976, *Rec. zool. Surv. India., Occ. pap.*, **2** : 27; Srivastava, 1982, *Bull. Inst. r. Sci. nat. Belg.*, **54** (11) : 2, figs. 1-5; Srivastava, 1987, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **84** : 485, figs. 4-5 (1 male Australia : Somerset) : Steinmann, 1979, *Folia ent. hung.*, **32** : 156; Steinmann, 1989, *Das Tierreich*, **105** : 19, 23; Steinmann, 1989, *World Catalogue of Dermaptera* : 258.

Epilandex undulata Ramamurthi, 1963, *Ann. Mag. nat. Hist.*, (13) **6** : 672, figs. 1-3 (Male; India, Tamil Nadu, Coimbatore); Srivastava, 1982, *Bull. Inst. r. Sci. nat. Belg.*, **54** (11) : 2 (proposed as synonym).

Epilandex bazyluki Steinmann, 1979, *Folia ent. hung.*, **32** : 155, figs. 15-17 (Male; Sri Lanka)—**Syn. n.**

General colour blackish brown, basal portion of 1st and 3rd antennal segments and mouth parts yellow; legs yellow with femora in most part brownish; head, pronotum and elytra blackish brown; abdominal tergites light brown along the posterior margin, sometimes, in females, laterally above with a patch of yellow on tergites; forceps somewhat reddish brown.

Male : Head slightly longer than broad, frons, convex, sutures fine but distinct, hind margin feely emarginate in middle. Eyes prominent but shorter than post-ocular length. Antennae typical of the genus. Pronotum about as long as broad, gently widened posteriorly with hind margin broadly rounded, sides straight, prozona raised and well differentiated from weakly raised metazona. Elytra well developed, one and half times longer than the pronotum, coriaceous, meeting along the median line, hind margin obliquely truncate. Legs long and slender, hind femora stout; tibiae compressed, in apical half grooved above; tarsi with 1st segment slender, almost equal to the combined length of 2nd and 3rd, claw without an arolium, underside clad with thick and fine pubescence. Abdomen gradually enlarging posteriorly up to 9th tergite, afterwards narrowing, tergites convex, obscurely reticulated, sides of segments 7th to 9th acutely pointed posteriorly, with or without an oblique carina. Penultimate sternite transverse with hind margin convex and produced in middle with a minute point having a faint ridge. Ultimate tergite transverse, smooth, moderately convex above in basal half and sloping backwards, laterally above with a convexity, gently narrowed backwards, hind margin in middle feebly concave, laterally oblique. Forceps stout, almost straight in basal half, afterwards gradually tapering and incurved with apices hooked, internally with one or two large rounded teeth, followed by fine serrations, branches in basal half trigonal, afterwards depressed. Genitalia with parameres more than 10 times longer than broad, strongly narrowed apically with tip recurved; virga distinct, at base accessory chitinous plates present.

Female : Agrees with male in most characters except that sides of abdominal segments 7th to 9th acute posteriorly but without carina; penultimate sternite obtuse in middle posteriorly; ultimate tergite strongly narrowed backwards and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	7.5–10.5	7.3–8.2
Length of forceps	1.5	1.2–1.3

Types : 1 Male, 1 Female of *Landex burri* Borelli, 1921 at MNHP.

Holotype Male of *Epilandex undulata* Ramamurthi, 1963 with the author.

Holotype Male of *Epilandex bazyluki* Steinmann, 1977 at IZAP.

Distribution : India (Tamil Nadu), Sri Lanka and Thailand. Also reported from Australia (Srivastava, 1987).

Remarks : Srivastava (1982b) has recorded some variation regarding the absence of oblique carina on the sides of abdominal segments, in males, from India (Tamil Nadu) and the shape of parameres.

In view of the above *Epilandex bazyluki* Steinmann, described, on a macropterous male, from Sri Lanka is considered here as a synonym.

This species can be easily separated from the members of the genus *Euborellia* by the shape conical or subconical antennal segments and characteristic external build, especially sides of abdominal segments 7th to 9th.

It is represented by 2 Males, 1 Female from India : Tamil Nadu, Kodai Kanal dist., Perumalmalai, ca 5500 ft., in the collections of the Zoological Survey of India, Calcutta.

Genus : *Aborolabis* Srivastava

Aborolabis Srivastava, 1969 *Entomologist's Rec. J. Var.*, **18** : 246, fig. 1; (Type species : *Anisolabis pervicina* Burr, 1913); Srivastava, 1976, *J. zool. Soc. India*, **26** (1 & 2) (1974) : 57; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 20; Srivastava, 1993, *Rec. zool. Surv. India*, **90** (1-4) (1992) : 23; Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal*, Pt. 4 : 387; Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. 3 : 306; Steinmann, 1977, *Annls hist.-nat. Mus. natn. hung.*, **69** : 94; Steinmann, 1978, *Fol. ent. hung.*, **31** (1) : 181; Steinmann, 1979, *Eos, Madr.*, **53** : 223; Steinmann, 1989, *Das Tierreich*, **105** : 155; Sasaki, 1982, *Bull. Daito Bunka Univ.*, **20** : 29; Brindle, 1987, *Courier Forsch. Inst.-Senckenberg*, **93** : 337.

Male : Size medium, surface pilose. Head triangular, sutures distinct, hind margin feebly sinuate in middle. Antennae 15 to 19 segmented, 1st segment equal to combined length of 2nd and 3rd; 3rd long and cylindrical; 4th shorter than preceding, 6th onwards segments increasing in length. Eyes shorter than post-ocular length. Pronotum quadrate, gently widened posteriorly with hind margin truncate or briefly rounded. Mesosternum with hind margin briefly rounded and metasternum truncate. Apterous, sometimes elytra may be abbreviated and wings obsolete or both well developed. Abdomen dilated in middle or gently so, sides of segments 6th to 9th acute angled posteriorly, ecarinate or carinate, sometimes with a linear convexity on certain segments. Penultimate sternite with hind margin truncate, faintly sinuate in middle or briefly rounded. Forceps strongly or gently incurved in apical half. Genitalia with parameres three times longer than broad, gently dilated at about middle, slightly narrowed apically, armed at base with a tooth of variable size, often as large as the paramere itself; distal lobes often provided with longitudinal rows of chitinous teeth.

Female : Agrees with male in most characters except that sides of abdominal segments convex posteriorly; penultimate sternite triangular with posterior margin obtuse in middle and forceps with branches simple and straight.

Type species : *Anisolabis pervicina* Burr, 1913.

Distribution : Oriental (Himalayas and other mountains of North East India) and Palaerctic (Iberian Peninsula and Palaeartic North Africa) Regions.

Remarks : The Genus *Aborolabis* was erected by Srivastava (1969a) with *A. pervicina* (Burr) as its type-species. It is mainly characterised by the presence of a tooth at the base of parameres, in males.

Steinmann (1979), for the first time, presented a revision of the genus and recorded six species from India, South Europe and North Africa.

At present, from the Indian subcontinent six species are known which are distributed in the mountains of North-Western to North-Eastern India, Nepal and Bhutan.

Key to the species (based on males)

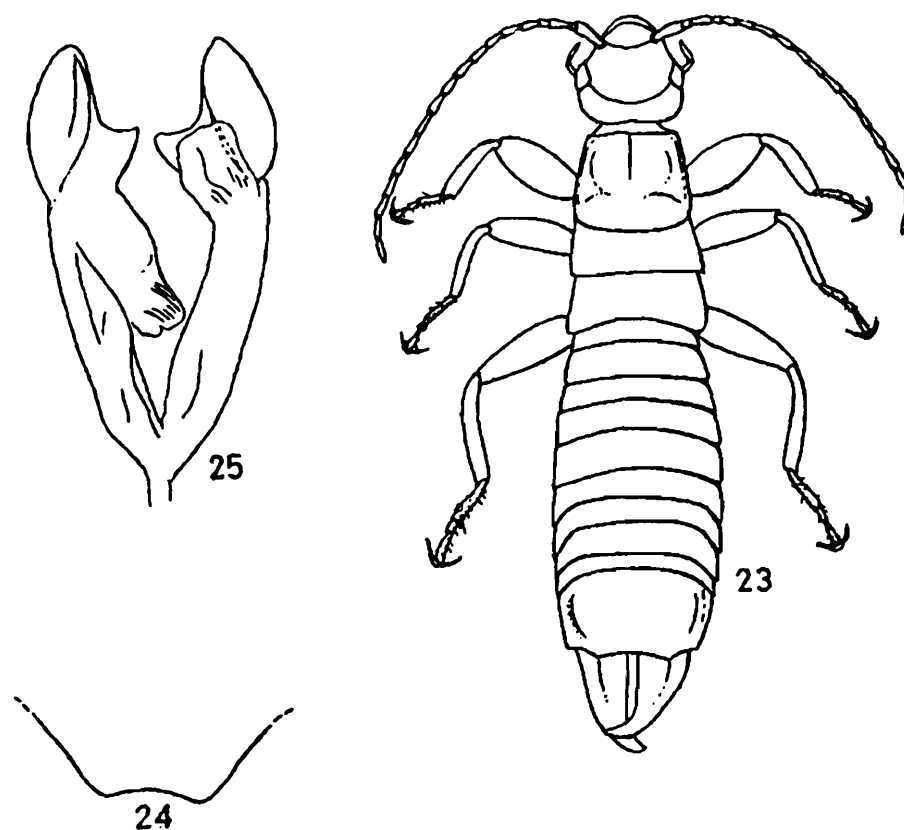
- 1(2). Penultimate sternite broadly emarginate posteriorly
..... ***A. emarginata*** Srivastava
- 2(1). Penultimate sternite entire or with a faint emargination in middle
- 3(6). Parameres longer than its inner basal tooth
- 4(5). Sides of abdominal-segments ecarinate; parameres armed internally at base with a minute tooth ***A. meghalayensis*** Srivastava
- 5(4). Sides of abdominal segments ecarinate (or occasionally with a linear convexity on 8th segment only); parameres armed internally at base with a larger tooth ***A. nepalensis*** (Brindle)
- 6(3). Parameres about as long as its inner basal tooth
- 7(8). Sides of abdominal segments ecarinate ***A. kalaktangensis*** Srivastava
- 8(7). Sides of certain abdominal segments carinate
- 9(10). Elytra and wings well developed or former abbreviated and latter absent; sides of abdominal segments 6th to 9th obtuse angled posteriorly, with a linear convexity ***A. sikkimensis*** Srivastava
- 10(9). Apterous; sides of abdominal segments 6th to 9th acute angled posteriorly, with a sharp or faint carina ***A. pervicina*** (Burr)

Aborolabis emarginata Srivastava

(Figs. 23–25)

Aborolabis emarginata Srivastava, 1976, *J. zool. Soc. India*, **26** (1&2) : (1974) : 59, figs. IA-C (Male, Female; India, Arunachal Pradesh, Kameng Dist., Norgum River bank below Bitselling Village and Shergaon); Srivastava, 1993, *Rec. zool. Surv. India*, **90** (1–4) (1992) : 24, figs. 1–3; Srivastava, 1995 *State Fauna Series 4 : Fauna of Meghalaya*, Pl. 3 : 306, figs. 32–33; Sakai, 1982, *Bull. Daito Bunka Univ.* **20** : 29; Steinmann, 1989, *Das Tierreich* **105** : 157; Steinmann, 1989, *World Catalogue of Dermaptera* : 201.

General colour blackish brown; antennae with three basal and one or two ante-apical segments yellow. Pronotum yellow on sides; legs yellow but femora banded with brown in middle and forceps blackish apically.



Figs. 23-25 : *Aborolabis emarginata* Srivastava; Holotype Male; 23. Dorsal view; 24. Hind portion of penultimate sternite; 25. Genitalia.

Male : Head as long as broad, frons tumid and posterior margin truncate. Eyes shorter than the post-ocular length. Antennae 16-segmented or more, 1st gently expanded apically, stout, slightly shorter than 2nd to 4th together; 2nd small; 3rd long and slender; 4th and 5th subclavate and equal, remaining gradually increasing in length distally, each segment narrowed at base, slightly expanded apically. Pronotum slightly expanded posteriorly, hind margin subtruncate, laterally a little reflexed, median sulcus faint; pro- and metazona little differentiated. Elytra and wings wanting. Legs typical of the genus, femora stout. Abdomen convex, finely punctate, narrowed basally, sides of segments 6th to 9th acute angled posteriorly, carina present on 7th and 8th only. Penultimate sternite with posterior margin broadly emarginate. Ultimate tergite transverse, sparsely punctulate, gently narrowed posteriorly, median sulcus short, hind margin feebly emarginate in middle. Forceps with branches sub-contiguous, tapering apically, trigonal in basal one third, afterwards somewhat depressed, weakly asymmetrical, left branch almost straight, right branch more curved and crossing over the left, internal margin crenulate. Genitalia with parameres broad, basal tooth shorter than the paramere.

Female : Agrees with male but sides of abdominal segments posteriorly convex and ecarinate; penultimate sternite obtuse posteriorly and forceps simple and straight with apices gently incurved.

Measurements : (in mm)

	Male	Female
Length of body	11.25–11.7	9.25–12.9
Length of forceps	1.8–2.0	1.8–2.0

Types : Holotype Male, Allotype Female in Z.S.I.

Distribution : India (Arunachal Pradesh and Meghalaya).

Remarks : This species differs from the *A. meghalayaensis* Srivastava, in having the penultimate sternite distinctly emarginate posteriorly and the parameres greatly dilated in middle with inner basal tooth comparatively larger.

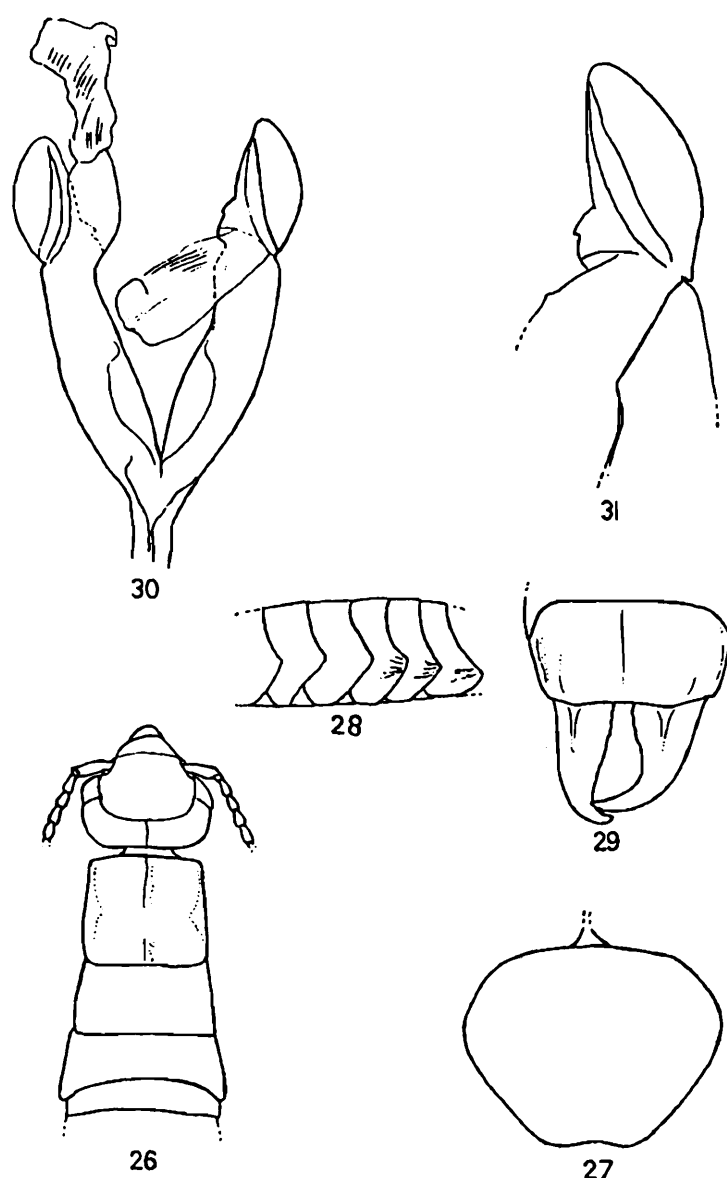
***Aborolabis meghalayaensis* Srivastava**
(Figs. 26–31)

Aborolabis meghalayaensis, 1993, *Rec. zool. Surv. India*, **90** (1–4) (1992) : 25, figs. 4–9 (Male, Female; India : Meghalaya); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. 3 : 307, figs. 34–35.

General colour shining dark brownis black with traces of red on some tergites in middle; mouth parts, a few basal antennal segments, sides of pronotum and legs yellowish but femora banded with black in middle.

Male : Head about as long as broad, smooth, sutures finely marked, hind margin feebly emarginate in middle. Eyes shorter than post-ocular length. Antennae–12 segmented or more (partly damaged), basal segment about as long as the distance between antennal bases; 2nd small; 3rd long, cylindrical, about as long as the combined length of 4th and 5th which are subconical, remaining gradually increasing in length distally and each narrowed basally. Pronotum smooth, as long as broad, all margins straight, sides gently reflexed in middle, widened posteriorly with angles rounded, median sulcus faintly marked; pro- and metazona little differentiated. Legs normal. Meso- and metanotum smooth, transverse, latter broadly emarginate posteriorly. Abdomen moderately convex, punctate, punctation slightly faint in middle of tergites, gradually widening posteriorly, sides of segments 5th to 9th rugosely striate. Penultimate sternite punctate, triangular, scarcely emarginate in middle posteriorly; manubrium three times longer than the sternite with apex dilated. Ultimate tergite transverse, sparsely punctate, sloping backwards, median sulcus distinct, laterally an oblique carina present and more strongly punctate. Forceps remote at base, triangular in basal one third, afterwards depressed, tapering, in apical third gently curved with apices hooked, internal margin finely serrated. Genitalia as seen in figs. 30 and 31.

Female : Agrees with males in most characters except that sides of abdominal segments obtusely convex; penultimate sternite triangular with hind margin entire; ultimate tergite comparatively narrowed posteriorly and forceps with branches subcontiguous and straight.



Figs. 26-31 : *Aborolabis meghalayaensis* Srivastava, Holotype Male; 26. Anterior portion of body; 27. Penultimate sternite; 28. Sides of abdominal segments; 29. Ultimate tergite and forceps; 30. Genitalia; 31. Paramere enlarged.

Measurements : (in mm)

	Male	Female
Length of body	13.1	14.5
Length of forceps	2.1	2.7

Types : Holotype Male, Paratype 1 Female deposited in Z.S.I.

Distribution : India : Meghalaya (East Khasi Hills dist.; Cherrapunji, 1300m); known from the type locality.

Remarks : This species comes close to *Aborolabis nepalensis* (Brindle) in having the sides of abdominal segments ecarinate but differs in having the pronotum about

as long as broad (*vs* transverse in *A. nepalensis*); sides of segments 5th to 9th obtuse angled (*vs* 7th to 9th acute angled) and parameres armed at base with a minute tooth (*vs* armed with a large tooth).

***Aborolabis nepalensis* (Brindle)**

(Figs. 32–35)

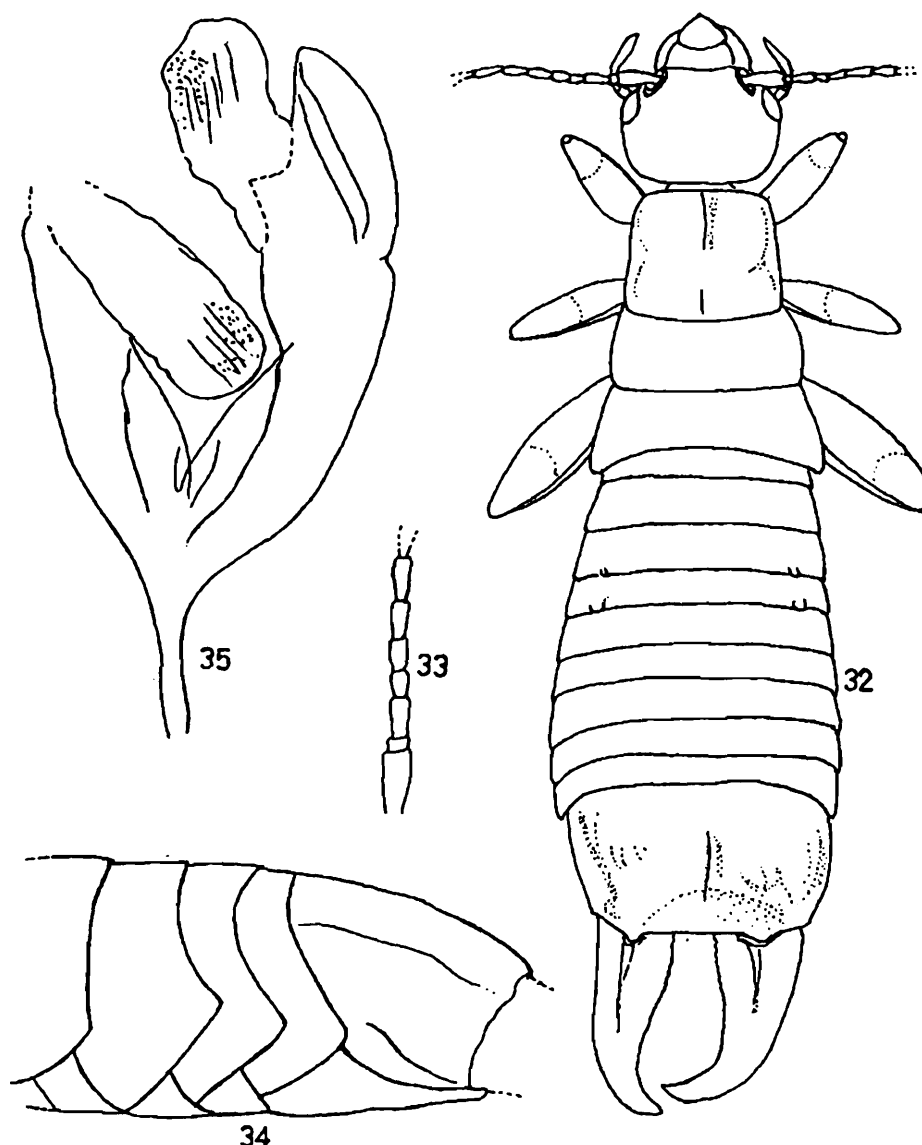
Anisolabis nepalensis Brindle, 1974, *Senckenbergiana biol.*, **55** (1/3) : 148, fig. 4 (Male, Female; Nepal).

Aborolabis nepalensis; Steinmann, 1979, *Eos, Madr.*, **5** : 156; Steinmann, 1989, *World Catalogue of Dermaptera* : 202; Brindle, 1983, *Senckenbergiana biol.*, **63** (1982) : 9; Sakai, 1987, *Dermapterorum Cat.*, **19–20** : 2171; Srivastava, 1990, *Rec. zool. Surv. India*, **87**(1) : 31 (Male, Female; Nepal : Aghore, 1050 m); Srivastava, 1993, *Rec. zool. Surv. India*, **90** (1–4) (1992) : **27**, figs. 10–13.

General colour dark brownish black; antennae with one or two pre-apical segments yellow, apices ringed with brownish black; legs yellow, femora dark brownish black in basal two thirds.

Male : Head smooth, transverse, scarcely emarginate in middle posteriorly, frons convex, sutures fine but visible. Antennae 17-segmented or more (since apical ones tend to break off easily), 1st basal segment, shorter than the distance between antennal bases; 2nd short, transverse; 3rd cylindrical, a little over 2 times longer than broad; 4th slightly longer than broad; 5th slightly longer than 4th but shorter than 3rd; 6th about as long as 3rd, remaining gradually increasing in length distally, short pubescence present on all segments except basal two segments. Eyes shorter than the post-ocular length. Pronotum transverse, gently widened posteriorly with margin subtruncate, lateral margin straight, gently reflexed, median sulcus faintly marked; pro- and metazona little differentiated. Mesonotum straight and metanotum emarginate posteriorly. Legs short, femora glabrous but with sparse setae, tibiae with relatively long yellow hairs ventrally and towards apices; tarsi with ventral hairs but on basal segment ventrally with a double row of thick yellow hairs. Abdomen broad, moderately convex, lateral tubercles on 3rd and 4th tergites present, gradually enlarging posteriorly up to 9th tergite, finely punctulate, sides of 6th segment obtuse angled posteriorly and obscurely punctulate and segments 7th to 9th acute angled posteriorly, rugosely striate but without carina. Penultimate sternite broadly triangular, hind margin in middle subtruncate or scarcely emarginate. Ultimate tergite transverse, longitudinal stripes of smooth and punctulated areas alternating, convex above in apical half, sloping backwards, on sides oblique carina present, hind margin faintly emarginate in middle, laterally above the bases of forceps oblique. Forceps remote at base, trigonal above in basal one third, afterwards depressed, tapering apically, apices gently hooked, asymmetrical, internal margin crenulated. Genitalia with parameres broad, at base with a small triangular tooth, each paramere with an oblique, dark and membranous fold in middle.

Female : Agrees with male in most characters except that sides of abdominal segments not rugose; ultimate tergite narrowed posteriorly; penultimate sternite triangular, obtuse posteriorly and forceps simple and straight.



Figs. 32-35 : *Aborolabis nepalensis* (Brindle), Male; 32. Dorsal view; 33. A few basal antennal segments; 34. Sides of abdominal segments; 35. Genitalia (one paramere missing).

Measurements : (in mm)

	Male	Female
Length of body	12.0–13.0	12.0
Length of forceps	3.0–3.1	2.0

Types : Holotype Male, Allotype Female and Paratypes 2 Females in SMF and Paratypes 1 Male, 1 Female in MM.

Distribution : Nepal.

Remarks : The sides of abdominal segments 7th to 9th, in Males, are generally acute angled posteriorly and rugosely striate. Sometimes a lineal convexity (not carina) is present. However, in 1 Male from Nepal, Aghore (Srivastava, 1990) sides of abdominal segments are smooth and without any convexity.

This species is externally close to *Aborolabis meghalayensis* Srivastava, but differ by shape and texture of sides of abdominal segments and the internal basal tooth of paramere, in Males.

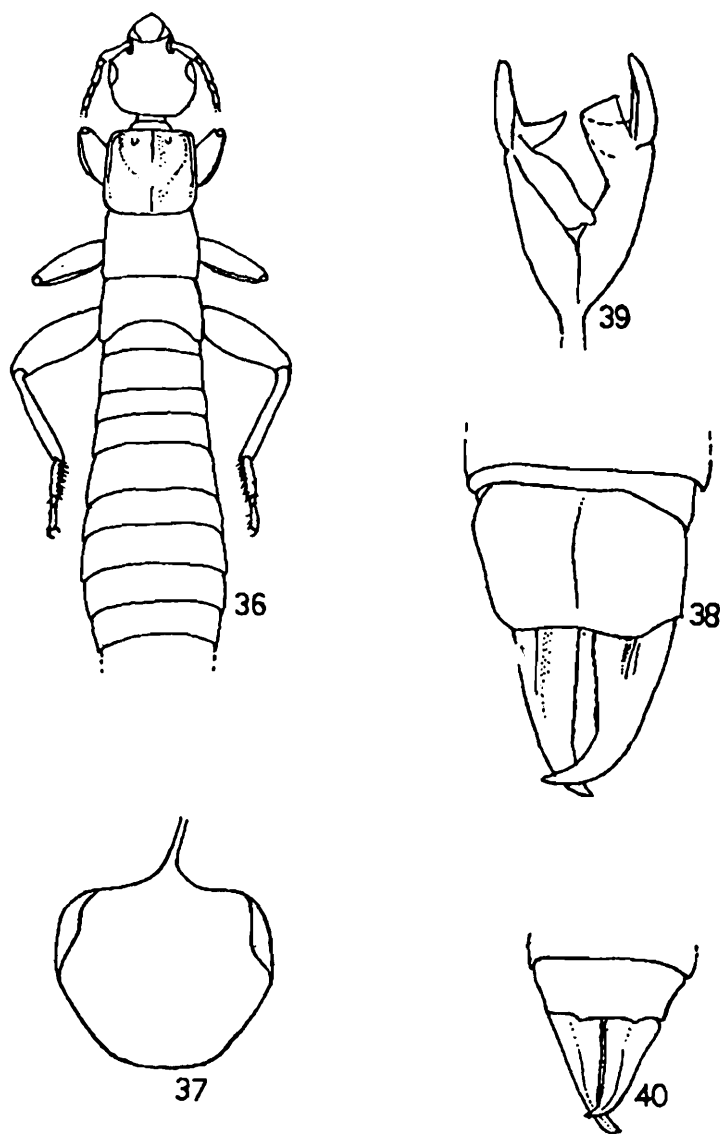
***Aborolabis kalaktangensis* Srivastava**
(Figs. 36–40)

Aborolabis kalaktangensis Srivastava, 1972. *Rec. zool. Surv. India*, **66** (1–4) : 134, figs. 1, C-E (Male, Female; India : Arunachal Pradesh, Kameng Dist., Kalaktang Village); Srivastava, 1976, *Rec. zool. Surv. India. Occ. pap.*, **2** : 20; Srivastava, 1976, *J. zool. Soc. India*, **26** (1 & 2) (1974) : 59; Srivastava, 1993, *Rec. zool. Surv. India*, **90** (1–4) (1992) : 33, figs. 27–29 (Male, Female; Arunachal Pradesh and Sikkim). Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, pt. 3 : 307, figs. 36–37; Steinmann, 1979, *Eos Madr.*, **53** : 217, fig. 3; Steinmann, 1989, *Das Tierreich*, **105** : 158; Steinmann, 1989, *World Catalogue of Dermaptera* : 201.

General colour brownish with traces of black on abdomen only; antennae with 2nd segment yellowish, remaining brownish yellow; legs brownish yellow, femora basally dark brown. Build slender.

Male : Head triangular, frons raised, sutures faint, hind margin gently sinuate in middle. Eyes distinctly shorter than post-ocular area. Antennae 17-segmented, 1st segment stout, narrowed basally and expanded apically, about as long as the distance between bases of antennae; 2nd short, about as broad as long; 3rd a little over twice as long as broad, cylindrical, gently expanded apically; 4th shorter than preceding, slightly longer than broad; 5th slightly longer than 4th and shorter than 3rd; 6th onwards gradually increasing in length and slightly narrowed basally. Pronotum quadrate, all margins straight, postero-lateral angles gently rounded and sides reflexed, median suture well marked, prozona tumid and metazona weakly depressed. Meso- and metanotum transverse, former with hind margin truncate and latter broadly emarginate. Elytra and wings wanting. Legs with femora stout; tibiae basally with brownish yellow hairs; tarsi with 1st (basal) segment almost equal to 2nd and 3rd together, 1st segment with two rows thick yellow hairs on under side. Abdomen cylindrical, almost parallel sided or feebly dilated in middle, weakly convex, obscurely punctulate, sides of segments 6th to 9th acute angled posteriorly but smooth and without any ridge. Penultimate sternite somewhat oval, hind margin feebly rounded; manubrium slightly more than double the length of sternite and apical end dilated. Ultimate tergite weakly transverse, smooth, convex above laterally in basal half, gently sloping backwards, median sulcus distinct, oblique striae present in the area just above the base of forceps, hind margin trisinuate, laterally oblique. Genitalia with parameres three times longer than broad, narrowed apically, basal tooth internally, only slightly shorter in length or of the same size; distal lobes without virga or teeth.

Female : Agrees with male in most characters except that the sides of abdominal segments convex; penultimate sternite with hind margin obtusely rounded and forceps almost straight.



Figs. 36-40 : *Aborolabis kalaktangensis* Srivastava, Male; 36. Dorsal view except ultimate tergite and forceps; 37. Penultimate sternite; 38. Ultimate tergite and forceps; 39. Genitalia; Female; 40. Ultimate tergite and forceps. (Figs. 37-39 from Holotype Male).

Measurements : (in mm)

	Male	Female
Length of body	9.3-13.30	12.21-7.42
Length of forceps	1.6-1.72	1.33-1.72

Types : Holotype Male, Paratypes 5 Females in Z.S.I.

Distribution : India : Arunachal Pradesh (Kameng and Subansiri dists.); Sikkim (Rangpo) and Meghalaya (East Khasi Hills dist.).

Remarks : This species comes close *A. pervicina* (Burr) and *A. sikkimensis* Srivastava but differs from both in having slender build, uniformly coloured femora and ecarinate sides of abdominal segments.

***Aborolabis sikkimensis* Srivastava**

(Figs. 41–48)

Aborolabis sikkimensis Srivastava, 1993, *Rec. zool. Surv. India*, **90** (1–4) (1992) : 29, figs. 14–21. (Male, Female; India : Sikkim, Rangpo); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya Pt. 3* : 308, figs. 38–41.

General colour dark brownish black; legs brownish yellow, femora banded with black in basal half; antennae with basal segment annulated with a yellow ring, 2nd and one or two pre-apical segments yellow.

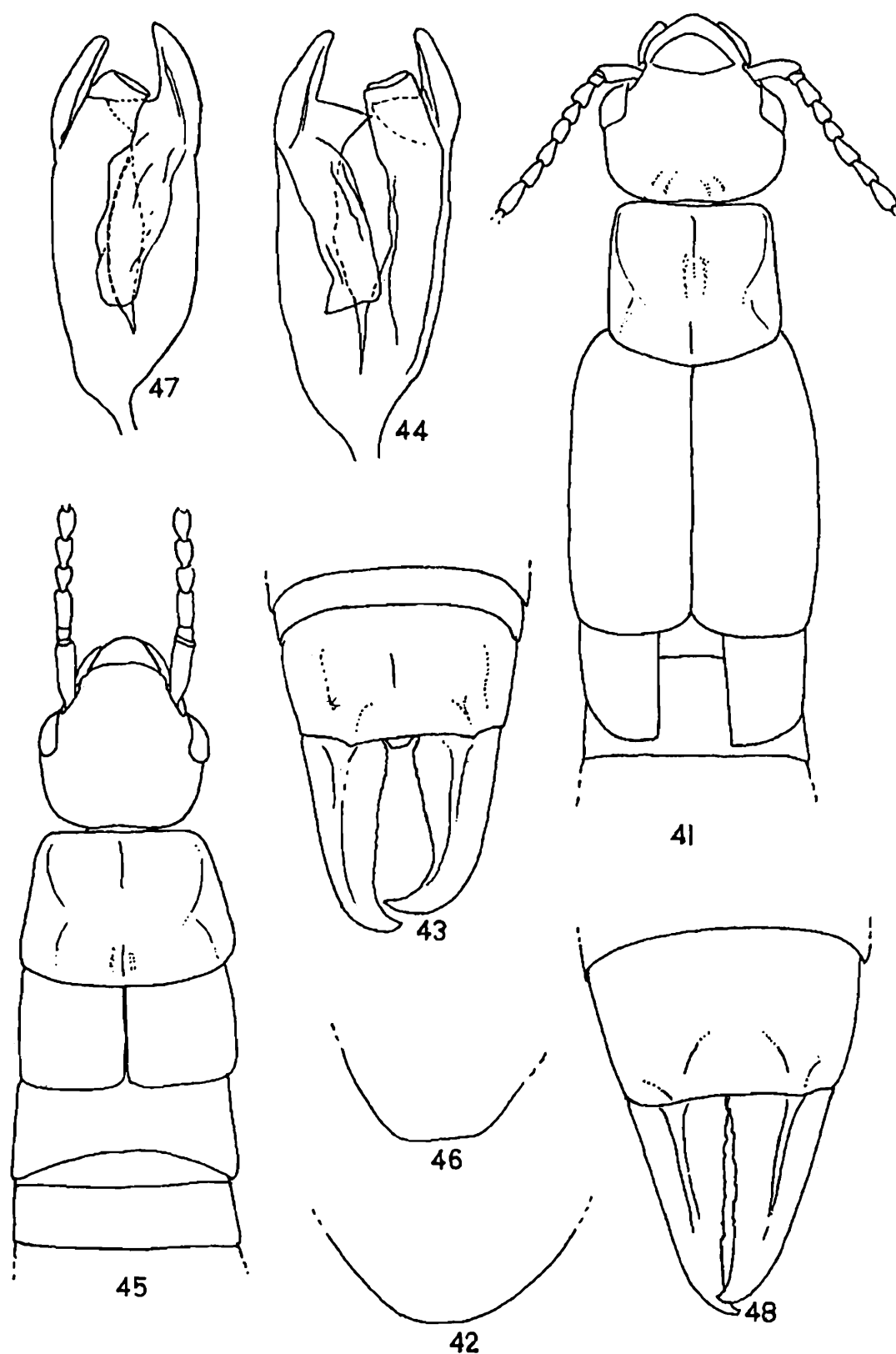
Male : Head smooth, convex, slightly longer than broad, hind margin scarcely emarginate in middle, sutures faint. Eyes prominent, shorter than post-ocular length. Antennae 17-segmented (in Holotype Male, antennae of left side missing and on the right 14 segments remaining), basal segment stout, expanded apically, slightly shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long and cylindrical; 4th a trifle shorter than 5th; 6th onwards segments slightly increasing in length and becoming less stouter. Pronotum about as long as broad, gently expanded posteriorly, sides straight, hind margin convex, median sulcus faint, prozona raised and metazona depressed; in Paratype Male pronotum more expanded posteriorly. Elytra well developed, meeting along the middle line, hind margin convex, shoulder weak; in Paratype Male elytra abbreviated, shorter than pronotum in length. Wings well developed. Legs typical of the genus. Abdomen spindle shaped, weakly convex, finely punctulated, sides of abdominal segments 6th to 9th obtuse angled, rugosely punctate posteriorly, with a linear convexity but weaker on 5th and 9th segments. Penultimate sternite truncate posteriorly. Ultimate tergite transverse, gently contracted posteriorly, finely punctulated, weakly depressed, gently sloping backwards with a slight depression in middle, median sulcus distinct and short, sides straight, hind margin almost straight in middle, gently concave and oblique laterally. Forceps with branches subcontiguous, broader at base, tapering apically, trigonal in basal 1/3, afterwards depressed, left branch almost straight except in apical 1/4 gently curved, right branch strongly curved in middle, apices hooked, internal margin crenulated. Genitalia with parameres armed internally at base with a large triangular tooth, distal lobes without denticulated pads.

Female : Agrees with males in most characters except that sides of abdominal segments convex and ecarinate; penultimate sternite obtuse posteriorly; ultimate tergite strongly narrowed posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	10.2–10.6	11.6
Length of forceps	2.0–2.0	2.1

Types : Holotype Male (macropterous), Paratype 1 Male (brchypterous) and Paratype 1 Female (macropterous) in Z.S.I.



Figs. 41-48 : *Aborolabis sikkimensis* Srivastava, Holotype Male; 41. Anterior portion of body; 42. Hind portion of penultimate sternite; 43. Ultimate tergite and forceps; 44. Genitalia; Paratype Male (brachypterous); 45. Anterior portion of body; 46. Hind portion of penultimate sternite; 47. Genitalia; Paratype Female; 48. Ultimate tergite and forceps.

Distribution : India : Sikkim (Rangpo) and Meghalaya (West Khasi Hills dist.).

Remarks : This species can be easily separated from all the other known species of the genus by its slender build; presence of elytra and wings and sides of abdominal segments 6th to 9th rugosely punctate, obtuse angled posteriorly with a linear convexity, almost obsolete on 6th and 9th.

***Aborolabis pervicina* (Burr)**

(Figs. 49–56)

Anisolabis pervicina Burr, 1913, *Rec. Indian Mus.*, **8** (2) : 137 (Male, Female; India : Assam and Arunachal Pradesh, Siang Dist.); Sakai, 1970, *Dermapterorum Cat. Preal.*, **1** : 67; Brindle, 1975, *Ent. Basiliensia*, **1** : 18.

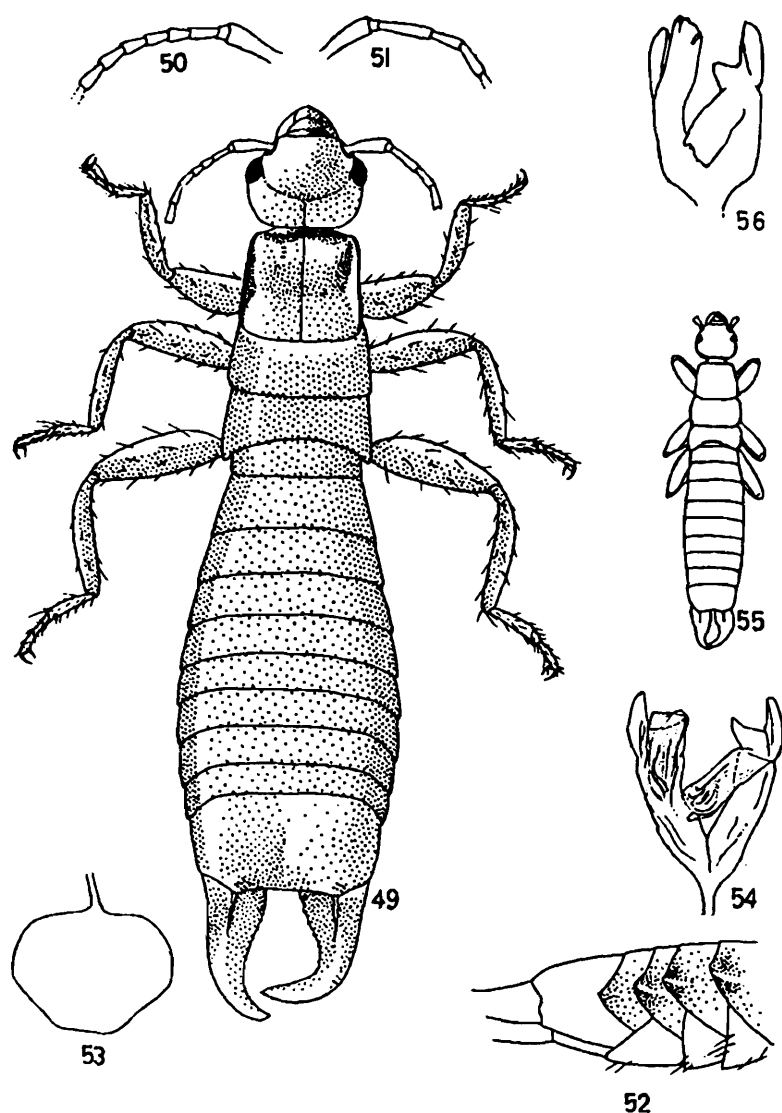
Paralabis pervicina; Burr, 1915. *J. R. micr. Soc.*, **1915** : 540, pl. 12, fig. 3.

Aborolabis pervicina; Srivastava, 1969. *Entomologist's Rec. J. Var.*, **81** : 246, fig. 1; Srivastava, 1972, *Rec. zool. Surv. India*, **66** (1–4) : 131, fig. 1A; Srivastava, 1976, *J. zool. Soc., India*, **26** (1&2) (1974) : 57; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 20; Srivastava, 1979, *J. zool. Soc. India*, **27** (1–2) (1975) : 106 (Male, Female; India : Manipur); Srivastava, 1984, *Proc. Wkshp. High Alt. Ent. & Wild. Ecol.* : 110, fig. 3 (Male, Female; India : Arunachal Pradesh & Assam); Srivastava, 1985, *Rec. zool. Surv. India*, **91** (1) : 70, figs. 19–20 (Male, Female; India : Arunachal Pradesh); Srivastava, 1993, *Rec. zool. Surv. India*, **90** (1–4) (1992) : 31, figs. 22–26; Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal*, Pt. 4 : 388, figs. 60–62; Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. 3 : 308, figs. 42–43; Srivastava, 1999 *Rec. zool. Surv. India* **97**(1) : 82; Steinmann, 1979, *Eos, Madr.*, **53** : 217, fig. 2; Steinmann, 1989, *Das Tierreich*, **105** : 159; Steinmann, 1989, *World Catalogue of Dermaptera* : 302; Brindle, 1983, *Senckenbergiana biol.*, **63** (1–2) : 98; Brindle, 1987, *Courier Forsch.-Inst. Senckenberg*, **93** : 338 & 342; Sakai, 1987, *Dermapterorum Cat.*, **19–20** : 2165; Srivastava and Lahiri, 1983, *Rec. zool. Surv. India*, **81** : 282 (Male, Female; India : Meghalaya, Assam and Arunachal Pradesh); Srivastava and Lal, 1992, *Rec. zool. Surv. India*, **91** (1) (1992) : 114, figs. 3–4 (Male, Female; India : Himachal Pradesh).

Aborolabis nigrescens Brindle, 1987, *Courier Forsch.-Inst. Senckenberg*, **93** : 337 (Male, Female; Nepal, Nuwakot Dist., Trisuli, Kulturland, Waldreste, 600–650 m).

Male : General colour shining reddish to blackish brown. Legs yellowish brown; femora and tibiae banded with black.

Head triangular, convex, sutures faint, hind margin faintly emarginate in middle. Eyes shorter than the post-ocular area. Antennae 19-segmented, 1st segment equal to combined length of 2nd to 4th; 2nd short, about as long as broad; 3rd long; 4th about half as long as the preceding and equal to 5th, rest gradually increasing in length distally. Pronotum quadrate, anterior and lateral margins straight, gently widened posteriorly with margin truncate or briefly convex, median suture faint or well marked; prozona raised and metazona depressed. Apterous. Legs typical of the genus. Abdomen spindle shaped, moderately convex above, punctate or punctulate, sides of abdominal segments 6th to 9th acute angled posteriorly, striate and provided



Figs. 49-56 : *Aborolabis pervicina* (Burr), Male, 49. Dorsal view; 50-51. A few basal antennal segments, enlarged; 52. Sides of abdominal segments and base of forceps; 53. Penultimate sternite and basal portion of manubrium; 54. Genitalia; 55. Dorsal view; 56. Genitalia (Figs. 55-56 after Brindle, 1987 from the Holotype Male of *Aborolabis nigrescens* Brindle).

with a median carina, sparse pubescence present on under side only. Penultimate sternite broadly rounded, punctulate, posterior margin truncate. Ultimate tergite transverse, sparsely punctate, disc weakly convex, sides rugose with a longitudinal fold, posteriorly in middle with a faint depression, striolate above the bases of forceps, median sulcus short. Forceps with branches remote and dilated at base, trigonal with ridge present in basal $1/3$ to $1/2$, afterwards depressed, tapering apically with tip gently hooked and pointed, asymmetrical, right branch more curved than the left, inner margin crenulate. Genitalia with parameres three times longer than broad, gently dilated at about middle and narrowed towards apex, tip rounded, outer margin convex, internally at base armed with a triangular tooth, almost of same size as paramere with tip pointed and hooked; distal lobes apically with rows of minute teeth.

Female : Agrees with males in most characters except that sides of abdominal segments posteriorly rounded, almost smooth and ecarinate; penultimate sternite obtusely pointed posteriorly; ultimate tergite narrowed posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	8.0–16.0	7.0–18.0
Length of forceps	2.0–3.0	2.0–3.5

Types : Nonomotype Male of *Anisolabis pervicina* Burr in Z.S.I.

Holotype Male, Paratypes 2 Females of *Aborolabis nigrescens* Brindle in SMF and Paratype 1 Male in MM.

Distribution : India : W.B. (Darjeeling Dist.); Sikkim, Assam, Meghalaya, Arunachal Pradesh and Himachal Pradesh.

Also recorded from Bhutan and Nepal. It has been reported in Himalayas between altitudes 100 m and a little over 3500 m.

Remarks : This species occurs in large numbers under stones or bark of logs and standing trees.

In a large population often some specimens with weaker forms of forceps i.e., branches subcontiguous and almost straight with apices hooked, are met with. It is noticed that in such specimens the median carina on the sides abdominal segments from 6th to 9th is poorly marked. Besides, in males, with normal forceps (strongly asymmetrical) the sides abdominal segments 6th to 9th are striate and strongly carinate and on 5th segment only a small tubercle or convexity at the posterior end is present.

Genus : *Euborellia* Burr

Borellia Burr, 1909, *Dt. ent. Z.*, **1909** : 325 (Type : *Forficesila moesta* Gené in Serville, 1839 (Name preoccupied by *Borellia* Rehn, 1906, Orthoptera); Burr, 1910 *Fauna British India, Dermaptera* : 87.

Euborellia Burr, 1910, *Proc. U.S. natn. Mus.*, **38** : 448, Footnote (New name for *Borellia* Burr); Zacher, 1911, *Zool. Jb.*, **30** : 371; Burr, 1911, *Genera Insect.*, **122** : 30; Burr, 1912, *Annln Naturf. Mus. Wien*, **26** : 75; Burr, 1915, *J.R. Micr. Soc.*, **1915** : 544; Chopard, 1922, *Faune de France Orthopteres et Dermapteres*, **3** : 180; Shiraki, 1928, *Insecta matsum.*, **3** (1) : 6; Bey-Bienko, 1936, *Fauna de L'URSS, Dermaptera* : 95 (as subgenus); Townes 1945, *Ann. ent. Soc. Am.*, **38** : 348; Popham and Brindle, 1966, *Entomologist*, **99** : 272; Kapoor, 1968, *Agra Univ. J. Res. (Sci)*, **16** (1) : 10; Reichardt, 1968, *Papéis. Avulsos zool., S. Paulo*, **22** (5) 43; Nishikawa, 1969, *Kontyu*, **37** (1) : 49; Sakai, 1970, *Dermapterorun Cat. Prael.*, **1** : 22; Sakai, 1982, *Bull. Daita Bunka Univ.*, **20** : 25 (as subgenus);

Brindle, 1970, *Pacif. Insects*, **12** (3) : 656; Brindle, 1978, *Ann. Mus. Roy Afr. Centr., Tervuren*, in 8° Zool. No. **225** : 157; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.* **2** : 25; Srivastava, 1977, *Orient. Insects*, **11** (2) : 181; Steinmann, 1977, *Annl. hist.-nat. Mus. natn. hung.*, **69** : 95; Steinmann, 1978, *Dt. ent. Z.*, **25** : 185; Steinmann, 1989, *Das Tierreich*, **105** : 231; Steinmann, 1989, *World Catalogue of Dermaptera* : 260.

Heterolabis Borelli, 1912, *Bull. Mus. Hist. nat. Paris*, **18** : 231 (Type species : *Heterolabis brasiliensis*, Borelli, 1912); Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 349; Popham and Brindle, 1966, *Entomologist*, **99** : 272 (Proposed as synonymy of *Euborellia* Burr, 1910); Reichardt, 1968, *Papéis. Avulsos zool., S. Paulo* **22** (5) : 43; Steinmann, 1988, *Das Tierreich*, **105** : 169; (as valid genus); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 82; (proposed as synonym of *Euborellia* Burr, 1910).

Landex Burr, 1915, *J. R. micr. Soc.*, **1915** : 445 (Type species : *Labidura femoralis* Dohrn, 1863); Hincks, 1954, *Verh. naturf. Ges. Basel*, **65** (1) : 12 (synonymy with *Epilandex* Hebard, 1927—incorrect); Popham & Brindle, 1966, *Entomologist*, **99** : 72 (as synonym of *Euborellia* Burr, 1910).

Small to medium (8.0–14.0 mm); build slender. General colour black to blackish brown; antennae with one or two pre-apical segments sometimes pale; legs generally uniformly coloured but femora sometimes banded with black in basal half. Head generally convex; eyes may be small or large but generally shorter than post-ocular length; antennae moniliform. Pronotum usually longer than broad, often as long as broad, widened posteriorly. Apterous, sometimes elytra abbreviated as narrow lateral flaps, rarely elytra and wings well developed (rarely more than one form represented intraspecifically). Meso- and metasternum truncate posteriorly. Abdomen weakly depressed, slightly dilated in middle, sides of segments, in Males, convex or acute angled posteriorly with or without carina. Penultimate sternite rounded, truncate or emarginate posteriorly. Forceps short, stout, trigonal above at base, strongly or weakly asymmetrical, in Males, and simple and straight in Females. Male genitalia with parameres almost square or sometimes slightly longer than broad with external apical angle rounded or a little projecting, an oblique narrow membranous fold from inner apical angle to basal angle present; distal lobes with or without chitinous pads; virga may be distinct or invisible.

Type species : *Forficesila moesta* Gené in Serville, 1839.

Distribution : World wide but dominant in Ethiopian and Oriental Regions.

Remarks : In the Indian subcontinent eight species are known and well distributed all over the area. Besides two species, namely, *E. kumoensis* and *E. askotensis* described by Gangola (1968) from Kumaon Hills, (India : Uttar Pradesh) are treated as doubtful species and are not included in the key to species.

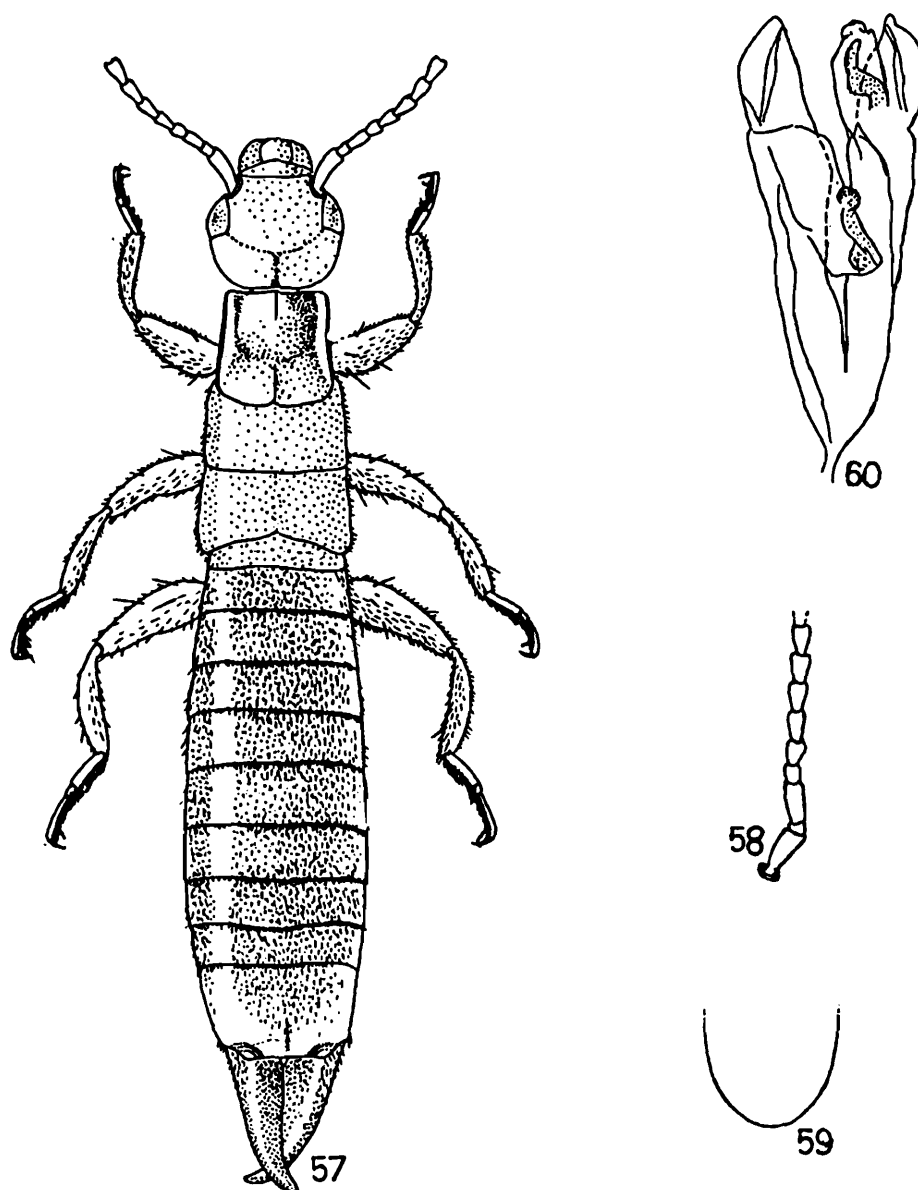
The members of the genus occur in a variety of habitat but are more common under stones with dead and decaying matter. Sometimes these are attracted to light also.

Key to the species (based on Males)

- 1(8). Usually apterous
- 2(5). Sides of abdominal segments ecarinate
- 3(4). Build slender; pronotum with a slight emargination in middle posteriorly; penultimate sternite with posterior margin broadly rounded; parameres without a distinct inner apical concavity.....***E. dattai*** Srivastava
- 4(3). Build stout; pronotum with posterior margin entire; penultimate sternite narrowed posteriorly, with margin in middle scarcely emarginate; parameres with an inner apical concavity***E. rajasthanensis*** Srivastava
- 5(2). Sides of abdominal segments carinate
- 6(7). Legs yellow, often femora with a broad brownish or blackish band; parameres with external apical angle convex ***E. annulipes*** (Lucas)
- 7(6). Legs with femora uniform yellow; parameres with external apical angle acute, a little projecting..... ***E. compressa*** (Borelli)
- 8(1). Elytra and wings well developed, often former abbreviated and latter absent
- 9(12). Elytra and wings well developed.
- 10(11). Sides of abdominal segments 6th to 9th ecarinate ***E. plebeja*** (Dohrn)
- 11(10). Sides of abdominal segments 7th to 9th carinate ***E. femoralis*** (Dohrn)
- 12(9). Elytra present as narrow lateral ovate flaps on mesonotum; wings wanting
- 13(14). Size larger (10–13 mm); sides of abdominal segments recurved; parameres with external apical angle a little projecting***E. annandalei*** Burr
- 14(13). Size smaller (8–11 mm); sides of abdominal segments not recurved; parameres with external apical angle not projecting
- 15(16). Parameres with a distinct inner apical concavity ...***E. annulata*** (Fabricius)
- 16(15). Parameres without a distinct inner apical concavity
- 17(18). Sides of abdominal segments 6t to 9th acute angled and carinate; fine virga discernible; paramere with upper margin straight.....
.....***E. abbreviata*** Srivastava
- 18(17). Sides of abdominal segments 6t to 9th obtuse angled and ecarinate; virga not visible; paramere wit upper margin convex***E. manipurensis*** Srivastava

Euborellia dattai Srivastava (Figs. 57–60)

Euborellia dattai Srivastava, 1977, *Orient. Insects*, **11** : (2) : 182, figs. 1 e–h (Male, Female; India : Rajasthan, Bharatpur dist., Kherali Village); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 83; Steinmann, 1989, *Das Tierreich*, **105** : 273; Steinmann, 1989, *World Catalogue of Dermaptera* : 268.



Figs. 57-60 : *Euborellia dattai* Srivastava, Male; 57. Dorsal view; 58. A few basal antennal segments; 59. Hind portion of penultimate sternite; 60. Genitalia. (Figs. 57, 59 and 60 are from Holotype Male and fig. 58 from Paratype Male).

Euborellia (Euborellia) dattai; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 26.

General colour yellowish brown. Legs yellowish with femora brown. Pronotum yellowish on sides and posteriorly. Antennae with one or two preapical segments whitish.

Male : Head smooth, globose, sutures obliterated, frons and occiput convex; widest in the region of eyes. Eyes whitish, slightly shorter than post-ocular area. Antennae 17-segmented, 1st stout, gently expanded apically, shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd and 4th subclavate, almost equal in length; 5th slightly longer than preceding two segments, remaining gently narrowed basally and gradually increasing in length distally, apical segments thin

and rod shaped. Pronotum smooth, slightly longer than broad, anterior margin straight, sides reflexed, concave in middle, slightly diverging posteriorly, posterolateral angles well rounded, hind margin briefly rounded with a faint emargination in middle, median sulcus distinct, prozona raised and well differentiated from flat metazona. Elytra and wings absent. Meso- and metanotum about half as long as pronotum, metanotum with hind margin deeply emarginate in middle. Legs typical of the genus. Abdomen long and slender, scarcely enlarged in middle, smooth, fine yellow pubescence present, sides of segments smooth, ecarinate and obtuse posteriorly. Penultimate sternite transverse, posterior margin broadly rounded. Ultimate tergite transverse, smooth, fine pubescence present, gently sloping and narrowing backwards, median sulcus short, distinct in posterior half only, faintly striate above the roots of forceps, hind margin trisinuate, laterally oblique. Forceps subcontiguous, trigonal in basal one fourth, afterwards depressed, branches almost straight, tapering apically, gently incurved in apical one third, apices gently hooked, pointed and crossing each other. Genitalia with parameres slightly longer than broad, external apical angle and margin convex; distal lobes apically with chitinous denticulated pads.

Female : Agrees with male in most characters except that the head is comparatively less convex with sutures distinct and eyes less prominent.

Measurements : (in mm)

	Male	Female
Length of body	9.5	8.4–8.6
Length of forceps	1.3	1.3–1.45

Types : Holotype male, Paratypes 2 Females and 2 nymphs deposited in the Z.S.I.

Distribution : India : Rajasthan; known from the type locality only.

Remarks : This species can be easily separated from other known species in having the hind margin of pronotum, in middle, emarginate; penultimate sternite broadly rounded posteriorly and parameres slightly longer than broad.

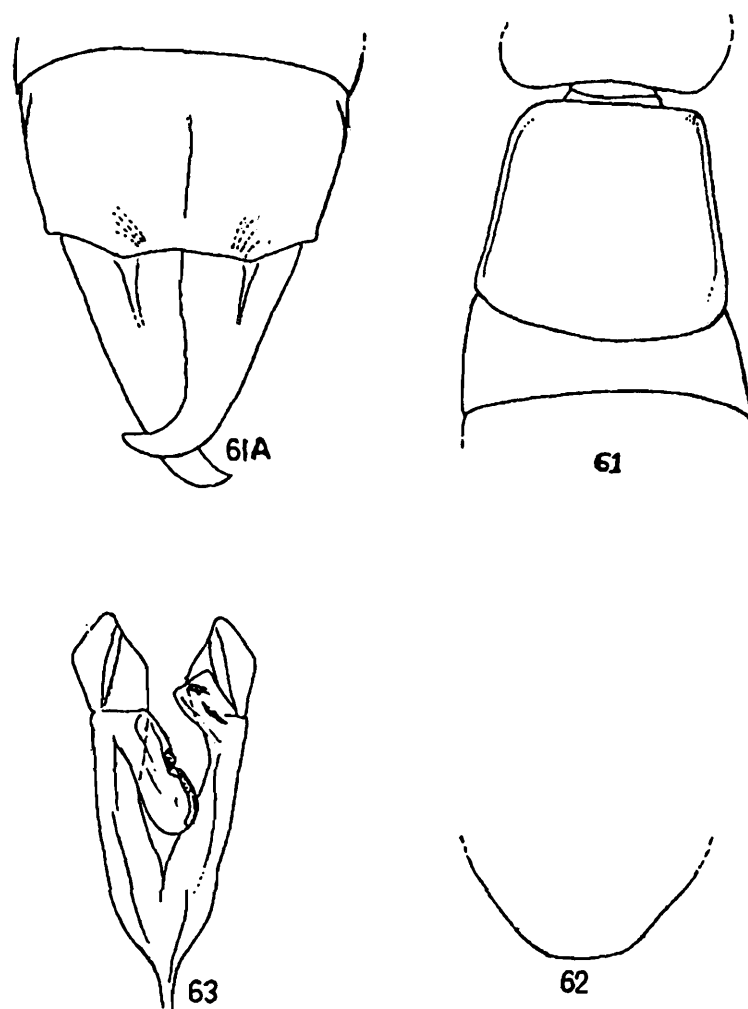
***Euborellia rajasthanensis* Srivastava**
(Figs. 60, 61A–63)

Euborellia rajasthanensis Srivastava, 1977, *Orient. Insects*, **11** (2) : 184, figs. 2a–c (Male, Female; India : Rajasthan : Phalodi); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 22 (Male, Female; Pakistan); Steinmann, 1989, *Das Tierreich*, **105** : 275; Steinmann, 1989, *World Catalogue of Dermaptera* : 277; Srivastava and Lal, 1993, *Rec. zool. Surv. India*, **91** (1) (1992) : 114, figs. 9–10 (Male, Female; India : Himachal Pradesh : Kulu, Bilaspur and Simla dists).

Euborellia (Euborellia) rajasthanensi; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 26.

Male : General colour blackish brown; pronotum laterally and leg yellowish brown.

Head triangular, smooth, shining, frons and occiput weakly raised, sutures faint, hind margin emarginate in middle. Eyes black, shorter than post-ocular area. Antennae



Figs. 61,61A-63 : *Euborellia rajasthanensis* Srivastava, Holotype Male; 61. Basal portion of head, pronotum and mesonotum; 61A. Ultimate tergite and forceps; 62. Hind portion of penultimate sternite; 63. Genitalia.

(most of the segments broken off in the Holotype Male) with only right basal segment remaining. Pronotum slightly longer than broad, gently widened posteriorly, hind margin rounded, lateral margin straight, weakly reflexed; prozona convex, metazona depressed, median sulcus faintly marked on prozona. Meso- and metanotum smooth, latter with hind margin concave. Legs typical of the genus. Abdomen obscurely punctulate, very slightly dilated in middle, sides of segments 6th to 9th rugosely punctate, ecarinate and acute posteriorly. Penultimate sternite faintly punctulate, narrowed apically with hind margin scarcely emarginate in middle. Ultimate tergite transverse, punctulate, gently contracted posteriorly, median suture short, distinct in posterior half only, faintly tumid above the roots of forceps, hind margin trisinate, oblique laterally. Forceps stout, contiguous, trigonal in basal one third, afterwards depressed, tapering apically, branches almost straight in basal two thirds, gently incurved in apical one third with right branch slightly more incurved than the left and crossing over it a little before apex, apices hooked and pointed, internal margin serrated. Genitalia with parameres short and broad, inner apical concavity distinct; distal lobes apically with chitinous pads.

Female : Agrees with males in most characters except that penultimate sternite with posterior margin obtuse in middle; ultimate tergite comparatively narrowed posteriorly and forceps simple and straight. Antennae 15-segmented; 2nd about as broad as long; 3rd long, slender; 4th and 5th subclavate, both shorter than the preceding, remaining gradually increasing in length distally.

Measurements : (in mm)

	Male	Female
Length of body	11.7–12.0	12.1–12.5
Length of forceps	1.7–1.9	1.7–1.8

Types : Holotype Male, Paratype 1 Female in ZSI.

Distribution : India (Rajasthan) and Pakistan (Taxilla).

Remarks : This species resembles externally with *Euborellia annulipes* (Lucas) but differs in being slightly stouter in build; and in Males, sides of abdominal segments are ecarinate and parameres with external apical angle acute and a distinct concavity at inner apical angle.

***Euborellia annulipes* (Lucas)**

(Figs. 64–69)

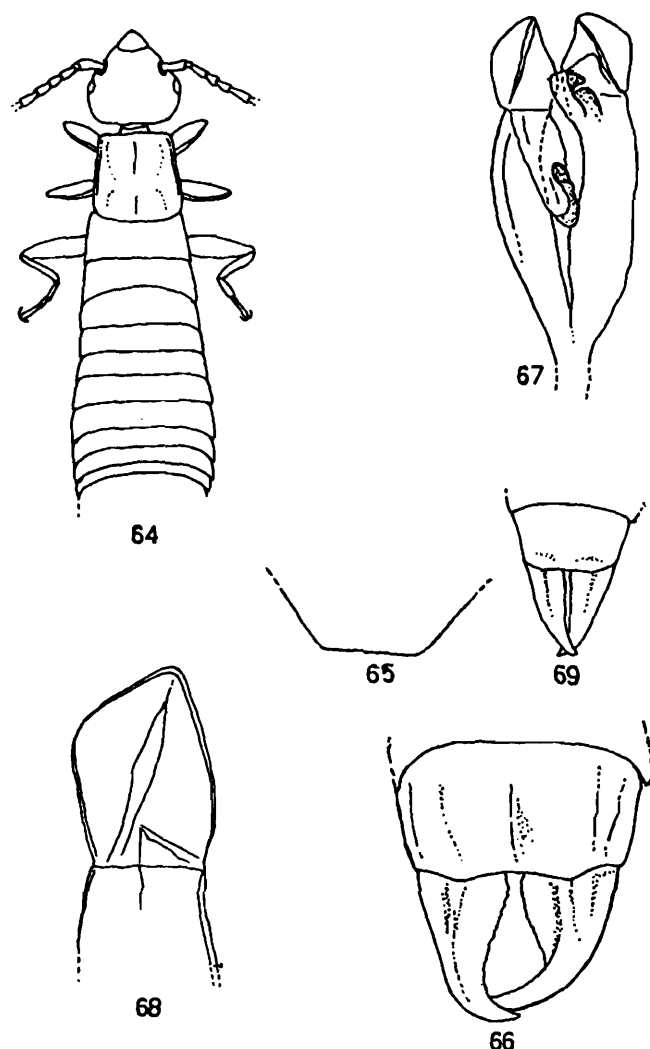
Forficesila annulipes Lucas, 1847, *Annls. Soc. ent. Fr.*, (2) 5 : 84 (Type Female; France—Introduced); Dohrn, 1864, *Sttetin. ent. Ztg.*, 25 : 290.

Forficula (Labidura) annulipes; Fischer, 1853, *Orthoptera Europa*,—Leipzig, 69, pl. 6, figs. 6a–c.

Anisolabis annulipes; Fuentes, 1863, *Boln. Mus. nac. Chile*, 7 : 313; Bormans, 1888, *Annali Mus. civ. Stor. nat. Giacomo Doria*, (2) 6 : 435; Bormans and Krauss, 1900, *Das Tierreich*, 11 : 48; Burr, *Fauna British India, Dermaptera* : 84, pl. 3, fig. 24; Burr, 1911, *Genera Insect.*, 112 : 2; Burr, 1912, *Annln naturf. Mus. Wien*, 26 : 76; Shiraki, 1928, *Insecta matsum.*, 3 (1) : 8; Günther, 1934, *Revue suisse Zool.*, 41 : 538; Rehn, 1948, *Trans. Am. ent. Soc.*, 74 : 160; Boeseman, 1954, *Verh. Zool. Leiden*, 21 : 36.

Anisolasis (Euborellia) annulipes; Bey-Bienko, 1936, *Fauna de L'URSS, Dermaptera* : 218; 1959, *Ent. Obozr.*, 38 (3) : 607; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 25.

Euborellia anulipes; Burr, 1915, *J. R. micr. Soc.*, 1915 : 527, 528 & 545; Hebard, 1923, *Mem. Dep. Agric. India ent. Ser.*, 7 : 206; Hebard, 1933, *Pan Pacif. Ent.*, 9 : 141; Rehn, 1924, *Bull. Am. Mus. nat. Hist.*, 49 : 409; Borelli, 1931, *Revue suisse Zool.*, 38 : 301; Borelli, 1932, *Bull. Raffles Mus.*, 7 : 101; Hincks, 1947, *Ann. Mag. nat. Hist.*, (11) 14 : 521, 522, fig. 1; Hincks, 1950, *Ann. Mag. nat. Hist.*, (12) 8 : 353; Brindle, 1966, *Trans. R. ent. Soc. Lond.*, (7) 118 : 236; Brindle, 1971, *Ent. scand. Suppl.*, 1 : 220 (Sri Lanka); Brindle, 1971, *Ent. Tidsk.*, 92 (1–2) : 11; Brindle, 1987, *Courier Forsch. Inst., Scenkenberg*, 93 : 342; Gangola, 1968, *Entomologist*, 101 : 5 (Male, Female; India : U.P. : Nainital, Almora & Pithoragarh dists.); Sakai, 1970, *Dermapterorum Cat. Prael.* 1 : 34; Srivastava and Saha, 1975, *Ceylon J. Sci (Bio. Sci.)*, 11 (2) : 64 (Female; India : W.B. Darjeeling Dist.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 25; Srivastava, 1976, *Pacif. Insects*, 17 (1) : 103 (Male, Female; Philippine Isls., Luzon); Srivastava, 1977, *Orient. Insects*, 11 (2) : 182, fig. 1a (Male genitalia); Srivastava, 1979, *J. zool. Soc. India*, 27 (1–2) (1975) : 103 (India : Manipur); Srivastava, 1982, *Rec. zool. Surv. India*, 79 : 463 (Male, Female; Pakistan : NW Prov., Chitral); Srivastava, 1983, *Rec. zool. Surv. India*, 80 : 495 (Female; India : Gujarat, Ahwa, Dang Dist. and Myanmar : Htawgaw);



Figs. 64-69 : *Euborellia annulipes* (Lucas), Male; 64. Anterior portion of body except ultimate tergite and forceps; 65. Posterior half of penultimate sternite; 66. Ultimate tergite and forceps; 67. Genitalia; 68. Paramere enlarged; Female; 69. Ultimate tergite and forceps.

Srivastava, 1989 *Fauna of Orissa : State Fauna Series No. 1, 2* : 157, figs. 19-21 (Male; India : Orissa); Srivastava, 1993, *State Fauna Series 3, Fauna of West Bengal*, Pt. 4 : 390, fig. 69 (India : W.B.); Srivastava, 1995, *State Fauna Series 4, Fauna of Meghalaya*, Pt. 3 : 391, fig. 70 (India : Meghalaya); Srivastava, 1997, *Rec. zool. Surv. India*, **97** (1) : 84; Biswas and Srivastava, 1976, *Newsl. zool. Surv. India*, **2** (4) : 131 (Male, Female; India : U.P. Dehra Dun); Tandon, Srivastava and Shishodia, 1976, *Newsl. zool. Surv. India*, **2** (1) : 15 (Female; India : U.P. : Tons Valley, Natiwar to Jarmola, 1533m); Steinmann, 1981, *Acta zool. hung.*, **27** (1-2) : 195 (India : Tamil Nadu : Anamalai Hills, Cinchona; Coimbatore; Pondicherry State, Karikal); Steinmann, 1981, *Atti Soc. ital. Sci. nat. Museo civ. nat. Milano*, **122** (3-4) : 158 (Female; Birmania; Toscana, Abyssinia); Steinmann, 1985, *Folia ent. hung.*, **46** (1) : 165; Steinmann, 1989, *Das Tierreich*, **105** : 251; Steinmann, 1989, *World Catalogue of Dermaptera* : 262; Srivastava and Lal, 1993, *Rec. zool. Surv. India*, **91** (1) (1992) : 114, figs. 5-6 (Male, Female; India : Himachal Pradesh : Sirmour, Kulu and Simla dists.).

Forficula equestris Gené, 1837, *Ann. Sci. Regn. Lomb.-Venet.*, **7** : 83 (Type Male, not traceable; Italy—probably imported from North America); Steinmann, 1989, *World Catalogue of Dermaptera* : 262 (treated as synonym).

- Forficula annulicornis* Blanchard, 1852, in Gey, *Hist. nat. Chile, Zool.* **6** : 10 (Type not mentioned; Chile); Burr, 1911, *Genera Insect.*, **122** : 29 (treated as synonym).
- Forficula variicornis* Smith, 1876, *Ann. Mag. nat. Hist.*, (4) **17** : 450 (Type and Type locality not mentioned); Burr, 1911, *Genera Insect.*, **122** : 29 (treated as synonym).
- Anisolabis antennata* Kirby, 1891, *J. Linn. Soc. Zool.*, **23** : 517 (Female; Bermuda); Burr, 1911, *Genera Insect.*, **122** : 29 (treated as synonym).
- Anisolabis bormansi* Scudder, 1893, *Bull. Mus. comp. Zool. Harv.*, **25** : 5, pl. 1, fig. 1 (Female; Chatham Island); Burr, 1911, *Genera Insect.*, **122** : 29 (treated as synonym).
- Anisolabis fallax* Shiraki, 1905, *Trans. Sapporo nat. Hist. Soc.*, **1**(2) : 94, fig. 4 (Male; Formosa); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 26.
- Anisolabis tripolitana* Werner, 1908, *Zool. Jb.*, **27** : 85, Pl. 6, fig. 10 (Male, Female; Type and type locality not given); Steinmann, 1989, *World Catalogue of Dermaptera* : 263 (proposed as synonym).
- Anisolabis nana* Boeseman, 1954, *Zool. Verh., Leiden*, **21** : 39, fig. 10 a (Male) (Male, Female and Immature specimens; Java); Steinmann, 1981, *Acta zool. hung.*, **27** : 94 (proposed as synonym).

Male : General colour shining blackish brown; antennae with basal and a few anteapical segments yellow, rest greyish brown; pronotum on sides and legs yellow, femora banded with black.

Head, about as long as broad or weakly transverse, smooth, sutures fine but distinct, frons convex, hind margin feebly emarginate in middle; eyes black, prominent, much smaller than post-ocular length. Antennae 16 to 17 segmented, 1st stout, gently expanded apically, shorter than the distance between antennal bases; 2nd short, transverse; 3rd long, a little over twice its width, cylindrical; 4th shorter and stouter than 3rd and expanded apically; 5th almost equal to preceding; 6th almost equal to 3rd, remaining gradually increasing in length distally, excepting a few apical ones. Elytra and wings generally absent, rarely both well developed. Pronotum smooth, about as long as broad, anteriorly as wide as head, lateral margins straight, gently reflexed in middle, widened posteriorly; median sulcus fine but distinct; prozona convex and well differentiated from flat metazon. Meso- and metanotum transverse, smooth, former posteriorly truncate and latter broadly emarginate. Sternal plates typical of the genus. Legs comparatively short; femora stout; tibiae clad with thick and fine hairs, 1st segment (basal) almost equal to combined the length of 2nd and 3rd. Abdomen spindle shaped, weakly depressed, punctulate but punctulation more prominent in posterior half of each tergite, sides of segments 6th to 9th acute angled posteriorly, striate and carinate. Penultimate sternite triangular, posteriorly truncate or faintly emarginate in middle. Ultimate tergite transverse, weakly punctate, convex above in basal half, median sulcus distinct, laterally with rugose or striate linear convexity, hind margin trisinate, oblique laterally above base of forceps. Forceps with branches remote or subcontiguous, trigonal in basal one third only, afterwards depressed and tapering, right branch more incurved than the left, apices gently hooked and crossing, inner margin finely serrated. Genitalia with parameres broad, about as long broad, external apical angle rounded; distal lobes with denticulated chitinous pads apically; fine virga sometimes visible.

Female : Agrees with males in most characters but differs in having sides of abdominal segments convex and smooth; penultimate sternite obtuse posteriorly; ultimate tergite strongly narrowed posteriorly and forceps simple, contiguous and almost straight except apices.

Measurements : (in mm)

	Male	Female
Length of body	9.5–10.9	11.0–13.6
Length of forceps	1.9–2.1	2.6–3.1

Types : Type Male of *Forficula equestris* Gén , 1837, repository not known—according to Steinmann (1989a).

Type Female of *Forficesila annulipes* Lucas, 1847, deposited in MHNP—according to Steinmann, (1989a).

Type Male of *Forficula annulicornis* Blanchard in Gay, 1852, repository not known—according to Steinmann (1989a).

Type, sex ?, of *Forficula variicornis* Smith, 1876, repository not known—according to Steinmann (1989a).

Type Female of *Anisolabis antennata* Kirby, 1891, deposited in BMNH.

Type Female of *Anisolabis bormansi* Scudder, 1893, repository not known.

Types : 3 Males and 4 Females of *Anisolabis fallax* Shiraki, 1905, mentioned as present in the collection of Dr. S. Matsumura and Mr. W. Ishida (Shiraki, 1905).

Type Male ? of *Anisolabis tripolitana* Werner, 1908, repository not known—according to Steinmann (1989a).

Type Holotype Male ? immature, Paratype 1 Male, Allotype 8 Females and 6 immature specimens of *Anisolabis nana* Boeseman, 1954 deposited in IZTA.

Distribution : India : Tamil Nadu : Anamalaiagar, Yercaud Hills, 4500 ft. Naduvattam, Nilgiri Hills, 6000 ft., Coimbatore; Maharashtra : Satara dist., Medha and Yenna Valley; Orissa : Barkuda Island, Chilka Lake, Koraput dist., Jeypore; Madhya Pradesh : Jabalpur, 1600 ft.; West Bengal : 24-Parganas, Purulia, Midnapore, Jalpaiguri and Darjeeling dists., (Darjeeling, 2193 m); Assam; Meghalaya : Garo Hills (Siju Cave, East Garo Hills, West Khasi, Hills); Tripura; Manipur; Arunachal Pradesh; Punjab; Rajasthan : Nagaur dist.; Himachal Pradesh; Uttar Pradesh and Andaman Isls.

In India it is one of the most common species occurring in a variety of habitats right from plains to high altitude (ca 2193 m) in mountains.

It is also reported extensively from Pakistan, Nepal, Bhutan, Bangladesh, Myanmar, China (South) and Sri Lanka.

This species has world wide distribution but more prominent in tropical and subtropical parts.

***Euborellia compressa* (Borelli)**

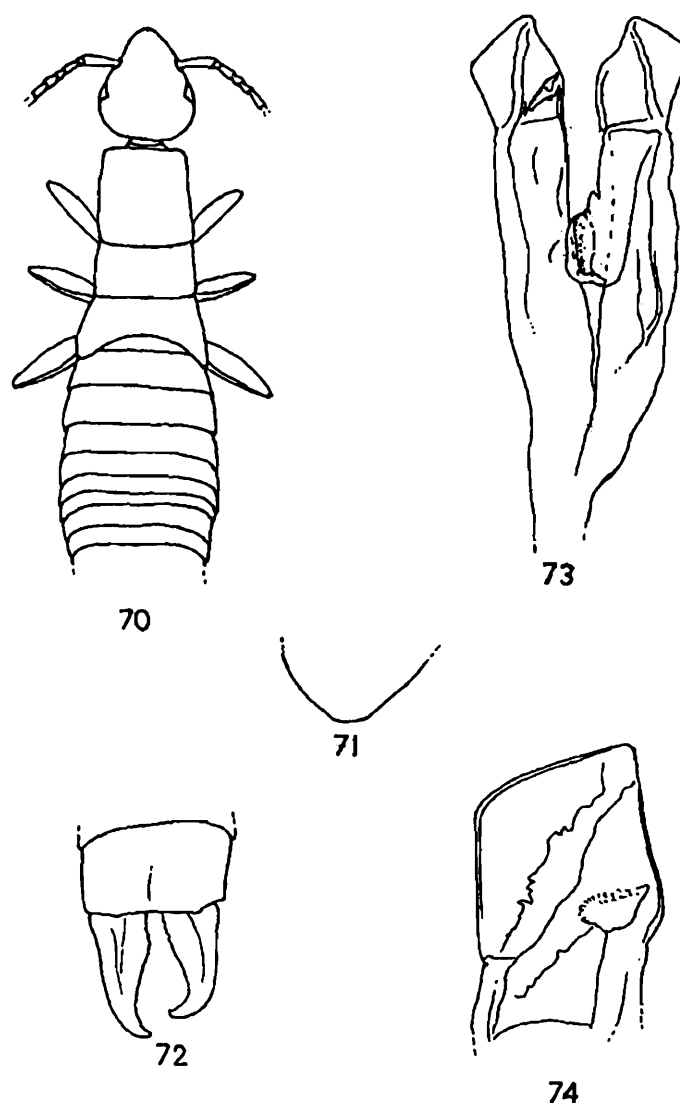
(Figs. 70–74)

Anisolabis compressa Borelli, 1907, *Boll. Musei Zool. Comp. R. Univ. Torino*, 25(558) : 3 (Male, Female, Uganda); Burr, 1911, *Genera Insect.*, 122 : 29.

Euborellia compressa; Burr, 1915, *J. R. micr. Soc.*, 1915 : 548, pl. 12, fig. 8 (Male genitalia); Ramamurthi, 1963, *Ann. Mag. nat. Hist.*, (13) 6 : 672 (India : Tamil Nadu); Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 32; Srivastava, 1976, *Rec. zool. Surv. India, Occ. Pap.*, 2 : 26; Srivastava, 1982, *Rec. zool. Surv. India*, 79 : 463 (Male, Female; Pakistan; NW Prov. Chitral); Srivastava, 1993, *State Fauna Series 3, Fauna of West Bengal Pt. 4* : 391, fig. 70 (India : W.B.); Steinmann, 1989, *Das Tierreich*, 105 : 249; Steinmann, 1989, *World Catalogue of Dermaptera* : 267; Srivastava and Lal, 1993, *Rec. zool. Surv. India*, 91(1) (1992) : 116, figs. 7–8 (Male, Female; India : Himachal Pradesh : Bilaspur dist.).

General colour brownish yellow to reddish brown; legs clear yellow; often sides of abdomen with traces of black.

Male : Head slightly longer than broad, smooth, frons weakly convex, sutures almost obsolete, hind margin feebly emarginate in middle. Eyes prominent, distinctly shorter than post-ocular length. Antennae 15-segmented or more; 1st stout, narrowed basally, slightly shorter than the distance between antennal bases; 2nd short; 3rd long and cylindrical; 4th slightly longer than broad, stout, strongly narrowed basally and shorter than preceding; 5th stouter, but shorter than 3rd; remaining gradually increasing in length distally excepting one or two apical ones, each narrowed at base. Pronotum quadrate, slightly longer than broad, anteriorly as broad as head, gently widened posteriorly, lateral margin straight, gently reflexed, hind angles rounded and margin sub-truncate; prozona weakly raised, poorly differentiated from flat metazona, median sulcus distinct. Meso- and metanotum transverse, smooth, former with hind margin truncate and latter broadly emarginate posteriorly. Sternal plates and legs typical for the genus. Abdomen may be elliptical or slender, tergites smooth above, weakly convex, sides of abdominal segments 6th to 9th rugosely striate, acute angled posteriorly with an oblique carina. Penultimate sternite transverse, narrowed posteriorly with hind margin in middle subtruncate; manubrium longer than the sternite, apically broad. Ultimate tergite transverse, almost smooth, sloping backwards, sides straight, hind margin in middle almost straight, above the bases of forceps oblique and lightly concave. Forceps with branches remote and stout near base, trigonal above in basal one third, afterwards, depressed, almost straight in basal half to two third, tapering, incurved, weakly asymmetrical, apices gently hooked, inner margin finely serrated. Genitalia with parameres about as long as broad, square shaped, external apical angle sharp, tip obtuse, oblique median membrane distinct; distal lobes with denticulated chitinous pads; virga not discernible.



Figs. 70-74 : *Euborellia compressa* (Borelli), Male; 70. Anterior portion of body except ultimate tergite and forceps; 71. Posterior half of penultimate sternite; 72. Ultimate tergite and forceps; 73. Genitalia; 74. Paramere enlarged.

Female : Agrees with males in most characters except sides of abdominal segments smooth, hind angle obtuse; penultimate sternite obtuse angled in middle posteriorly and forceps with branches simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	12.0-14.0	12.5-14.8
Length of forceps	1.5-2.0	1.9-2.2

Types : 3 Males, 4 Females from Uganda : Bimbila and 2 Males, 1 Female from Ibanda, may be treated as *Syntypes*, deposited in MIZT.

Distribution : India : Tamil Nadu (Coimbatore); Himachal Pradesh (Bilaspur and Kangra dists.); W.B. (Purulia, Midnapur and Bankura dists.).

Also recorded from Pakistan : NW Province; Chitral.

This species is extensively distributed in various countries of Africa, namely, Uganda and Zire.

In MZM collections it is represented from following localities hitherto not reported :

India : Tamil Nadu, Coimbatore, 1 Male, 200 ft.; Yercaud, Shevroy Hills, 1 Male, 1 Female, 4500 ft.; Karaikal Territory, Kurumbagaram, 1 Male—all determined by G. K. Srivastava.

Remarks : The legs are generally uniform yellow but occasionally ill defined dark band is discernible.

It can be easily separated from closely related species of the genus by pale legs and male parameres in being rectangular.

***Euborellia plebeja* (Dohrn)**

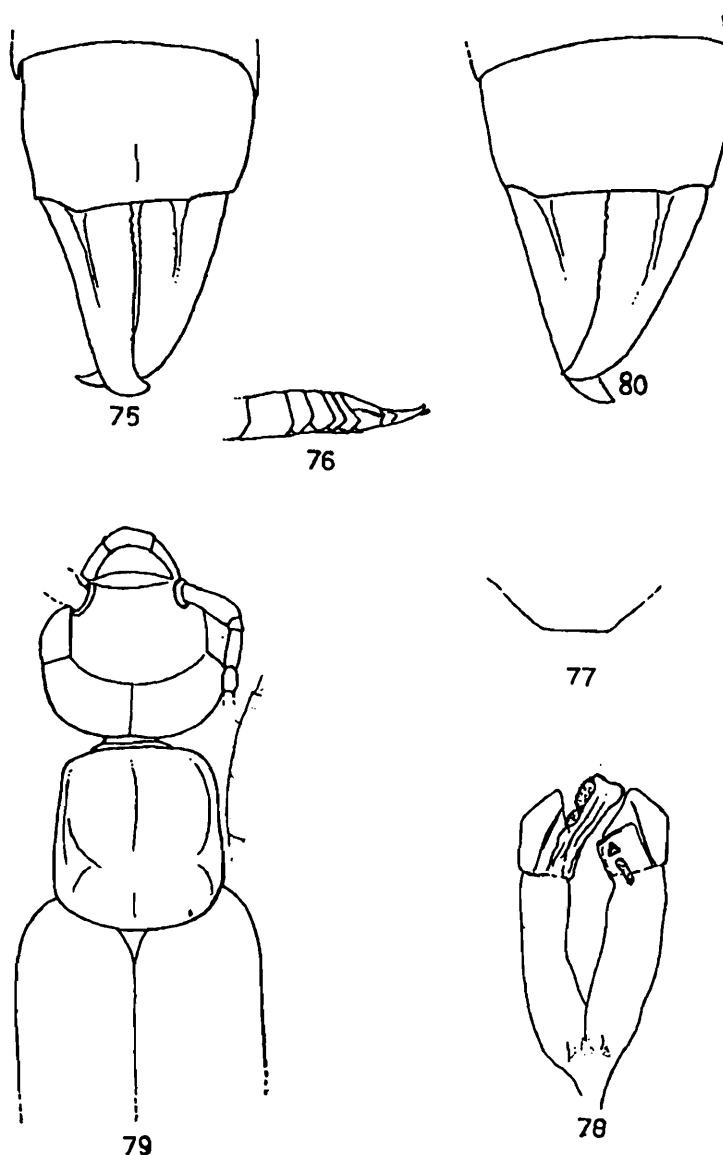
(Figs. 75–80)

Labidura plebeja Dohrn, 1863, *Stettin. ent. Ztg.*, **24** : 322 (Female; Java).

Psalis plebeja; Bormans and Krauss, 1911, *Das Tierreich*, **11** : 38; Kirby, 1904, *Syn. Cat. Orth.*, **1** : 14 (Java, Borneo & Sumatra); Burr, 1911, *Genera Insect.*, **122** : 32; Burr, 1912, *Annln naturf. Mus. Wein*, **26** : 74; Burr, 1912, *Notes Lyden Mus.*, **34** : 227; Burr, 1915, *J. R. Micr. Soc.*, **1915** : 115; Borelli, 1926, *Treubia*, **8** : 225; Borelli, 1927, *Suppl. Ent.*, **15** : 70; Dammerman, 1948 *The Fauna of Krakatau, Amsterdam* : 484; Boeseman, 1954, *Zool. Verh. Leiden*, **21** : 45.

Anisolabis (Euborellia) plebeja : Bey-Bienko, 1936, *Fauna de l'URSS*, **10** : 97, fig. 25 (Male genitalia); Bey-Bienko, 1959, *Ent. Obozr.*, **38**(9) : 606; Sakai, 1982, *Bull. Daito Bunka Univ.* **20** : 25.

Euborellia plebeja; Hebard, 1927, *Proc. Acad. nat. Sci. Philad.*, **70** : 27; Hebard, 1933, *Pan Pacif. ent.*, **9** : 141; Hincks, 1945, *Proc. R. ent. Soc. Lond.*, (B) **14** : 59; Hincks, 1954, *Verh. naturf. Ges. Basel*, **65** (1) : 11; Brindle, 1966, *Trans. R. ent. Soc. Lond.*, (7) **118** : 236; Brindle, 1975, *Ent. Basiliensia*, **1** : 19 (Male; Bhutan : Phuntsholing, 200–400 m, Samchi, 350–400 m); Brindle, 1976, *Rev. Zool. Afr.*, **90** (2) : 442 (Seychelles Island); Ramamurthi, 1967, *Ent. Medd.*, **35** : 333; Nishikawa, 1969, *Kontyu*, **37** (1) : 50 (Japan : Honshu, Shikoku, Kyushu including Isls. Tsushima); Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 29; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 27; Srivastava, 1976, *Pacif. Insects*, **17**(1) : 103 (Male, Female, Philippine Isls, Luzon); Srivastava, 1977, *Orient. Insects*, **11**(2) : 182; Srivastava, 1978, *Eos, Madr.*, **52** : 263 (Male, Female; Philippine Isls., Mindanao); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 24 (Male, Bangladesh : Chicknagul, 10 mi Sylhet); Srivastava, 1991, *Rec. zool. Surv. India*, **98** (1–4) : 59, fig. 18 (Male; Malaysia : Sabah); Srivastava, 1995, *State Fauna Series 4, Fauna of Meghalaya*, Pt. **3** : 310, figs. 46–48 (India : Meghalaya : East Khasi Hills dist.); Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 83; Steinmann, 1979 *Annln Hist.-nat. Mus. natn. hung.*, **67** : 153 (Holotype Female in PAN Zoologiczny Instytut, Warszawa); Steimann, 1989, *Das Tierreich*, **105** : 259, fig. 426–427 (cosmopolitan); Steinmann, 1989, *World Catalogue of Dermaptera* : 276 (cosmopolitan).



Figs. 75-80 : *Euborellia plebeja* (Dohrn), Male; 75. Ultimate tergite and forceps; 76. Sides of abdominal segments and forceps; 77. Hind portion of penultimate sternite; 78. Genitalia; Holotype Female; 79. Anterior portion of body showing head, pronotum and a portion of elytra; 80. Ultimate tergite and forceps.

General colour blackish brown to reddish; sides of pronotum, legs and one or two ante-apical segments yellowish.

Male : Head slightly longer than broad, frons and occiput convex, sutures distinct, hind margin emarginate in middle. Eyes shorter than post-ocular area. Antennae 16-segmented or more, basal segment slightly shorter than the distance between antennal bases; 2nd about as long as broad; 3rd long and slender; 4th shorter than preceding, gently expanded apically; 5th slightly shorter than 3rd, but stouter and remaining gradually increasing in length distally. Pronotum slightly longer than broad, sides slightly reflexed, gently widened posteriorly with hind margin rounded, median sulcus faint. Elytra and wings well developed. Legs typical of the genus. Abdomen convex,

punctulate, gently enlarged in middle, sides of segments acute angled and ecarinate. Penultimate sternite, gently narrowed posteriorly with hind margin straight and hardly emarginate in middle. Ultimate tergite transverse, gently narrowed backwards, hind margin faintly emarginate in middle and laterally above the base of forceps emarginate and oblique. Forceps contiguous or subremote, tapering posteriorly, almost straight with tips gently hooked and pointed, trigonal above in basal one third and weakly depressed afterwards, internal margin finely serrated. Genitalia with parameres about as broad as long, inner margin convex with a concavity at internal apical angle and external apical angle prominent; distal lobes apically with chitinous denticulated pads and virga not visible.

Female : Agrees with male in most characters but differs in having penultimate sternite obtuse in middle posteriorly; ultimate tergite comparatively more narrowed posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	9.0–10.1	11.4–13.0
Length of forceps	1.6–2.0	2.5–3.0

Types : Holotype Female deposited in IZAP.

Distribution : India : Meghalaya (East Khasi Hills dist.); Arunachal Pradesh (Subansiri Dist.); Madhya Pradesh (Jabalpur); Tamil Nadu (Coimbatore).

Also reported from Bhutan and China (South).

Widely distributed in the Oriental Region; perhaps with world wide distribution.

It is represented in the collection of MZM by the following specimens hitherto not reported :

India : Madhya Pradesh : Jabalpur, 5 Males, 3 Females, 1600 ft; Tamil Nadu : Coimbatore, 3 Males, 18 Females—all determined by *G. K. Srivastava*.

Remarks : Holotype Female was examined. General colour is brownish black and the four basal antennal segments of the right side are remaining. The basal antennal segment is yellowish brown and rest are blackish brown and legs are yellow. Elytra and wings are brown, latter with a narrow yellow stripe along the internal margin.

This species comes close to *E. femoralis* (Dohrn) in having well developed elytra and wings but differs, in Males, by the ecarinate sides of abdominal segments and parameres somewhat rectangular with external apical angle prominent (*vs* external angle convex in *E. femoralis*).

Steinmann (1989a) has placed *Anisolabis pallipes* Shiraki, 1905, from formosa and *Euborellia kiangsuensis* Hincks, 1937 from China as synonyms of this species.

Former was described on a female which possesses abbreviated elytra as oval lateral flaps on mesonotum and has been treated as synonym of *Euborellia annulata*

(Fabricius) in the present work. And the latter, besides being apterous, is quite distinct on the basis of male parameres, does not appear to be conspecific.

***Euborellia femoralis* (Dohrn)**

(Figs. 81–86)

Labidura femoralis Dohrn, 1863, *Stettin. ent. Ztg.*, **24** : 321 (Female; Ceylon); Scudder, 1876, 1876, *Proc. Boston Soc. nat. Hist.*, **18** : 552 (nec Dubrony).

Psalis femoralis; Bormans, 1888, *Annali. Mus. civ. Stor. nat. Giacomo Doria*, **2** (6) : 434; Bormans, 1894, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **2**(14) : 378; Bormans, 1895, *Ann. Soc. ent. Fr.*, **64** : 387 (Mahe); Bormans, 1900, *Das Tierreich*, **11** : 38; Burr, 1902, *J. Bombay nat. Hist. Soc.*, **14** : 78, pl. 13 fig. 3; Burr, 1908, *Bull. Mus. Hist. nat. Paris*, **1908** : 29; Burr, 1910, *Fauna British India, Dermaptera* : 75 (nec pl. 3, fig. 18); Burr, 1911, *Genera Insect.*, **122** : 31; Burr, 1912, *Annln Naturh. Hofmus. Wien*, **26** : 73; Kirby, 1904, *Syn. Cat. Orth.*, **1** : 13.

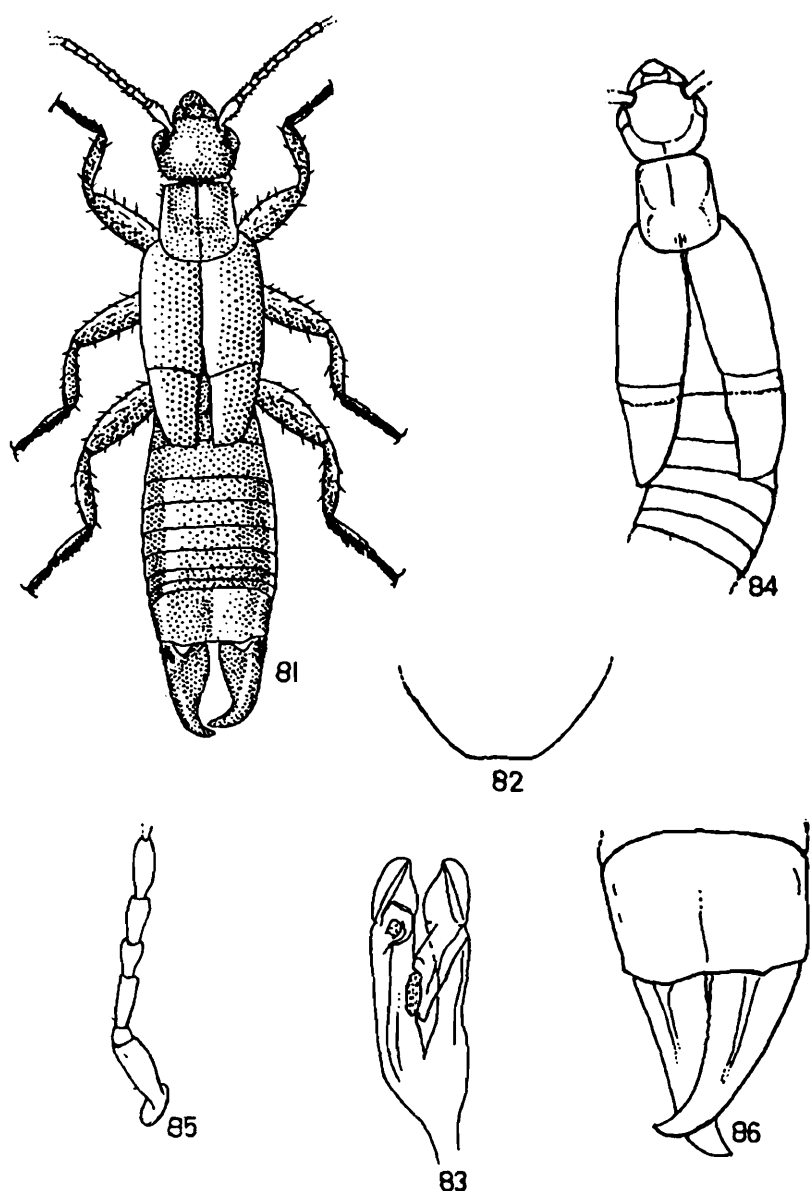
Landex femoralis : Burr, 1915, *J.R. micr. Soc.*, **1915** : 446 (partim).

Anisolabis (Euborellia) femoralis : Bey-Bienko, 1959, *Ent. Obozr*, **38** : 606.

Euborellia femoralis : Hincks, 1954, *Verh. Naturf. Ges. Basel*, **65** (1) : 11, fig. 2 (Male genitalia); Brindle, 1967, *Mem. Est. Mus. Zool. Univ. Coimbra*, No. **302** : 11; Brindle, 1968, *Ark. Zool.*, **20**(25) : 537; Brindle, 1971, *Ent. Tidsk*, **92** : (1–2) : 220; Brindle, 1971, *Ent. Scand. Suppl.*, **1** : 220, fig. 20 (Ceylon); Brindle, 1975, *Ent. Basiliensia*, **1** : 19 (Male, Female; Bhutan : Phutsholing, 200–400 m, Samchi, 350–400 m); Brindle, 1976, *Rev. Zool. Afr.*, **90**(2) : 442 (Seychelles Island); Kapoor, 1968, *Agra Univ. J. (Res.)*, **16**(1) : 11; Gangola, 1968, *Entmologist*, **101** : 54 (Male; India : U.P.); Srivastava, 1976, *Rec.zool. Surv. India, Occ. pap.*, **2** : 26; Srivastava, 1977, *Orient. Insects*, **11** (2) : 182; Srivastava, 1989, *Fauna of Orissa : State Fauna Series No. 1*, **2** : 160, figs. 24–25 (Male, Female; India : Orissa); Srivastava, 1990, *Rec. zool. Surv. India*, **87**(1) : 24 (Female : Sri Lanka); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya* : Pt. **3** : 310, figs. 49–51 (Male : India : Meghalaya : East Khasi Hills); Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 83; Steinmann, 1979, *Annln Hist.-nat.Mus.natn. hung*, **67** : 153 (Holotype Female; PAN Zoologiczny Instytut, Warszawa); Steinmann, 1981, *Acta zool. hung.*, **27**(1) : 197 (India : Pondicherry, Karaikal; Tamil Nadu : Coimbatore; Anamalai Hills, Cinchona); Steinmann, 1981, *Atti Soc. ital. Sci. nat. Musco civ. nat. Milano*, **122** : 159 (Female : Myanmar); Steinmann, 1989, *Das Tierreich*, **105** : 267; Steinmann, 1989, *World Catalogue of Dermaptera* : 269.

General colour brownish black; antennae blackish brown with one or two antepical segments yellowish white; pronotum yellow laterally and wings with moderately broad, yellow transverse band at base; legs yellow but femora banded with black.

Male : Head about as long as broad, frons convex, sutures faint, hind margin feebly emarginate in middle. Eyes prominent or less so, shorter than post-ocular area. Antennae 16-segmented, 1st stout, gently expanded apically, slightly shorter than the distance between antennal bases; 2nd about as broad as long; 3rd long and slender, a little over twice longer than broad; 4th slightly shorter than preceding,



Figs. 81-86 : *Euborellia femoralis* (Dohrn), Male; 81. Dorsal view; 82. Posterior half of penultimate sternite; 83. Genitalia; Holotype Female; 84. Anterior portion of body; 85. A few basal antennal segments; 86. Ultimate tergite and forceps.

stout and gently expanded apically; 5th slightly shorter than 3rd and longer than 4th; 6th about as long as 3rd but strongly narrowed at base; remaining gradually thinning and increasing in length distally. Pronotum longer than broad, lateral margin straight, gently reflexed, widened posteriorly with hind angles and margin rounded, median sulcus distinct; prozona and metazona poorly differentiated. Elytra and wings well developed, coriaceous and smooth. Legs typical of the genus; hind tarsi with 1st segment slightly longer than 3rd. Abdomen elliptical, tergites weakly convex, finely punctulate, sides of segments 7th to 9th acute angled posteriorly, carinate and rugosely punctate. Penultimate sternite narrowed posteriorly with posterior margin subtruncate. Ultimate tergite transverse, punctulate, weakly convex above, sides straight, slightly narrowed posteriorly, weakly tumid above the root of forceps, hind margin in middle

scarcely emarginate, laterally oblique and concave. Forceps with branches subcontiguous and stout at base, gradually tapering apically, almost straight in basal two thirds, slightly incurved afterwards, often right branch more strongly incurved, apices gently hooked, inner margin finely crenulate, trigonal in basal half above, afterwards, depressed. Genitalia with parameres about as long as broad, roughly sigmoid, distal lobes apically with denticulated chitinous pads.

Female : Agrees with males in most characters except that sides of abdominal segments convex; penultimate sternite obtuse in middle posteriorly; ultimate tergite weakly transverse, more narrowed posteriorly and forceps with branches contiguous, simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	8.4–9.2	8.7–9.8
Length of forceps	1.5–1.6	1.7–1.9

Types : Type Female deposited in IZAP.

Distribution : India : Arunachal Pradesh, Rotung, 427m (ZSI); Orissa, Jaypore, 541m; Madhya Pradesh, Jabalpur, 1600 ft. (MZM); Tamil Nadu, Coimbatore and Anamalai Hills; Pondicherry and Karaikal (ZSI).

Also recorded from Sri Lanka, Myanmar, China, Malaya, Java, Sumatra and Sumba.

Remarks : Recently Bey-Bienko (1959) has reported apterous form from China and discussed various characters for its discrimination from *E. plebeja* (Dohrn).

Anisolabis minuta Caudell, 1907, has been synonymised by Steinmman (1989a) which is not correct. According to the original description (Caudell, 1907) "..... by the presence of small, elongated and widely separated elytra which almost or quite immovably attached to the thorax", it should be a synonym of *E. annulata* (Fabricius) (= *E. stali* (Dohrn)).

Type Female (which may be considered as the Holotype) was examined and it possesses antennal segments blackish brown with one or two ante-apical segments yellowish white; pronotum yellow laterally; legs yellow, femora with a broad black band; wings with a moderately broad transverse, yellow band at base and inner wing tip with a yellow spot.

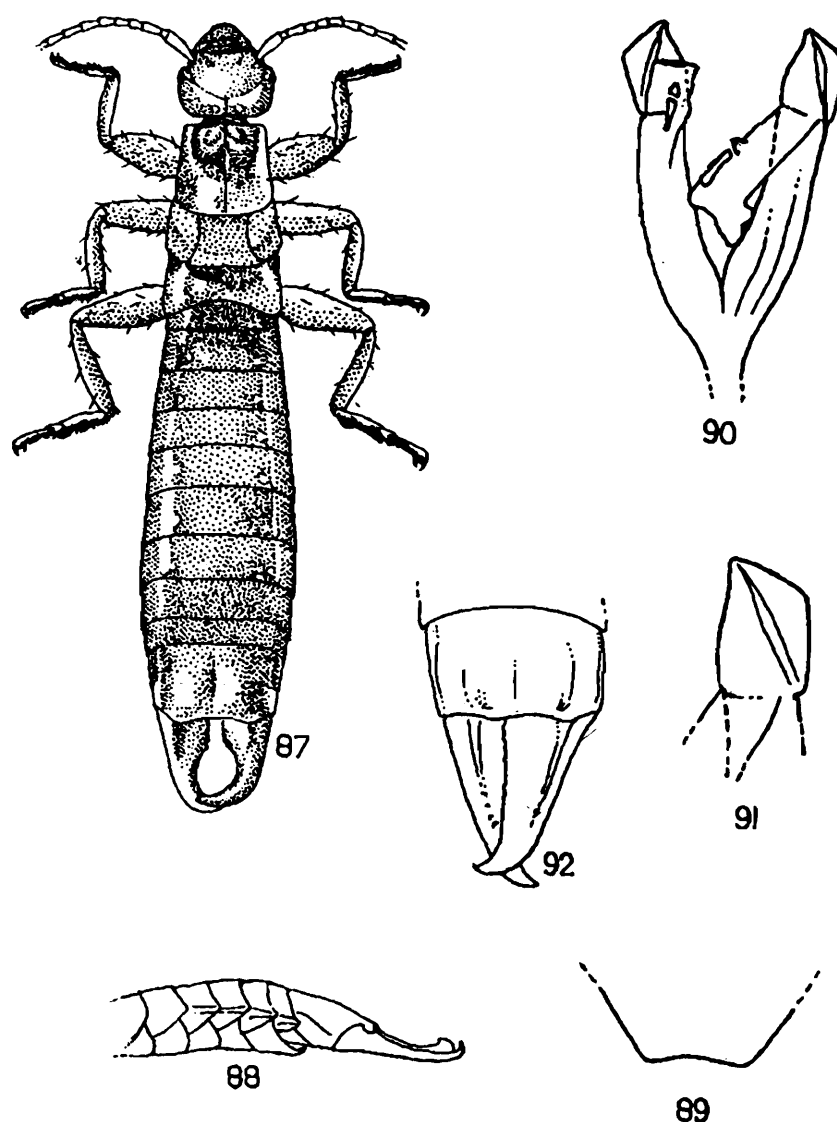
***Euborellia annandalei* (Burr)**

(Figs. 87–92)

Anisolabis annandalei Burr, 1906, *J. Asiat. Soc. Beng.* (N.S.), **2** : 389 (Male : India, Purneah Dist.).

Borellia annandalei, 1910, *Fauna British India, Dermaptera*, : 89 & 90.

Euborellia annandalei; Burr, 1911, *Genera Insect.*, **122** : 31; Hebard, 1923, *Mem. Dep. Agric. India, ent. Ser.*, **7** : 205 (Female; India : Bengal, Purneah dist.); Sakai, 1970,



Figs. 87-92 : *Euborellia annandalei* (Burr), Male; 87. Dorsal view; 88. Sides of abdominal segments and forceps; 89. Posterior half of penultimate sternite; 90. Genitalia; 91. Paramere, enlarged; Female; 92. Ultimate tergite and forceps.

Dermapterorum Cat. Prael., 1 : 2; Kapoor, 1968, *Agra. Univ. J. Res. (Sci.)*, 16(1) : 10; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 25; Srivastava, 1977, *Orient. Insect*, 11(2) : 182, fig. 1c (Male genitalia); Srivastava, 1979, *J. zool. Soc. India*, 27 (1 & 2) (1975) : 104, fig. 2F (a portion of Male genitalia from the specimen from India : Assam : Sanai Rupai Forest, 104m); Srivastava, 1993, *State Fauna Series 3, Fauna of West Bengal*, Pt. 4 : 392, figs. 71-73 (India : W.B. : Darjeeling dist.); Steinmann, 1989, *Das Tierreich*, 105 : 278; Steinmann, 1989, *World Catalogue of Dermaptera* : 262.

Euborellia (Euborellia) annandalei; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 25.

General colour yellowish brown to blackish brown; head yellowish brown; antennae with three basal segments yellow, remaining black; pronotum yellow on sides and posteriorly; legs yellow, femora in middle, banded with black and tibiae black at base and abdomen and forceps black. Build moderately stout.

Male : Head about as long as broad, convex, smooth, shining, sutures distinct, hind margin in middle slightly emarginate, Eyes black, about half as long as the post-ocular area. Antennae 16–17 segmented; 1st stout, expanded apically slightly shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long and slender, a little over twice as long as broad; 4th slightly shorter than 3rd, stouter, gently expanded apically; 5th slightly longer than 4th but shorter than 3rd, gently expanded apically; 6th about as long as 3rd, remaining gradually thinning, each gently narrowed at base. Pronotum about as long as broad; anteriorly about as broad as head, lateral margin straight, reflexed, gently widened posteriorly with margin rounded, median sulcus distinct; prozona tumid and metazona weakly convex. Elytra present as narrow, ovate, lateral flaps on mesonotum, external margin straight, internal margin convex and hind margin oblique. Wings wanting. Metanotum transverse, smooth, hind margin broadly emarginate. Legs typical of the genus, hind tarsi with basal segment slightly longer than apical segment, clad with fine pubescence and double row of thick setae on underside. Abdomen elliptical, tergites convex, punctulate, sides of segments 5th to 9th gently incurved, rugosely punctate and acute angled posteriorly with a distinct carina from 6th to 9th segments only. Penultimate sternite transverse, narrowed posteriorly with hind margin in middle faintly emarginate. Ultimate tergite transverse, punctulate, gently narrowed posteriorly, laterally above with a weak fold, sides straight, hind margin in middle rough, truncate or lightly concave, laterally oblique and emarginate, median sulcus marked by a depression, disc convex, weakly sloping posteriorly. Forceps with branches stout and subcontiguous in basal one thirds, afterwards tapering and incurved, right branch often more strongly incurved, apices gently hooked with tips pointed and crossing, trigonal in basal one third, afterwards depressed, internal margin crenulate in basal one third, smooth afterwards. Genitalia with parameres flat, square, external apical angle sharp, oblique membranous fold narrow; distal lobes with chitinous denticulated pads and virga distinct.

Female : Agrees with males in most characters except that the sides of abdominal segments convex; ultimate tergite weakly narrowed posteriorly; penultimate sternite obtuse posteriorly in middle and forceps simples and straight.

Measurements : (in mm)

	Male	Female
Length of body	11.5–13.6	13.2
Length of forceps	1.75–2.1	3.4

Types : In the original description (Burr, 1906) only 3 Males are mentioned which may be considered as *Syntypes* and stated to be present in Indian Museum (Burr, 1910).

The collections of the Indian Museum, Calcutta are now preserved in the Zoological Survey of India, Calcutta. In its Collection 2 Males from India : Purneah dist. (now in Bihar (*C. Paiva*—no further data), perhaps represent the Burr's *Syntypes*. The fate

of third Male is not known—perhaps it may be in the BMNH since a part of Indian Museum Collections is at present available there.

Distribution : India : West Bengal (Darjeeling dist.); Bihar (Purneah dist.) and Assam (Misamari, Sonai Rupai Forest, 104m, 1 Male)—all in Z.S.I., Coll.

Record from Sri Lanka (Burr, 1910) is doubtful.

Remarks : This species comes close to *Euborellia annulata* (Fabricius) and *Euborellia abbreviata* Srivastava from India but differs from both in general colouration especially of head, basal antennal segments and pronotum; stouter build and shape of male parameres being rectangular in shape.

***Euborellia annulata* (Fabricius)**
(Figs. 93–97)

Forficula annulata Fabricius, 1793, *Ent. Syst.*, II : 4 (sex ?; Americae Meridionale).

Euborellia annulata; Brindle, 1981, *Entomologist's Rec. J. Var.*, **93** : 14 (*Forcinella stali* Dohrn, 1864—proposed as synonym):

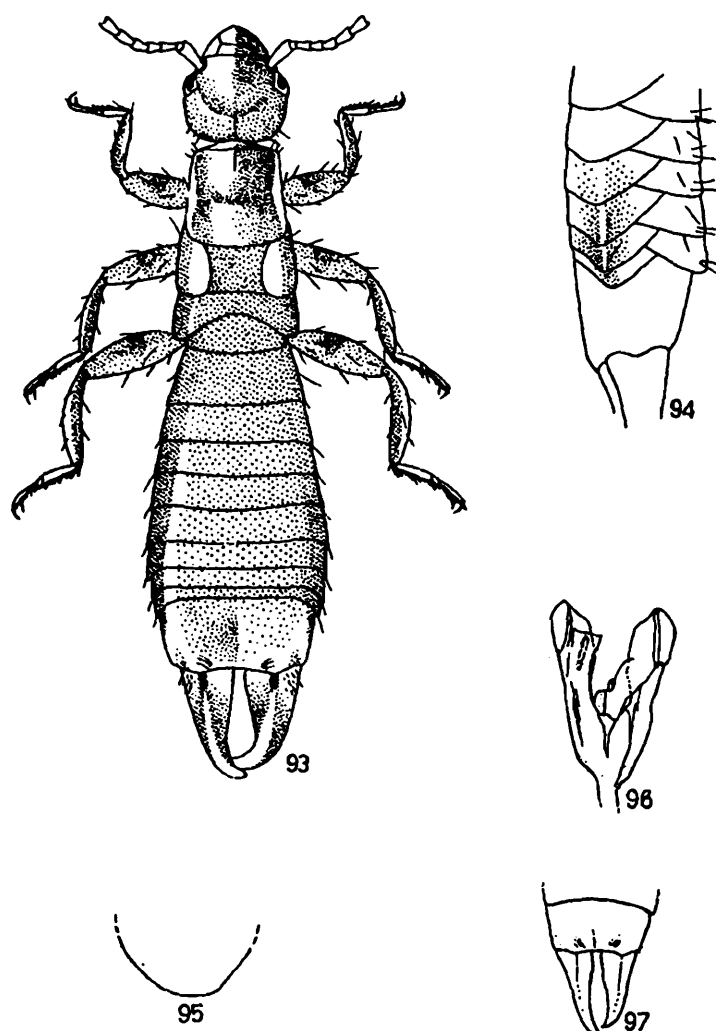
Forcinella stali Dohrn, 1864, *Stettin. ent. Zeit.*, **25** : 286 (Female; Java).

Anisolabis stali; Scudder, 1867, *Proc Boston Soc. nat. Hist.*, **18** : 308; Bormans, 1888, *Annali Mus. civ. Stor. nat. Giacomo Doria*, (2) **6** : 435; Bormans, 1894, *Annali Mus. civ. Stor. Giacomo Doria*, **2** (14) : 378; Bormans, 1900, *Das Tierreich*, **11** : 45; Burr, 1902, *Termeszeter Fuz.*, **25** : 477; Burr, 1908, *Ann. Mag. nat. Hist.*, (8) **2** : 30; Kirby, 1904, *Syn. Cat. Orth.* **1** : 19.

Borellia stali; Burr, 1910, *Fauna British India, Dermaptera* : 88; Burr, 1910, *Trans. Linn. Soc. Lond.*, **14** : 25 (Mahe, Long Isl. also Dennis & Bird Island in far North of the Seychelles bank).

Euborellia stali; Burr, 1911, *Genera Insect.*, **122** : 31; Burr, 1912, *Annln. Naturf. Mus. Wien*, **26** : 75; Burr, 1914, *Rec. Indian Mus.*, **10** : 285; Hebard, 1923, *Mem. Dep. Agric India ent. Ser.*, **7** : 206; Borelli, 1926, *Treubia*, **8** : 225; Borelli, 1931, *Rev. suisse Zool.*, **38** : 300; Borelli, 1932, *J. Fed. Malay St. Mus.*, **17** (1) : 822; Boesman, 1954, *Zool. Verh., Leiden*, **21** : 43; Kapoor, 1968, *Agra. Univ. J. Res. (Sci.)*, **16** (1) : 11; Brindle, 1971, *Ent. Tidskr.*, **92** (1 & 2) : 11; Brindle, 1971, *Ent. scand., Suppl.*, **1** : 219; Srivastava 1976, *Pacif. Insects*, **17** : (1) : 103 (Male, Female; Philippine Isls, Luzon & Mindanao); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 27; Srivastava, 1977, *Orient. Insects*, **11** (2), fig. Id (Male genitalia); Srivastava, 1979, *J. zool. Soc. India*, **27** (1–2) (1975) : 104 (Male, Female; India Manipur); Srivastava, 1989, *Fauna of Orissa : State Fauna Series No. 1*, **2** : 158, figs. 22–23 (Male, Female; India : Orissa); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 24 (Male, Female; India : Karnataka, Tamil Nadu and Orissa); Srivastava, 1991, *State Fauna Series No. 2 : Fauna of Lakshadweep* : 259 (Female; India : Lakshadweep, Kavaratti and Amini Islands); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal Pt. 4* : 392 (W.B. : Midnapur Dist. and Calcutta); Brindle, 1977, *Revue suisse Zool.*, **84** (2) : 456 (Female; Sri Lanka : North Western).

Anisolabis pallipes Shiraki, 1905, *Trans Sapporo nat. Hist.*, **1** (1) : 93, fig. 3 (Female; Formosa); Steinmann, 1989, *World Catalogue of Dermaptera* : 275 (Proposed as synonym of *Labidura plebeja* Dohrn, 1863).



Figs. 93-97 : *Euborellia annulata* (Fabricius), Male; 93. Dorsal view; 94. Sides of abdominal segments and a portion of forceps; 95. Hind portion of penultimate sternite; 96. Genitalia; Female; 97. Ultimate tergite and forceps.

Euborellia pallipes; Burr, 1911, *Genera Insect.*, **122** : 31; Shiraki, 1928, *Insecta Matsum.*, **3** (1) : 7, figs. a-c; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 26.

Anisolabis (Euborellia) pallipes; Bey-Bienko, 1936, *Faune de L'URSS* : 218; Bey-Bienko, 1959, *Ent. Obozr.*, **38** : 607 (South China).

Anisolabis minuta Caudell, 1907, *J. N. York ent. Soc.*, **15** : 108 (Male; Female, Arroyo and Mayagulz, Porto Rico); Reichardt, 1968, *Papéis. Avulsos zool., S. Paulo*, **22** (5) : 45 (treated as synonym of *Forficesila stali* Dohrn, 1864); Steinmann, 1989, *World Catalogue of Dermaptera* : 269 (Proposed as synonym of *Labidura femoralis* Dohrn, 1863).

General colour black to brownish black; antennae with one or two ante-apical segments yellow but their position variable, sometimes basal segment also yellow; pronotum yellow on sides; legs yellow but femora banded with black in middle. Build slender.

Male : Head smooth, shining, about as long as broad or longer, frons convex, sutures fine but distinct, hind margin emarginate in middle. Eyes slightly less than

half the length of post-ocular area. Antennae 16-segmented; basal segment stout, narrowed basally, shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long, slender, $2\frac{1}{2}$ times longer than broad; 4th & 5th sub-equal, both slightly stouter and shorter than preceeding; 6th about as long as the 3rd but stouter, gently expanded apically; remaining gradually thinning and increasing in length distally except a few apical ones. Pronotum about as long as broad, gently widened posteriorly, anteriorly as wide as head, lateral margin straight, gently reflexed, hind margin briefly rounded, median sulcus distinct; prozona raised, metazona weakly depressed. Mesonotum transverse, hind margin straight. Metanotum transverse with hind margin broadly emarginate. Elytra abbreviated in the form of a narrow, ovate lateral flap, about as long as the mesonotum, external and apical margins straight, internal margin lightly convex, smooth, coriaceous. Wings absent. Legs typical of the genus. Abdomen elliptical or gradually dilating upto 9th tergite, convex, closely punctured, sides of segments 6th to 9th acute angled posteriorly, rugose and carinated. Penultimate sternite narrowed posteriorly with margin rounded; manubrium $2\frac{1}{2}$ times longer than the sternite, apically with a broad loop. Ultimate tergite transverse, disc convex, with vertical punctulated and smooth stripes alternating, laterally above convex, median sulcus marked by a longitudinal depression, hind margin in middle straight or lightly concave, oblique laterally and emarginate. Forceps with branches sub-contiguous and stout at base, gradually tapering apically, almost straight in basal two thirds, incurved in apical one third with right branch more strongly incurved, tips gently hooked and crossing, trigonal above in basal one third, inner margin finely serrated. Genitalia with parameres about as long as broad, external apical angle rounded, with inner apical concavity; distal lobes with denticulated chitinous pads apically.

Female : Agrees with males in most characters except ultimate tergite weakly transverse, slightly narrowed posteriorly; penultimate sternite obtuse posteriorly in middle and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	7.0–9.5	7.5–9.0
Length of forceps	1.0–1.5	1.0–1.5

Types : Type Male of *Forficula annulata* Fabricius, 1793, deposited in UZMC (According to Brindle (1981) only one male specimen is remaining out of three specimens recorded by Zimsen (1964).

Type Female of *Forcinella stali* Dohrn, 1864 deposited in NRSS.

Type Female of *Anisolabis pallipes* Shiraki, 1906 stated to be in the collection of Dr. S. Matsumura.

Types one Male one Female of *Anisolabis minuta* Caudell, 1907 deposited in USNM.

Distribution : India : Kerala : Malabar; Tamil Nadu : Nilgiri Hills, Coimbatore, Tanjore dist., Yercaud Dist., Shevroy; Karnataka : Mysore; Maharashtra : Bombay; Orissa : Mayurbhanj Dist. : Baripoda, Pottangai, 3345 ft.; West Bengal : Midnapur Dist., Contai, Calcutta & environs; Manipur : Churachandpur, 300 ft.; Lakshdweep Isls.

Also reported from Sri Lanka; Pakistan and China and other parts of Oriental Region.

Almost world wide in distribution, especially in warmer parts.

This species is represented by following collections in MZM, not hitherto reported :

India : Tamil Nadu : Nilgiri Hills, Kallar, 1250 ft., 1 Male; Coimbatore, 7 Males, 28 Females, 11 Nymphs; Tanjore dist., Nadngadu, 2 males, 4 Females; Yercaud Shevroy Hills, 1 Female; Kerala : Malabar, Walayar Forests, 1000 ft., 1 Male, 1 Female, 3 nymphs, 1500 ft., 1 nymph—all determined by *Dr. G. K. Srivastava*."

Remarks : It is now established that *E. annulata* (Fabricius) (= *E. stali* (Dohrn, 1864) possesses elytra in the form of narrow ovate lateral flaps on mesonotum. Much of the confusion between *E. stali* and *E. plebeja* (Dohrn, 1863) is as a result of proposed synonym of former with the latter by Hebard (1927).

Accordingly *Anisolabis pallipes* Shiraki, 1905 from Formosa and *Anisolabis minuta* Caudell, 1907 from Porto Rico are placed as synonyms.

Besides *Mongolabis aberrans* Borelli, 1932 from Borneo which was synonymised by Steinmann (1989a) under *E. stali*, appear to be quite distinct on the basis of original description.

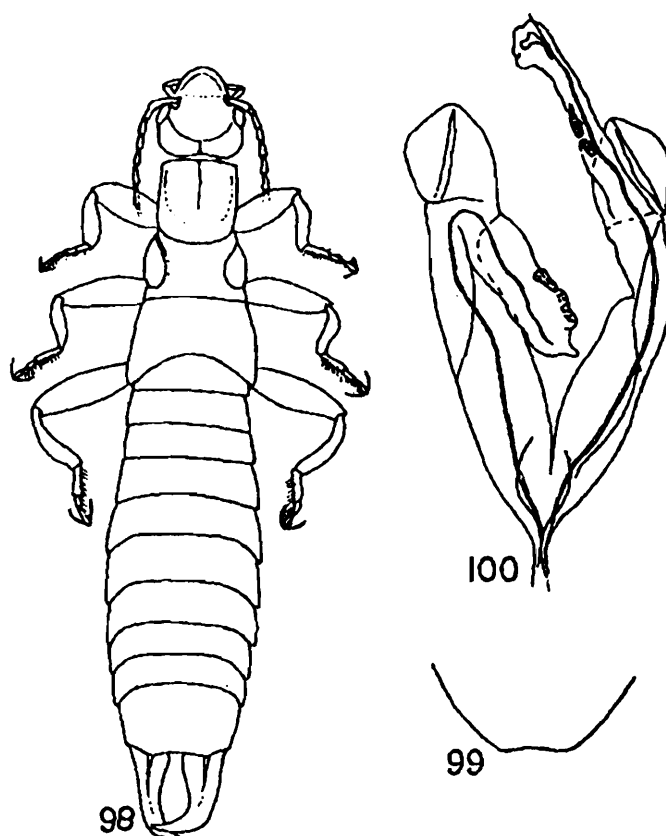
***Euborellia abbreviata* Srivastava**
(Figs. 98–100)

Euborellia abbreviata Srivastava, 1977, *Orient. Insects*, **11** (2) : 184, figs. 2f–i (Male : India, Arunachal Pradesh, Lohit dist., Dambuk (not Cambuk), Roing); Steinmann, 1989, *Das Tierreich*, **105** : 277; Steinmann, 1989, *World Catalogue of Dermaptera* : 260.

Euborellia (Euborellia) abbreviata; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 26.

General colour blackish, head yellowish brown with shades of black; pronotum yellowish laterally; legs yellowish brown and femora banded with black in middle; abdominal tergites black, hind margin of each tergite reddish.

Male : Head triangular, slightly longer than broad, frons raised, sutures faint, hind margin slightly emarginate in middle. Eyes small, black. Antennae partly broken, only six segments on each side remaining, 1st long, stout; 2nd small; 3rd long, slender, equal to 4th and 5th together; 6th longer than 5th. Pronotum about as long as broad, anterior and lateral margins straight, latter gently reflexed, very slightly expanded



Figs. 98-100 : *Euborellia abbreviata* Srivastava, Holotype Male; 98. Dorsal view; 99. Hind portion of penultimate sternite; 100. Genitalia.

posteriorly with margin rounded, median sulcus faint, prozona raised, a little differentiated from flat metazona. Legs typical of the genus. Elytra abbreviated in the form of a narrow ovate lateral flap on mesonotum. Wings absent. Abdomen gently widened in middle, faintly punctulate above, sides of segments 6th to 9th rugosely punctate, acute posteriorly, a median longitudinal carina present on the sides of segments 6th to 9th only. Penultimate sternite punctate, punctation sparse in apical half only, hind margin subtruncate in middle. Ultimate tergite twice as broad as long, very slightly narrowed posteriorly, median sulcus faint, finely punctulate, hind margin straight in middle, laterally oblique and concave. Forceps with branches remote at base, trigonal above in basal one third, afterwards depressed, tapering apically, left branch almost straight, gently curved in apical one third, right branch more strongly curved and crossing over the left, tip pointed, inner margin finely crenulate, branches flat below. Genitalia with parameres square, external apical angle convex, apex obtuse, inner margin convex, oblique membrane narrow; distal lobes with denticulated chitinous pads and a fine virga.

Female : Unknown.

Measurements : (in mm)

	Male
Length of body	11.2
Length of forceps	1.6

Type : Holotype Male in Z.S.I.

Distribution : India, Arunachal Pradesh.

Remarks : This species comes close to *E. annulata* (Fabricius) and *E. annandalei* (Burr) in having elytra as narrow, ovate, lateral flaps on mesonotum and sides of abdominal segment 6th to 9th carinate. It differs from the former in being slightly larger in size, i.e., 12.8mm (*vs* smaller size, i.e., 8.0–11.0mm in *E. annulata*) and male genitalia with parameres lacking inner apical concavity (*vs* a broad inner concavity present) and from the latter by slightly smaller size, i.e., 12.8mm (*vs* larger size, i.e., 13.0–16.6mm in *E. annandalei*); sides of abdominal segments 6th to 9th posteriorly not incurved (*vs* incurved) and male genitalia with external apical angle rounded (*vs* external apical angle sharp and projecting).

***Euborellia manipurensis* Srivastava**
(Figs. 101–106)

Euborellia manipurensis Srivastava, 1979, *J. zool. Soc. India*, **27** (1–2) (1975) : 104 (Male, Manipur, Ukhrul, 6200 ft.); Steinmann, 1989, *World Catalogue of Dermaptera* : 273.

General colour blackish brown; mouth parts and a few basal as well as ante-apical antennal segments yellowish brown; legs yellow and forceps reddish brown.

Male : Head slightly longer than broad, convex, sutures obliterated, slightly emerginate in middle posteriorly. Eyes triangular, about half as long as the post ocular area. Antennae (apically) broken, only 13 segments remaining, 1st long, stout, narrowed at base; 2nd small; 3rd long, cylindrical; 4th and 5th subconical and almost equal in length but both shorter than 3rd, remaining narrow at base and gently expanded at apex and gradually increasing in length distally. Sternal plates typical of the genus. Pronotum quadrate, slightly longer than broad, all margins straight, sides gently reflexed, very slightly widened posteriorly, median suture faint, prozona slightly raised and metazona depressed. Elytra abbreviated in the form of narrow, ovate flaps on the sides of the mesonotum. Abdomen long, slender, slightly enlarged in middle, punctulate, sides of abdominal segments 6th to 9th obtuse angled posteriorly, punctate and devoid of any longitudinal carina. Penultimate sternite with hind margin rounded posteriorly. Ultimate tergite transverse, sides convex and with an oblique convexity, gently contracted posteriorly, hind margin gently sinuate in middle, median sulcus distinct, above the bases of forceps punctate with oblique striations. Forceps almost straight, trigonal in basal half only, afterwards depressed, tapering apically, tip pointed and hooked, right branch near the apex slightly more incurved, inner margin crenulate. Genitalia with parameres about as long as broad, apical margin lightly convex, external apical angle rounded, oblique membrane narrow; distal lobes with chitinous denticulated pads; fissure of proparamere deeps and wide.

Female : Agrees with male in most characters except that penultimate sternite obtusely produced in middle posteriorly; ultimate tergite more strongly narrowed posteriorly and forceps with branches contiguous, simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	7.3	7.0–7.4
Length of forceps	1.2	1.2–1.3

Types : Holotype Male in Z.S.I.

Distribution : India : Manipur : Ukhrul, 6200 ft.

Remarks : Due to the presence of elytra as narrow ovate flaps on mesonotum, the described species comes close to *E. annandalei* Burr and *E. annulata* (Fabricius) but differs from both in having the sides of abdominal segments ecarinate and obtuse posteriorly and by the shape of parameres lacking inner apical concavity and apical margin lightly convex.

The description of female is based on on 1 male, 3 females and 5 nymphs, 10.ix.1775 (*M.S. Shishodia coll.*) from Manipur : New churachandrapur, det. by Dr. G. K. Srivastava, preserved in the Zoological Survey of India, Calcutta.

Uncertain species :***Euborellia kumaonensis* Gangola**

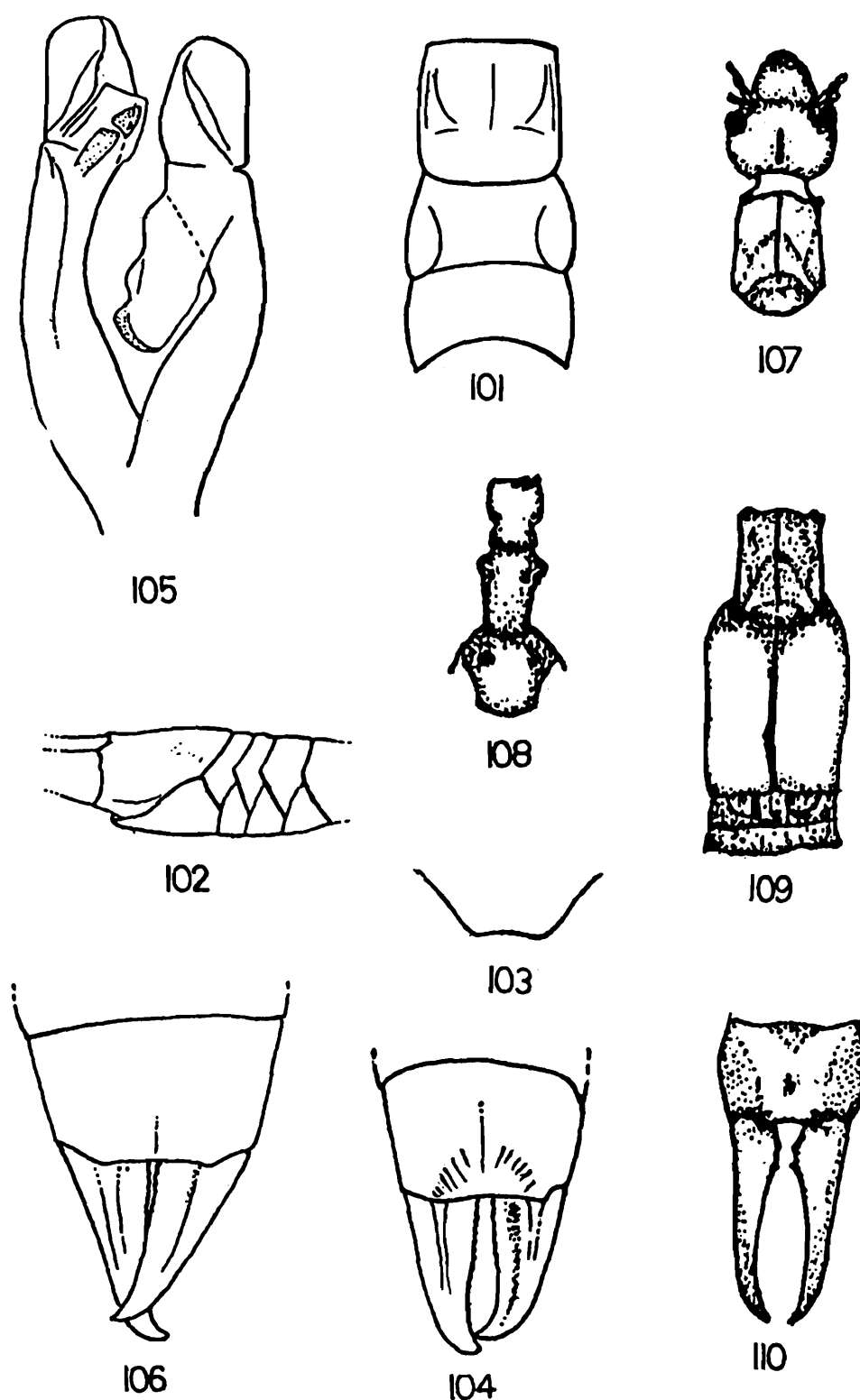
(Figs. 107–110)

Euborellia kumaonensis Gangola, 1968, *Entomologist*, **101** : 55, figs. 1–4 (Male; India : U.P., Nainital dist.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 26; Srivastava, 1977, *Orient. Insects*, **11** (2) : 182 (treated as uncertain species); Steinmann, 1989, *Das Tierreich*, **105** : 267 (proposed as synonym of *Euborellia femoralis* (Dohrn, 1863).

Male : Stature small, deep chestnut brown in colour, pronotum lighter laterally; apical joints of antennae, palpi and tarsi, 10th abdominal segment and lower ¾th of body covered with hairs.

Head long, shining, almost black, sutures not distinct, eyes short, post-ocular rounded; antennae 16-segmented; segment 1 and 3 quite long, rest progressively more slender. Pronotum shining, longer than broad, narrower than head, anterior margin straight, sides depressed, posterior end broad with angles round; prozona elevated, metazona flat, median suture obsolete. Elytra granulated bearing tiny hairs, less broad, carina short. Wings short with metallic lustre. Legs pale yellow, broad dark brown bands on the segments. Sternal plates having mesosternum with two black spots laterally, apex not much rounded, longer than pro- and metasternum. Abdomen granulated, with long dense stiff hair, less depressed, sides not parallel, segments shortening up to 9th segment. Ultimate tergite quadrate, much elevated in middle with a median depression, sides not parallel, tubercles above the base of the forceps. Penultimate sternite short. Pygidium triangular. Forceps depressed, straight, black at base, tips flat and chestnut brown in colour, triangular basally, left arm shorter than right, deeply crenulated; a single tooth at the base of each branch.

Female : Unknwon.



Figs. 101-110 : *Euborellia manipurensis* Srivastava, Holotype Male; 101. Thoracic region; 102. Sides of abdominal segments and a portion of forceps; 103. Hind portion of penultimate sternite; 104. Ultimate tergite and forceps; 105. Genitalia; Female; 106. Ultimate tergite and forceps; *Euborellia kumaonensis* Gangola, Holotype Male; 107. Head and pronotum; 108. Sternal plates; 109. Pronotum, elytra, wings and basal tergites; 110. Ultimate tergite and forceps. (Figs 107-110 after Gangola, 1968)

Measurements : (in mm)

	Male
Length of body	10.0
Length of forceps	2.0

Types : Holotype Male stated to be deposited at DTDSN.

Distribution : India : U.P., Nainital Dist., Sher-ka-Danda Hills, 2057m.

Remarks : The above description of the species is after Gangola (1968). Since the male genitalia has not been described, it is difficult to ascertain the taxonomic status of the species.

However, on the basis of description and figures given by the author, Holotype appears to be a female of *Nala lividipes* (Dufour). The shape of pronotum; granulated elytra and abdomen and former with a short keel suggest the same.

Euborellia askotensis Gangola

Euborellia askotensis Gangola, 1968, *Entomologist*, **101** : 55 (Male : India, U.P., Pithoragarh dist., Askote, 1371m); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 26; Srivastava, 1977, *Orient. Insects*, **11** (2) : 182 (treated as uncertain species); Steinmann, 1989, *Das Tierreich*, **105** : 267 (proposed as synonym of *Euborellia femoralis* (Dohrn, 1863)).

Male : Size medium, general colour blackish-brown, slightly depressed. Head, tumid, eyes prominent, frons elevated. Antennae brown, 10-segmented, 3rd segment longer than 4th and 5th united, 4th almost equal to 2nd, rest globular. Pronotum truncate, anterior angles produced; longer than broad, sides straight and translucent; rounded posteriorly; prozona and metazona separated by a transverse groove, former with single oval spot in middle and latter with a pair of yellow spots on anterior margin. Tegmina twice as long as pronotum, ample, black along suture, vestigial keel on the costal margin, finely punctate. Legs slender, femora and tibiae banded with brown. Abdomen dark brown shaded with black, parallel sided, broad caudad. Ultimate tergite ample, smooth, quadrate, small tubercles over the roots of forceps. Forceps brown, strong, remote at base, triangular basally, curved laterad, with one tooth placed three-fifths from base.

Genital armature : Parameres clubbed at apex, tips acuminate; midrib prominent; basal vesicles facing dorsally. Preputial sac thin and membranous. Virga of the reflected penis lobe smaller than the other. Parameres tubular.

Female : Unknown.

Measurements : Not provided with the original description.

Types : Holotype Male stated to be deposited at DTDSN.

Distribution : India : Uttaranchal : Askote (Pithoragarh Dist.). Known only from the type locality.

Remarks : The above description is taken from Gangola (1968).

The shape of parameres suggests it may not be a member of *Euborellia* Burr. Perhaps it may belong to *Labidura* Leach. However, the correct position of the species could be decided only after the examination of the Holotype.

The author personally along with the concerned staff at the Department of Zoology, Thakur Dan Singh Bhist Government College, Nainital (U.P.), could not trace there the types of *E. kumaonensis* and *E. askotensis*.

Mongolabis Zacher

Mongolabis Zacher, 1911, *Zool. Jb.*, **30** : 273, 4th line from bottom & 385 (Type species : *Gonolabis woodwardi* Burr, 1908—designated by Burr, 1911, *Genera Insect.*, **122** : 34); Burr, 1911, *Genera Insect.*, **122** : 34; Burr, 1915, *J. R. micr. Soc.*, **1915** : 544; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 353; Popham and Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Euborellia* Burr, 1910); Steinmann, 1989, *World Catalogue of Dermaptera* : 283 (included as synonym of *Gonolabis* Burr, 1900); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 84.

Anisolabis (*Mongolabis*); Bey-Bienko, 1936, *Faune de L'URSS Dermaptera* : 92 and 218.

Euborellia (*Mongolabis*); Sakai, 1982, *Bull Daito Bunka Univ.*, **20** : 25.

Gelotolabis Zacher, 1911, *Zool. Jb.*, **30** : 273, bottom line & 385 (Type species : *Gelotolabis burri* Zacher, 1911); Burr, 1915, *J. R. micr. Soc.*, **1915** : 536; Popham and Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Anisolabis* Fieber, 1853); Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren, in-8°*, *Zool.*, **255** : 71 (included as synonym of *Anisolabis* Fieber, 1853); Steinmann, 1989, *World Catalogue of Dermaptera* : 204 (included as synonym of *Anisolabis* Fieber, 1853); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 84 (treated as synonym of *Mongolabis* Zacher).

Cerolabis Bey-Bienko, 1959, *Ent. Obozr.*, **38** : 607 (Type species : *Anisolabis* (*Cerolabis*) *hawangi* Bey-Bienko, 1959—treated as subgenus of *Anisolabis*); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 27; Steinmann, 1989, *World Catalogue of Dermaptera* : 283 (treated as synonym of *Gonolabis* Burr, 1900); Srivastava, 1999, *Rec. zool. Surv. India*, **97** : 84 (as synonym of *Mongolabis* Zacher).

Paraflexiolabis Steinmann, 1989, *Das Tierreich*, **105** : 37 (Type-species : *Paraflexiolabis ornata* Steinmann, 1989); Steinmann, 1989, *World Catalogue of Dermaptera* : 302; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 84 (treated as synonym of *Monogolabis* Zacher).

Size small to large (10–30mm); build generally stout, occasionally slender. General colour black to blackish brown. Generally apterous, sometimes abbreviated elytra present, narrowed at base, exposing transverse scutellum and posteriorly lobed, meeting along the median line.

Male parameres about one and half times longer than broad, broadened in middle, narrowed apically forming a sort of snout, somewhat square with inner margin oblique, external apical angle generally projecting or spiniform; distal lobes with chitinous denticulated pads and accessory chitinous plates present or absent; virga may or may not be discernible.

Type species : *Gonolabis woodwardi* Burr, 1906 (Designated by Burr, 1911, *Genera Insect.*, 122 : 34).

Distribution : Oriental, Ethiopian and Australian Regions.

Remarks : Srivastava, (1999) has resurrected this genus since it has line priority over *Gelotolabis* Zacher (Zacher, 1911).

This genus is mainly characterised on the basis of male parameres. Only this part of genitalia is useful in discriminating it from related genera and all other characters seem to be of little value.

At present only a single species of the genus is represented in India.

Mongolabis vallakadaiensis (Ramamurthi & David)
(Figs. 111–115)

Epilabis (Cryptolabis) vallakadaiensis Ramamurthi and David, 1973, *Zool. Anz.*, 190 : 439, figs. 9 & 10 (Male; India : Tamil Nadu, Shevroy Hills, Vallakadai, 1350m); Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 30.

Gelotolabis vallakadaiensis; Srivastava, 1978, *Bull. zool. Surv. India*, 1(1) : 71; Srivastava, 1983, *Bull. Inst. r. Sci. nat. Belg.*, 54(11) : 4, figs. 8–13 (Male, Female; India : Tamil Nadu : Shevroy Hills, 4500 ft.).

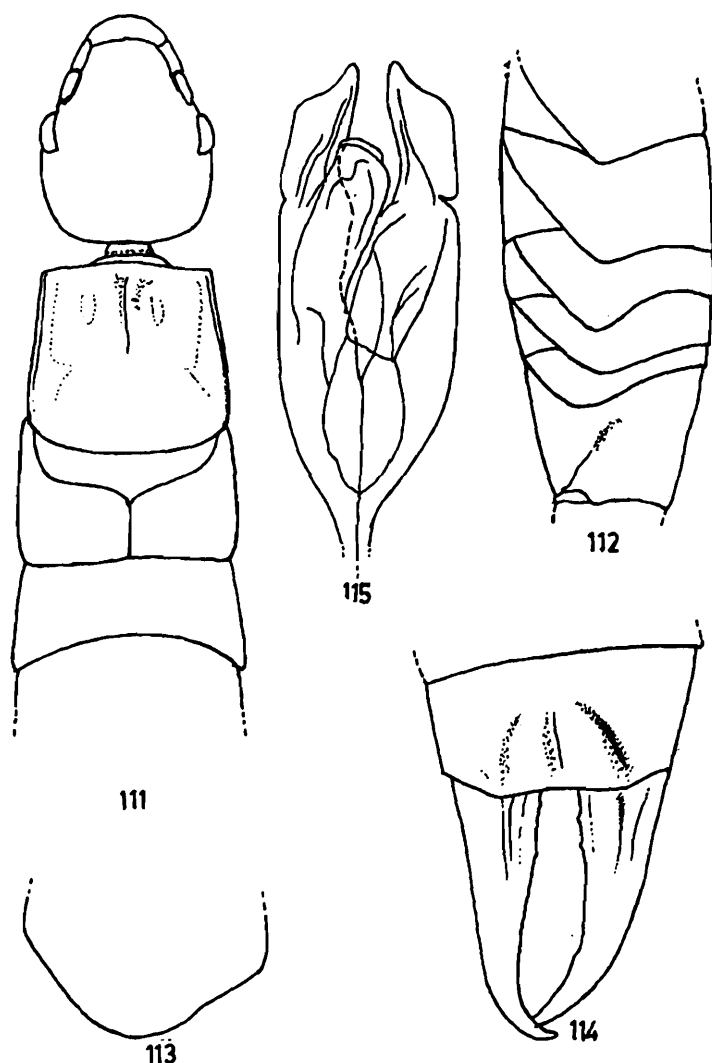
Anisolabis (Gelotolabis) vallakadaiensis; Sakai, 1987, *Dermapterorum Cat.*, 20 : 1987.

Epilabis vallakadaiensis Steinmann, 1989, *Das Tierreich*, 105 : 179, fig. 292; Steinmann, 1989, *World Catalogue of Dermaptera* : 255.

Mongolabis vallakadaiesis; Srivastava, 1999, *Rec. zool. Surv. India*, 97 (1) : 85.

Male : General colour reddish brown to dark brownish black; legs lighter in colour.

Head longer than broad, weakly convex, surface rugose, punctate in posterior half, sutures fine, hind margin lightly emarginate in middle. Eyes about $\frac{1}{3}$ as long as the post-ocular area. Antennae (apical segments generally broken) 10-segmented (in the material examined) with 1st segment long, stout, narrowed at base, slightly shorter than the distance between antennal bases; 2nd transverse; 3rd long and slender; 4th about as long as broad, gently expanded apically; 5th longer than 4th but a trifle shorter than 3rd; remaining segments gradually increasing in length. Pronotum longer than broad, finely punctate, sides gently diverging posteriorly with hind margin and angles rounded, median sulcus distinct in anterior half only, prozona and metazona not well differentiated. Meso- and metanotum punctate, former with abbreviated elytra, narrowed at base, exposing a transverse scutellum and posteriorly lobed, overlapping along the middle line. Abdomen convex, parallel sided, only gently widened posteriorly but afterwards narrowed from 8th tergites onwards, each tergite close to lateral margin with three smooth oval patches, roughly arranged in a triangular fashion, sides of segments convex posteriorly and ecarinate. Penultimate sternite transverse, in posterior half narrowed with hind margin convex in middle. Ultimate



Figs. 111-115 : *Mongolabis vallakadaiensis* (Ramamurthi and David); 111. Anterior portion of body; 112. Sides of abdominal segments; 113. Posterior half of penultimate sternite; 114. Ultimate tergite and forceps; 115. Genitalia (all figs. except genitalia are from the Holotype Male).

tergite transverse, gently narrowed posteriorly, disc convex, posteriorly with a depression in middle, median sulcus short, distinct in posterior half only, hind margin trisinate, laterally oblique above base of forceps. Forceps with branches at base remote or subremote, broad at base, gradually tapering posteriorly, almost straight in basal two thirds, afterwards gently incurved, apices hooked with tip pointed, trigonal above in basal $\frac{1}{3}$, afterwards depressed, inner margin finely crenulate. Genitalia with parameres about twice as long as broad, almost of uniform width in basal $\frac{2}{3}$, afterwards narrowed with tip pointed, external apical angle distinct, inner margin concave, membrane oblique & narrow; distal lobes without virga or denticulated pads.

Female : Agrees with males in most characters except that ultimate tergite more narrowed posteriorly; forceps almost symmetrical and subcontiguous, inner margin with a minute tooth at basal $\frac{1}{3}$.

Measurements : (in mm)

	Male	Female
Length of body	16.2	16.5–17.0
Length of forceps	3.3	3.1–3.2

Type species : Holotype Male in the Authors collection.

Distribution : India : Tamil Nadu, Shevroy Hills.

Genus : *Anisolabella* Zacher

Anisolabella Zacher, 1911, *Zool. Jb.*, **30** : 378 (Type species : *Anisolabella braueri* Zacher, 1911); Burr, 1911, *Genera Insect.*, **122** : 34 (in subfamily Psalinae); Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 344; Popham and Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Gonolabis* Burr, 1900); Steinmann, 1977, *Annls hist.-nat. Mus. natn. hung.*, **69** : 94; Brindle, 1978, *Ann. Mus. Roy. Afr. Centr. Tervuren, in-8°*, *Zool.*, **225** : 71 (treated as synonym of *Anisolabis* Fieber, 1853); Steinmann, 1978, *Dt. ent. Z.*, **25** : 185; Steinmann, 1989, *Das Tierreich*, **105** : 168; Steinmann, 1989, *World Catalogue of Dermaptera* : 203; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 86.

Horridolabis Zacher, 1911, *Zool. Jb.*, **30** : 384 (Type species : *Horridolabis paradoxura* Zacher, 1911); Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 349; Popham and Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Anisolabis* Fieber, 1853); Brindle, 1978, *Ann. Mus. Roy. Afr. Tervuren, in-8°*, *Zool.*, **225** : 71 (treated as synonym of *Anisolabis* Fieber, 1853); Steinmann, 1989, *World Catalogue of Dermaptera* : 204 (treated as synonym of *Anisolabis* Fieber, 1853); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 86 (treated as synonym of *Anisolabella* Zacher, 1911).

Paralabis Burr, 1915, *J. R. micr. Soc.*, **1915** : 540 (Type species : *Anisolabis oweni* Burr, 1911); Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 353; Popham and Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Anisolabis* Fieber, 1853); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16** (1) : 9; Srivastava, 1971, *Entomologist's Rec. J. Var.*, **83** : 18; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 23; Srivastava, 1987, *Bull. zool. Surv. India*, **8** (1–3) : 13; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 86 (treated as synonym of *Anisolabella* Zacher, 1911); Brindle, 1978, *Ann. Mus. Roy. Afr. Centr. Tervuren, in-8°*, *Zool.*, **225** : 71 (treated as synonym of *Anisolabis* Fieber, 1853); Steinmann, 1989, *World Catalogue of Dermaptera* : 204 (treated as synonym of *Anisolabis* Fieber).

Male genitalia with parameres about one and half times longer than broad, somewhat oval or squarish, broadened in middle, narrowed apically but not forming a snout (projecting), tip may be pointed or obtuse, external margin forming a sort of arch or semicircular; distal lobes Anisolabid type, virga absent or discernible, with or without denticulated pads; proparmers divided apically into two halves, extent of incision variable.

Females similar to male in external characters except that ultimate tergite weakly transverse and forceps generally simple and straight.

Type-species : *Anisolabella braueri* Zacher, 1911.

Distribution : World wide but more dominant in tropical and subtropical parts.

Remarks : Srivastava (1999) has redefined this genus and altogether 37 species are included under it.

At present only six species are represented from the Indian subcontinent.

The distribution of Indian species appears to be interesting. Excepting *A. dohrni* (Kirby) which is distributed in Sri Lanka and almost through out India, all others have restricted distribution. *A. greeni* (Burr) is endemic to Sri Lanka and *A. nandii* (Srivastava) is confined to Penninsular India. The other three species viz., *A. carinatus* (Srivastava) and *A. denticulatus* (Srivastava) alongwith *A. montshadskii* (Bey-Bienko) are found in N.E. India excepting last one which was originally described from South China.

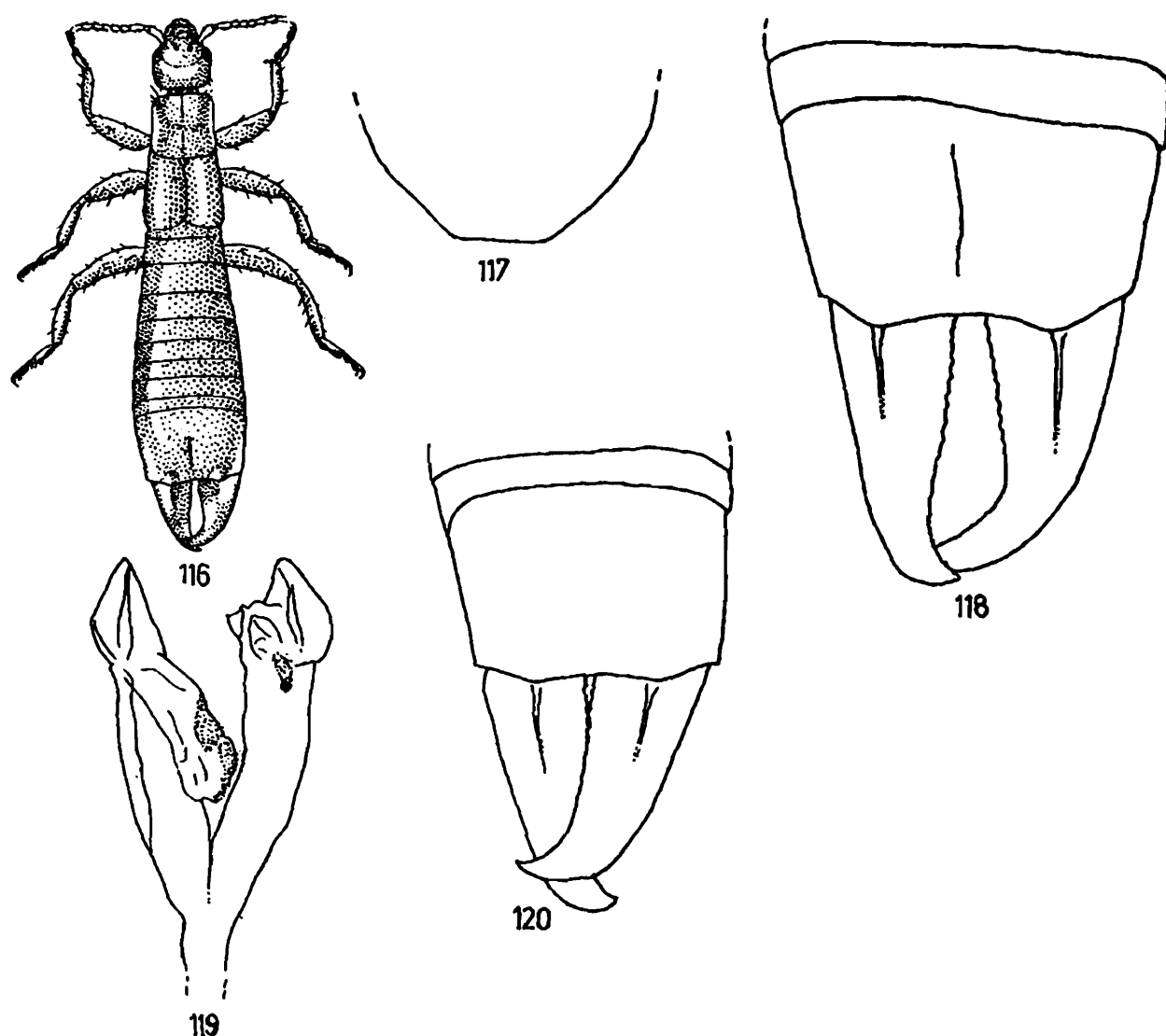
Key to the species (based on males only)

- 1(8). Penultimate sternite entire posteriorly
- 2(3). Elytra perfect; wings generally absent ***A. dohrni*** (Kirby)
- 3(2). Elytra abbreviated or apterous
- 4(7). Elytra abbreviated; sides of abdominal segments ecarinate
- 5(6). Pronotum longer than broad, almost of uniform width throughout; elytra abbreviated, narrowed at base exposing transverse mesonotum and posteriorly lobed, inner margin slightly overlapping; sides of abdominal segments 6–9 obtuse angled posteriorly and punctate ***A. greeni*** (Burr).
- 6(5). Pronotum broader than long, widened posteriorly; elytra abbreviated as narrow, ovate, lateral flaps on mesonotum; sides of abdominal segments 7 to 9 acute angled posteriorly and rugosely punctate ***A. nandii*** (Srivastava)
- 7(4). Apterous; sides of abdominal segments 7 to 8 with a median oblique carina ***A. carinatus*** (Srivastava)
- 8(1). Penultimate sternite emarginate in middle posteriorly
- 9(10). Body punctation distinct; legs with femora in distal 1/4 yellowish; sides of ultimate tergite with a distinct oblique carina and genitalia with distal lobes unarmed ***A. montshadskii*** (Bey-Bienko)
- 10(9). Body punctation feeble; legs unicolorous; sides of ultimate tergite with a weak oblique fold; genitalia with distal lobes with denticulated pads ***A. denticulatus*** (Srivastava)

Anisolabella dohrni (Kirby)

(Figs. 116–120)

Labidura femoralis (pars); Dubrony (nec Dohrn), 1879, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **14** : 353 (2 Males; Ceylon : Galle—excluding 1 Male; Australia : Somerset).



Figs. 116-120 : *Anisolabella dohrni* (Kirby); Male; 116. Dorsal view; 117. Posterior half of penultimate sternite; 118. Ultimate tergite and forceps; 119. Genitalia; Female; 120. Ultimate tergite and forceps.

Nannopygia dohrni Kirby, 1891, *J. Linn. Soc. (Zool.)*, **23** : 508 (Female; Ceylon); Bormans, 1900, *Das Tierreich*, **11** : 11.

Carcinophora caeruleipennis (pars) Bormans, 1900, *Das Tierreich*, **11** : 40 (new name for *Labidura femoralis* Dubrony, 1879; Junior secondary homonym of *Labidura femoralis* Dohrn, 1863—Ceylon specimens only); Burr, 1911, *Genera Insect.*, **122** : 31 (proposed as a synonym of *Nannopygia dohrni* Kirby, 1891).

Carcinophora dohrni; Burr, 1901, *J. Bombay nat. Hist. Soc.*, **14** : 328, pl. B, fig. 20 (Male, Female; Description); Brindle, 1971, *Ent. scand. Suppl.*, **1** : 219 (Sri Lanka).

Anisolabis brunneri?; Burr (néc Dohrn), 1906, *J. Asiat Soc. Beng (N.S.)*, **2** : 389 (Female (néc Male), Purneah, Dist., N. Bengal (now in Bihar).

Psalis dohrni; Burr, 1910, *Fauna British India Dermaptera* : 76, pl. 3, fig. 19; Burr, 1911, *Genera Insect.*, **122** : 31; Burr, 1912, *Annln naturh. Mus. Wien*, **26** : 74; Burr, 1913, *Rec. Indian Mus.*, **8**(2) : 138; Burr, 1914, *Rec. Indian Mus.*, **10** : 287.

- Paralabis dohrni*; Burr, 1915, *J. R. micr. Soc.*, **1915** : 540, pl. 12, fig. 1 (Male genitalia); Borelli, 1931, *Rev. suisse Zool.*, **38** : 295; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 9; Srivastava, 1971, *Entomologist's Rec. Var.*, **83** : 19; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 23; Srivastava, 1987, *Bull. zool. Surv. India*, **8**(1-3) : 16, figs. 6-10 (Sri Lanka; India : Maharashtra, Assam); Srivastava, 1987, *Annali Mus. civ. Stor. nat. Giacomo Doria* **84** : 484 figs. 1-3 (2 Males; Galle Ceylon-referred to by Dubrony 1879 as *Labidura femoralis* (Dohrn); Steinmann, 1980, *Folia ent. hung.*, **41** (33) : 337, figs. 21-22 (Ceylon).
- Anisolabis dohrni*; Popham and Brindle, 1966, *Entomologist*, **99** : 274; Sakai, 1970, *Dermapterorum Cat. Preal.* **1** : 67; Steinmann, 1979, *Folia ent. hung.*, **32** : 154; Steinmann, 1989, *World Catalogue of Dermaptera* : 210.
- Anisolabis (Paralabis) dohrni*; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 27.
- Psalis lefroyi* Burr, 1910, *Fauna British India, Dermaptera* : 77, pl. 3, fig. 20 (Female (not Male); Bombay, Mahim, "feeding on plaintain roots", Pusa Bengal).
- Paralabis lefroyi*; Srivastava, 1971, *Entomologist's Rec. J. Var.*, **83** : 20, figs. A-C, (Male genitalia); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 23; Srivastava, 1987, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **86** : 484 (treated as synonym of *Psalis dohrni* Kirby, 1891); Srivastava, 1990, *Rec. zool. Surv. India*, **87**(1) : 30, figs. 18-22 (2 Females; India : Mysore—Ms. of this paper was submitted prior to preceding paper).
- Paralabis antennata* Ramamurthi and David, 1973, *Zool. Anz.*, **190** : 441, figs. 11-13 (1 Male, 3 Females, 1 nymph; India : Tamil Nadu, Kallar); Srivastava, 1987, *Bull. zool. Surv. India*, **8** (1-3) : 14 (treated as synonym of *Psalis lefroyi* Burr, 1910).
- Anisolabis diabolus* Steinmann, 1989, *World Catalogue of Dermaptera* : 210 (new name for *Paralabis antennata* Ramamurthi and David, 1973)—**Syn. n.**
- Anisolabella dohrni*; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 86.

Male : General colour blackish to reddish brown, antennal segments 2nd, 13th and 14th and pronotum laterally yellow; legs yellow but femora banded with black.

Head smooth, about as long as broad, triangular, frons convex, sutures faint. Eyes black, shorter than post-ocular area. Antennae 17-segmented, 1st shorter than the distance between antennal bases; 2nd short; 3rd long and slender; 4th and 5th almost equal in length. Pronotum slightly longer than broad, anterior margin straight, sides very slightly concave in middle, hind margin briefly rounded, median sulcus faint, prozona feebly convex. Elytra perfect, smooth, meeting along the middle line, sometimes at base axillary angles slightly rounded off to show a small scutellum, hind margin truncate, occasionally slightly oblique. Legs normal. Wings wanting; rarely present. Abdomen punctate, convex, gently enlarging posteriorly, sides of segments 6 to 9 obtuse angled posteriorly, smooth or rugosely punctate. Penultimate sternite triangular with hind margin briefly rounded or sub-truncate; manubrium three times as long as the sternite with its apex dilated. Ultimate tergite transverse, gently narrowed posteriorly, laterally with a longitudinal fold, hind margin trisinate, laterally feebly oblique, median sulcus short. Forceps with branches subcontiguous at base, trigonal

with ridge present in basal one third only, weakly asymmetrical, right branch more incurved and crossing over the left near apex, tip pointed, gently hooked, inner margin finely crenulate. Genitalia with parameres broadest at about middle, inner margin straight; distal lobes with denticulated chitinous pads.

Female : Agrees with males in most characters except that ultimate tergite comparatively narrowed posteriorly; penultimate sternite obtusely rounded, in middle, posteriorly and forceps with branches contiguous and straight.

Measurements : (in mm)

	Male	Female
Length of body	10.0–13.0	9.0–12.5
Length of forceps	2.0–2.5	1.7–2.5

Types : Type Female of *Psalis dohrni* Kirby, 1891 deposited in BMNH.

Syntypes 1 Female (not Male) and 1 Male nymph of *Psalis lefroyi* Burr, deposited in BMNH.

Holotype Male, Paratypes : 2 Females and 1 nymph of *Paralabis antennata* Ramamurthi and David, 1973 stated to be with the author.

Distribution : Sri Lanka : Western, Sabaragamuwa, Southern, Central and North Central Provinces; India : Tamil Nadu (Kallar); Andhra Pradesh (Gyotimamidi, E. Ghats); Maharashtra (Poona, Satara, Koyana Valley) and Assam (Sadiya).

Remarks : Generally wings are absent in this species but Srivastava (1987a) has recorded winged forms from Sri Lanka and India.

Anisolabella greeni (Burr)

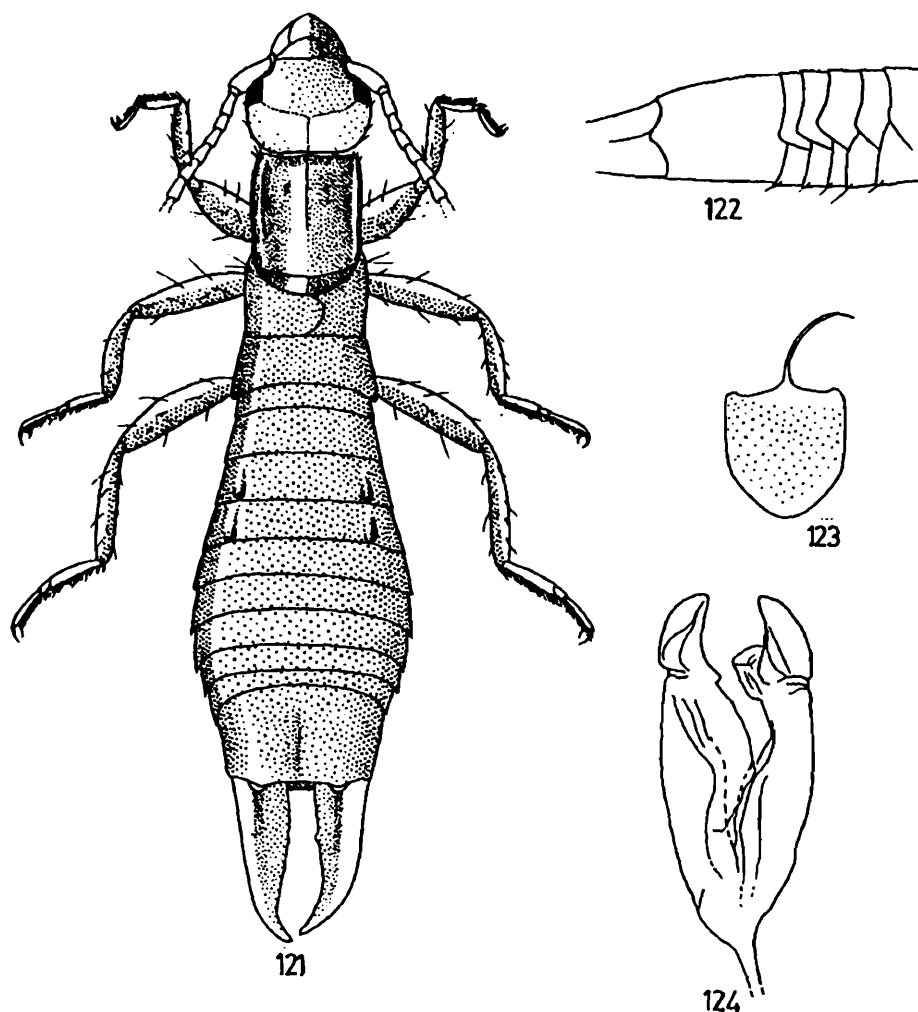
(Figs. 121–124)

Anisolabis greeni Burr, 1899, *Ann. Mag. nat. Hist.*, (7) 4 : 257 (3 Males, 3 Females; Pundalu–Oya (nec Punduloya); Burr, 1901, *J. Bombay nat. Hist. Soc.*, 14 : 319; Popham and Brindle, 1966, *Entomologist*, 99 : 274; Sakai, 1970, *Dermapterorum Cat. Prael.* 1 : 67; Brindle, 1971, *Ent. scand. Suppl.*, 1 : 219 (Male, Female; Ceylon); Brindle, 1977, *Revue suisse Zool.*, 84 (2) : 455 (Male, Female; Ceylon); Steinmann, 1989, *World Catalogue of Dermaptera* : 215.

Borellia greeni; Burr, 1910, *Fauna British India, Dermaptera* : 87 (Male, Female; Ceylon and India : Nilgiri Hills).

Euborellia greeni; Burr, 1910, *Trans. R. ent. Soc. Lond.*, 1910 : 180, pl. 46, fig. 8; Burr, 1911, *Genera Insect.*, 122 : 30; Burr, 1912, *Annln naturh. Mus. Wien*, 26 : 75; Burr, 1914, *Rec. Indian Mus.*, 10 : 285 (S. India : Mysore, Bababudin Hills, 1375–1525m).

Paralabis greeni Burr, 1915, *J. R. Micr. Soc.*, 1915 : (Male genitalia); Hebard, 1923, *Mem. Dep. Agric. India, ent. Ser.*, 7 : 203, pl. 19, fig. 3 (Type Male; Ceylon : Pundalu–Oya and India : Shevroy Hills); Srivastava, 1970, *Eos, Madr.*, 45 : 326 (Female; India : Anamalai Hills); Srivastava, 1971, *Entomologist's Rec J. Var.*, 83 : 20; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 23; Srivastava, 1987, *Bull. zool. Surv. India*, 8 (1–3) : 18, figs. 11–14 (Sri Lanka).



Figs. 121-124 : *Anisolabella greeni* (Burr), Male; 121. Dorsal view; 122. Sides of abdominal segments and base of forceps; 123. Penultimate sternite and basal portion of manubrium; 124. Genitalia.

Anisolabis (Paralabis) greeni; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 27.

Anisolabella greeni; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 86.

Male : General colour shining dark blackish brown; antennae and legs dark brown; whole body *i.e.*, head, pronotum, elytra, exposed part of mesonotum, metanotum and abdominal tergites finely but distinctly punctate.

Head longer than broad, convex above, hind margin emarginate in middle; antennae 14-segmented or more, 1st stout, expanded apically, longer than the combined length of 2nd to 4th; 2nd short, about as long as broad; 3rd long and slender, longer than the 4th and 5th; 6th onwards segments gradually increasing in length and each segment gently expanded apically. Eyes shorter than the post-ocular length. Pronotum slightly longer than broad, all margins straight, sides gently reflexed, median sulcus faint. Elytra abbreviated, narrowed in basal half, exposing a large transverse mesonotum, afterwards greatly enlarged and slightly overlapping along the median line, hind margin straight. Legs normal. Abdomen spindle shaped, moderately convex above, sides of segments 6 to 9 obtuse angled posteriorly, pilose, shining and punctate.

Penultimate sternite faintly punctate, triangular, hind margin in middle obtuse. Ultimate tergite transverse, gently sloping and narrowed backwards, hind margin straight in middle, laterally slightly oblique. Forceps stout, remote and broadened at base, tapering apically, almost straight in basal two thirds, afterwards gently incurved with apices hooked and crossing, trigonal above in basal one thirds, afterwards depressed, inner margin faintly serrated, with a minute tooth at about middle. Genitalia with parameters gradually narrowing from base to apex, external margin regularly convex and inner margin concave; distal lobes unarmed.

Female : Agrees with male in most characters except that pronotum sometimes gently enlarged posteriorly and about as long as broad and sides of abdominal segments convex posteriorly.

Measurements : (in mm)

	Male	Female
Length of body	11.5–23.5	17.0–21.0
Length of forceps	2.0–3.0	3.3–4.4

Types : Type Male in BMNH; designated by Hebard (1923). This may be treated as the 'Lectotype'

Burr's (1899) description of the species was based on 3 Males and 3 Females which are "Syntypes" and preserved in the BMNH.

Distribution : Sri Lanka (North-Western, Uva, Central and North-Central Provinces).

Records from South India (Burr, 1910; Burr, 1914 and Srivastava, 1970) are doubtful. Their identify could be established only after the examination of male genitalia.

Remarks : This species externally resembles *Gonolabis punctata* (Srivastava, 1978) from South India but differs by its distinctive male genitalia, especially parameres.

***Anislabella nandii* (Srivastava)**

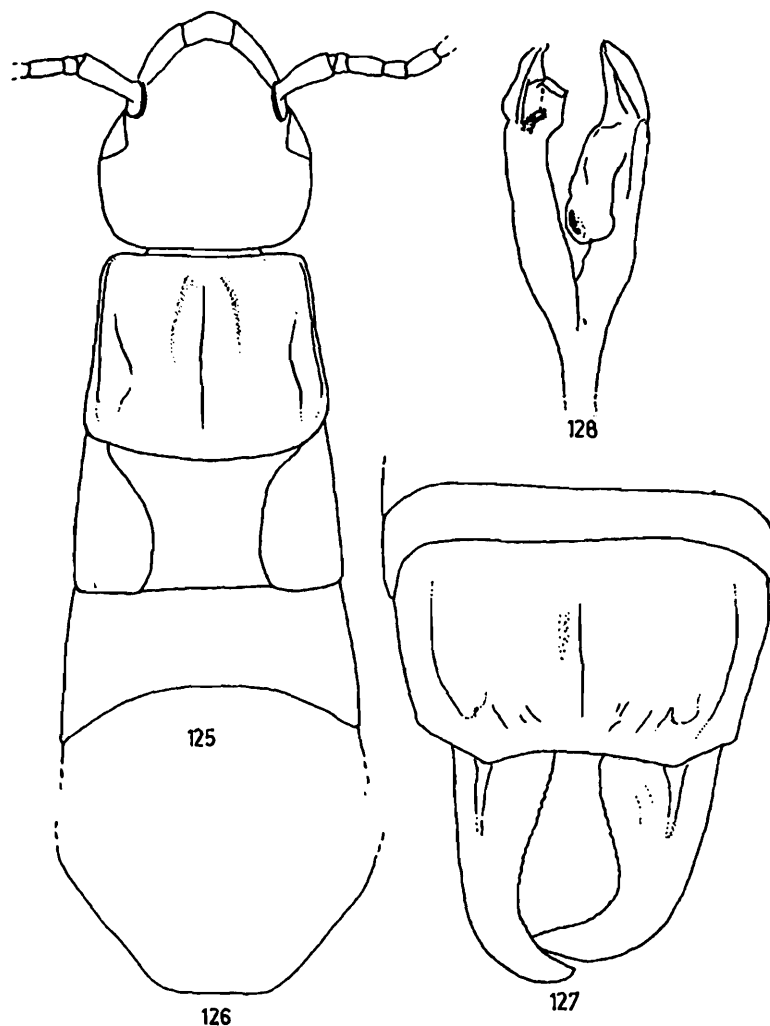
(Figs. 125–128)

Paralabis nandii Srivastava, 1987, *Bull. zool. Surv. India*, 8 (1–3) : 20, figs. 15–18 (Male, Female; India : Karnataka, Kolar, Nandi Hills).

Anisolabella nandii; Srivastava, 1999, *Rec. zool. Surv. India*, 97(1) : 87

Male : General colour shining brownish black with varying degree on certain body parts; basal and 2nd antennal segments and legs yellowish brown.

Head smooth, slightly longer than broad, globose, frons convex, sutures fine, hind margin almost straight. Eyes not prominent, about half as long as the post-ocular length. Antennae 17-segmented or more (since apical ones broken in the specimens examined), 1st segment distinctly shorter than the distance between antennal bases;



Figs. 125-128 : *Anisolabella nandii* Srivastava, Holotype Male; 125. Anterior portion of body; 126. Posterior half of penultimate sternite; 127. Ultimate tergite and forceps; 128. Genitalia.

2nd about as long as broad; 3rd long and cylindrical; 4th shorter than 3rd; 5th and 3rd almost equal; remaining gradually becoming slender and narrowed basally. Pronotum smooth, slightly broader than long, widened posteriorly, lateral margins straight, gently reflexed, hind angles and margin rounded, median sulcus faint; pro- and metazona not well differentiated. Mesonotum obscurely punctate and with elytra as narrow, lateral ovate flaps, median sulcus faint, hind margin straight. Metanotum transverse, median sulcus faint, obscurely punctate, hind margin broadly concave.

Legs normal. Abdomen gradually enlarging posteriorly, convex above, punctation feeble, sides of segments obtuse angled posteriorly and feebly punctate and that of 7th to 9th acute angled posteriorly and rugosely striate. Penultimate sternite triangular, obscurely punctate, hind margin in middle almost truncate. Ultimate tergite strongly transverse, smooth, feebly convex but gently depressed in middle posteriorly, sides straight with an oblique carina, above the base of forceps with a feebly raised area, hind margin trisinate, laterally oblique. Forceps stout, remote, dilated and trigonal at base with a dorsal ridge in basal one fourth only, afterwards depressed, tapering apically, incurved in apical two thirds, apices gently hooked and pointed, inner margin

feebly dentate. Genitalia with parameres roughly semicircular, about twice as long as broad, narrowed apically with external margin regularly convex, inner margin feebly concave, distal lobes with a small denticulated pad.

Female : Agrees with males in most characters except that sides abdominal segments smooth and convex; penultimate sternite obtuse posteriorly; ultimate tergite narrowed posteriorly and forceps simple, almost straight and contiguous.

Measurements : (in mm)

	Male	Female
Length of body	11.3–14.3	10.7–14.8
Length of forceps	1.7–2.0	1.9–2.0

Types : Holotype Male, Paratypes : 2 Males, 2 Females and 1 nymph deposited in the ZSI.

Distribution : India : Karnataka, Dist. Kolar, Nandii Hills. Known only from the type locality.

Remarks : This species can be easily separated from the other Indian species of the genus by the presence of elytra as narrow ovate, lateral flaps on mesonotum. Besides male genitalia, especially parameres are distinctive.

***Anisolabella carinatus* (Srivastava)**

(Figs. 129–132)

Euborellia aborensis (pars) Burr, 1913, *Rec. Indian Mus.*, 8(2) : 137 (1 Male; Assam : Dibrugarh, excluding remaining material).

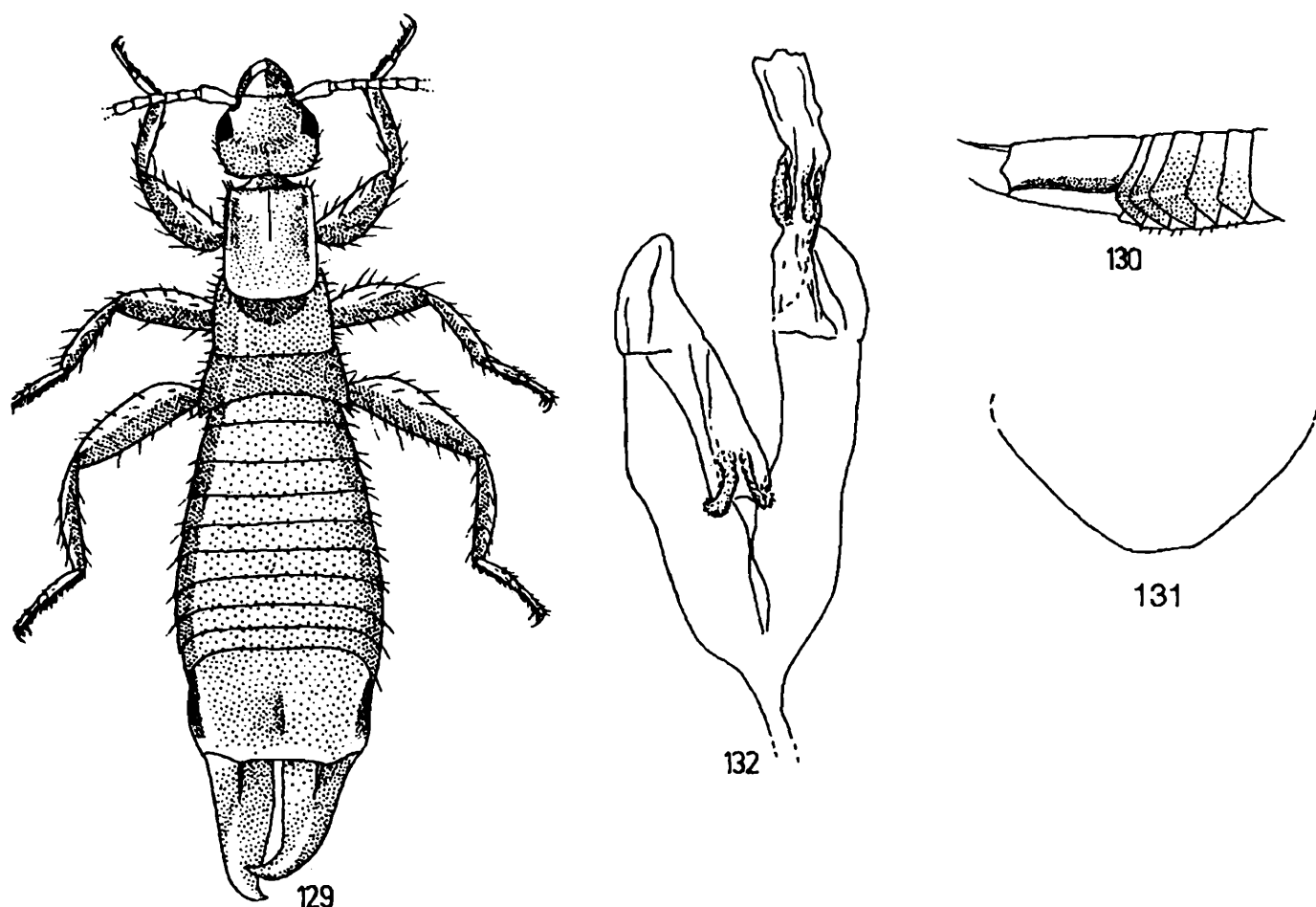
Paralabis aborensis (pars); Srivastava, 1968, *Entomologist's Rec. J. Var.*, 80 : 292 (Material same as above); Srivastava, 1971, *Entomologist's Rec. J. Var.*, 83 : 22 (figs. B, D & F only).

Paralabis carinatus Srivastava, 1987, *Bull. zool. Surv. India*, 8(1–3) : 22, figs. 19–22 (Male; India : Assam, Dibrugarh).

Anisolabella carinatus; Srivastava, 1999, *Rec. zool. Surv. India*, 97(1) : 86.

Male : General colour dark blackish brown, legs and antennae reddish brown, sides of abdomen, ultimate tergite and forceps with traces of black. Whole body clad with long and short golden pubescence.

Head slightly longer than broad, weakly depressed, sutures distinct, hind margin slightly emarginate in middle. Eyes shorter than the post-ocular length. Antennae 11-segmented or more (partly damaged); 1st stout, gently expanded apically and shorter than the distance between antennal bases; 2nd short; 3rd long and slender; 4th and 5th subequal, globular and both shorter than the 3rd; 6th onwards segments gradually increasing in length and each gently expanded apically. Pronotum longer than broad, anteriorly slightly narrower than the head, sides straight, parallel sided, gently reflexed,



Figs. 129-132 : *Anisolabella carinatus* Srivastava, Holotype Male; 129. Dorsal view; 130. Sides of abdominal segments and base of forceps; 131. Posterior half of penultimate sternite; 132. Genitalia.

hind margin subtruncate, median sulcus faint; prozona weakly convex and not well differentiated from flat, weakly convex metazona. Meso- and metanotum transverse, former with hind margin truncate and latter broadly sinuate. Elytra and wings wanting. Legs normal, with long pubescence, hind tarsi with 1st segment slightly shorter than the combined length of 2nd and 3rd, covered with two rows of short stiff hairs on underside. Abdomen weakly depressed, punctate, tergites gradually enlarging posteriorly, sides of segments 6 to 9 acute angled posteriorly but median longitudinal carina present on segments 7th and 8th only. Penultimate sternite narrowed posteriorly, obtuse in middle. Ultimate tergite weakly transverse, disc feebly depressed, median sulcus distinct, sides with a distinct oblique carina, hind margin in middle almost straight, very slightly oblique on sides, the area close to hind margin with serrations. Forceps subcontiguous, tapering apically, left branch almost straight, only gently incurved near apex, right branch incurved from middle and crosses over the left a little before apex, apices gently hooked and pointed, inner margin serrated. Genitalia with parameres broadest at base, external margin convex, inner margin concave; distal lobes with a pair of chitinous, denticulated rods.

Female : Unknown.

Measurements : (in mm)

	Male
Length of body	12.0
Length of forceps	2.3

Types : Holotype Male deposited in ZSI.

Distribution : India : Assam, Dibrugarh. Known from the type locality only.

Remarks : It differs from the other known species from the Indian subcontinent in having the body pubescent and male genitalia with distal lobes armed apically with a pair of chitinous denticulated rods.

***Anisolabella montshadskii* (Bey-Bienko)**

(Figs. 133–138)

Anisolabis (Paralabis) montshadskii, Bey-Bienko, 1959, *Ent. Obozr.*, **38** : 600, fig. 16 (Male, Female; China : Yunnan); Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 27.

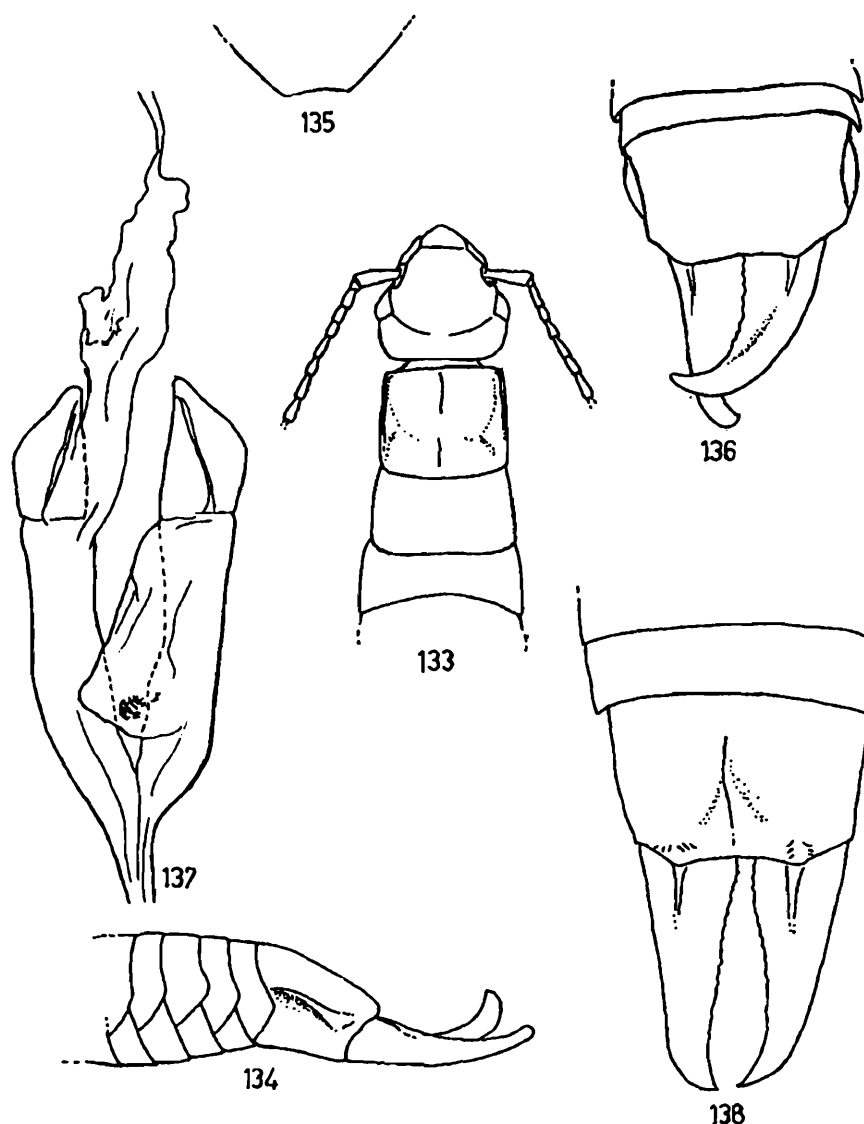
Anisolabis montshadskii; Steinmann, 1975, *Folia ent. hung.*, **28** : 154, fig. 12 3 (Paratypes); Steinmann, 1989, *World Catalogue of Dermaptera* : 225.

Paralabis montshadskii; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 23; Srivastava, 1987, *Bull. zool. Surv. India*, **8** : (1–3) : 23, figs. 23–28. (Male, Female; Arunachal Pradesh).

Anisolabella montshadskii; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 86.

Male : General colour dark blackish brown, mouth parts and distal half of basal antennal segments, 2nd and a few preapical ones yellow; legs with femora in distal one fourth and whole of tibia and tarsi yellowish; sides of pronotum light brown.

Head slightly longer than broad, smooth, sutures faintly marked. Eyes shorter than the post-ocular length. Antennae 15-segmented or more; 1st about as long as the distance between antennal bases, narrowed basally; 2nd small, transverse; 3rd long and cylindrical almost equal to 5th; 4th and 5th stout; 4th slightly shorter than the preceding; 6th onwards segments gradually increasing in length and gently expanded apically. Pronotum about as long as broad, gently expanded posteriorly, all margins straight, sides gently reflexed. Legs normal. Elytra and wings wanting. Abdomen weakly convex, gently expanded posteriorly, feebly punctulate, punctulations weaker in posterior half of each tergite, lateral tubercles on 3rd and 4th tergites weakly developed, sides of segments 7 to 9 more rugosely punctured, ecarinate and obtuse angled posteriorly. Penultimate sternite broadly sinuate posteriorly. Ultimate tergite transverse, narrowed posteriorly, almost smooth, median sulcus distinct, oblique carina present on sides. Forceps trigonal above in basal one fourth, afterwards depressed, tapering apically, incurved in apical one third, right branch more incurved and crossing over the left, internally crenulate. Genitalia with distal lobes lacking virga or chitinous teeth.



Figs. 133-138 : *Anisolabella montshadskii* (Bey-Bienko), Male; 133. Anterior portion of body; 134. Sides of abdominal segments and forceps; 135. Hind portion of penultimate sternite; 136. Ninth and ultimate tergites and forceps; 137. Genitalia; Female; 138. Ultimate tergite and forceps.

Female : Agrees with male in most characters except that the abdomen more feebly punctulate and the sides of all the abdominal segments convex, not rugose; penultimate sternite obuse posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	13.0–14.5	13.7
Length of forceps	2.6–3.0	2.6

Types : Bey-Bienko (1959) while describing the species has recorded 6 Males, 1 Female including 'Type' which may be considered as the Holotype male, and rest as Paratypes.

According to Steinmann (1975b, 1989a) 3 Paratypes are deposited in AZL and for Type male— repository is unknown, perhaps it may be in CASP.

Distribution : India : Arunachal Pradesh, Lohit dist., Tihun and Wakro, 1700 ft. and China : Yunnan.

Remarks : Out of the specimens from India, one male possesses forceps with branches subcontiguous and apices are almost touching.

***Anisolabella denticulatus* (Srivastava)**

(Figs. 139–143)

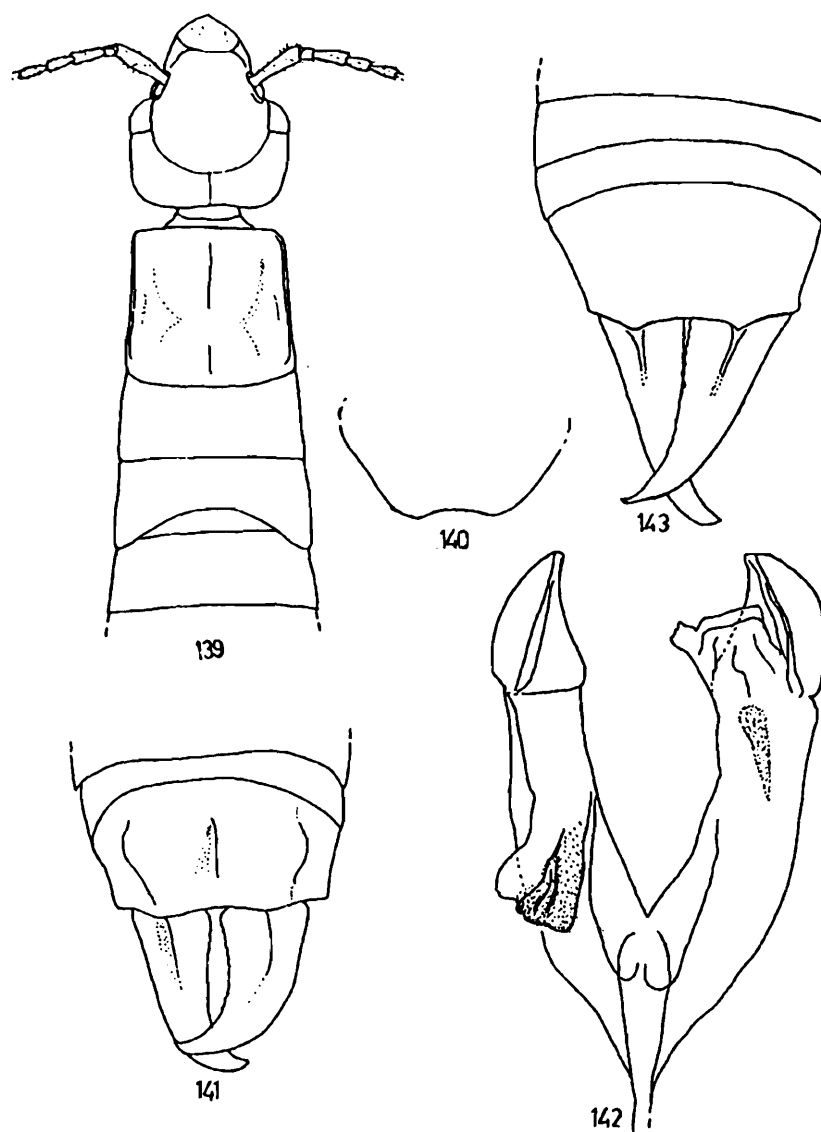
Paralabis montshadskii (néc Bey-Bienko); Srivastava, 1971, *Entomologist's Rec. J. Var.*, **83** : 22; Srivastava, 1972, *Rec. zool. Surv. India*, **66** (1–4) : 134 (Male, Female; NEFA (now Arunachal Pradesh).

Paralabis denticulatus Srivastava, 1987, *Bull. zool. Surv. India*, **8** (1–3) : 25, figs. 29–33 (Male, Female; India : Arunachal Pradesh, Kameng dist., Milankang, 6500ft., Shergaon, 6600ft., Dirang and Sappen, 1800m).

Anisolabella denticulatus; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 86.

Male : General colour reddish brown with traces of black on certain body parts; mouth parts yellowish; 1st and 2nd antennal segments and legs testaceous brown.

Head slightly longer than broad, smooth, convex above, sutures fine but distinct, gently narrowed behind eyes, hind margin almost straight, faintly depressed in middle. Eyes about half as long as the post-ocular length. Antennae (partly broken) 17-segmented or more; 1st stout, about as long as the distance between antennal bases, narrower at base and expanded apically; third onwards length of corresponding segments on right and left side variable in Holotype male only, segments more elongated in right antennae, left antennae with 3rd segment long and cylindrical; 4th shorter than the preceding, narrowed basally; 5th equal to 3rd, further segments gradually increasing in length and thinning; antennae of right side with 3rd segment cylindrical, only slightly shorter than the 1st and almost equal to 6th; 4th and 5th shorter than 3rd. Pronotum about as long as broad, smooth, sides straight, feebly reflexed in middle only, gently diverging posteriorly with hind margin sub-rotundate, median sulcus faintly marked, prozona weakly raised and poorly differentiated from flat metazona. Meso- and metanotum transverse, smooth, hind margin truncate in the former and broadly emarginate in the latter. Elytra and wings absent. Legs normal. Abdomen weakly convex, enlarging from base to 6th tergite and narrowing feebly from 7th to 9th tergites, finely punctulated, lateral tubercles on 3rd and 4th tergites almost obsolete, sides of segments 6 to 9 acute angled, rugosely punctate but punctation weaker on 6th segment. Penultimate sternite transverse, narrowed posteriorly, hind margin broadly sinuate, in posterior half above with a rounded and depressed area and a faintly raised longitudinal stripe in the middle. Ultimate tergite transverse, almost smooth except for a few punctations sparsely placed, narrowed posteriorly, laterally raised above in middle, median sulcus distinct, laterally oblique



Figs. 139-143 : *Anisolabella denticulatus* (Srivastava), Holotype Male; 139. Anterior portion of body; 140. Hind portion of penultimate sternite; 141. 8th, 9th and ultimate tergites and forceps; 142. Genitalia; Female; 143. Ultimate tergite and forceps.

carina weakly marked, hind margin trisinate, oblique laterally. Forceps subcontiguous, branches stout, tapering apically, almost straight in basal two third, afterwards gently incurved, right branch more strongly incurved and crossing over the left, apices gently hooked with tip pointed, trigonal above in basal one third and afterwards depressed, internal margin faintly crenulate. Genitalia with parameres about twice as long as broad, gradually narrowing apically; distal lobes with chitinous denticulated pads apically.

Female : Agrees with male in most characters except that the sides of abdominal segments smooth, convex posteriorly; penultimate sternite obtusely rounded posteriorly; ultimate tergite comparatively strongly narrowed posteriorly and forces contiguous, simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	12.6–13.8	9.2–12.9
Length of forceps	2.2	1.9–3.1

Types : Holotype Male, Paratypes : 2 Males, 9 Females and 2 nymphs deposited in the Z.S.I.

Distribution : India : Arunachal Pradesh, Kameng dits. (Milankang, Digian, 6500ft., Shergaon, 600ft., Chug, Dirang and Sappen, 1800m).

At present known from the type localities only.

Remarks : This species was confused with *Paralabis montshadskii* Bey-Bienko, by Srivastava (1971 and 1972) but differs, in males, by the uniformly coloured legs, comparatively feeble body punctulations, weakly developed oblique carina on the sides of ultimate tergite and genitalia provided with chitinous denticulated pads at the apical end of distal lobes.

The general body colouration varies between reddish brown and dark blackish brown.

Genus *Gonolabis* Burr

Gonolabis Burr, 1900, *Ann. Soc. ent. Belg.*, **44** : 49 (Type species : *Anisolabis javana* Bormans, 1883—by original designation); Kirby, 1904, *Syn. Cat. Orth.*, **1** : 15; Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 169; Burr, 1911, *Genera Insect.*, **122** : 28 (under Psalinae); Burr, 1915, *J. R. micr. Soc.*, **1915** : 442; Townes 1945, *Ann. ent. Soc. Am.*, **38** : 349; Reichardt, 1970, *Papéis Avulsos zool., S. Paulo*, **22**(5) : 43; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 46; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 26; Brindle, 1970, *Insects of Micronesia*, **5**(2) : 118; Brindle, 1978, *Ann. Mus. Roy Afr. Centr., Tervuren, in 8° Zool.*, **225** : 69 (in part); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 24 (list of Oriental species); Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 87; Steinmann, 1977, *Annls. hist.-nat. natn. hung.*, **69** : 94 (in part); Steinmann, 1978, *Dt. ent. Z.*, **25** : 184 (in part); Steinmann, 1979, *Acta. zool. hung.*, **25** : 165 (in part); Steinmann, 1989, *Das Tierreich*, **105** : 186 (in part); Steinmann, 1989, *World Catalogue of Dermaptera* : 283 (in part).

Epilabis Burr, 1915, *J. R. micr. Soc.*, **1915** : 539 (Type species : *Euborellia penicillata* Borelli, 1911); Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 348; Popham and Brindle, 1966, *Entomologist*, **99** : 273; (treated as synonym of *Gonolabis* Burr, 1900); Kapoor, 1868, *Agra Univ. J. Res (Sci)*, **16** (1) : 12; Ramamurthi and David, 1973, *Zool. Anz.*, **190** : 435; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 22 (list of Oriental species); Srivastava, 1978, *Bull. zool. Surv. India*, **1** (1) : 71 (Indian species); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 87; (treated as synonym of *Gonolabis* Burr, 1900); Steinmann, 1978, *Dt. ent. Z.*, **25** : 184; Steinmann, 1989, *Das Tierreich*, **105** : 170; Steinmann, 1989, *World Catalogue of Dermaptera* : 254.

Epilabis (*Epilabis*) and *Epilabis* (*Cryptolabis*) Ramamurthi and David, 1973, *Zool. Anz.*, **190** : 435 & 437; Srivastava, 1978, *Bull. zool. Surv. India*, **1** (1) : 71 (treated as synonym of *Epilabis* Burr, 1915).

Foramenolabis Steinmann, 1981, *Folia ent. hung.*, **42** (34) : 180 (Type species : *Euborellia sisera* Burr, 1914); Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29; Steinmann, 1989, *Das Tierreich*, **105** : 152; Steinmann, 1989, *World Catalogue of Dermaptera* : 281; Srivastava, 1999, *Rec zool. Surv. India*, **97** (1) : 87 (treated as synonym of *Gonolabis* Burr, 1900).

Size small to large (7.5–23.5 mm, including forceps). Apterous or with elytra abbreviated in various shapes. Antennae multisegmented; eyes shorter than the post-ocular area. Abdomen gradually enlarging posteriorly, attaining maximum width at ultimate tergite or spindle shaped. Forceps short arcuate or long and slender, contiguous or subcontiguous near base, gently incurved apically. Male genitalia with parameres two to two and half times longer than broad, almost of uniform width throughout, external apical angle convex, inner apical angle sometimes acute; apical margin convex, gently oblique or straight; distal lobes with chitinous plates and virga present or absent.

Types species : *Anisolabis javana* Bormans, 1883.

Distribution : Oriental, Australian and Ethiopian Regions.

Remarks : This genus has been redefined by Srivastava (1999) on the basis of male parameres.

Altogether nine species (including one new species) are known from Indian subcontinent. Of these *Gonolabis electa* Burr, is widely distributed in the Oriental Region and adventive to Ethiopian Region but not recorded so far from India. The remaining eight species are confined to Peninsular India.

Key to species (based on Males only)

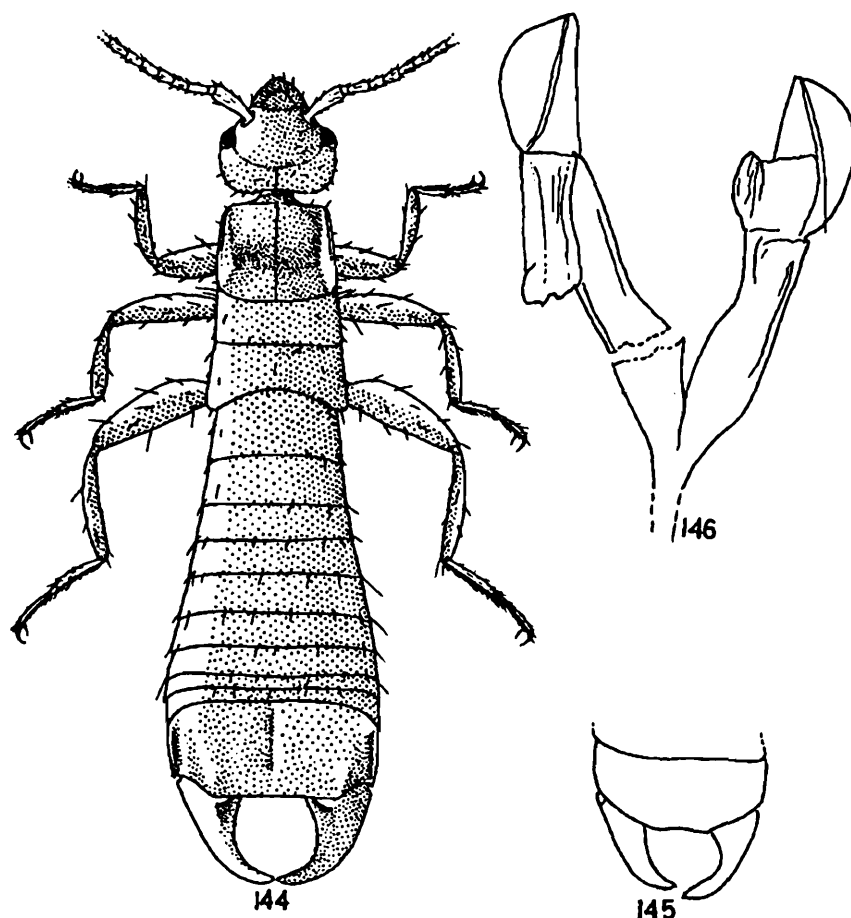
- 1(2). Size small (6.1–11.5 mm, including forceps); apterous; abdomen gradually enlarging from base to ultimate tergite; genitalia with parameres in length a trifle less than double its width, comparatively broader *Gonolabis electa* Burr
- 2(1). Size medium to large (12.0–25.0 mm, including forceps); elytra abbreviated; wings wanting; genitalia with parameres a little over two to two and half times longer than broad, comparatively narrower, especially near apex
- 3(8). Penultimate sternite with a tuft of setae, in the middle, on the posterior margin
- 4(5). Posterior margin of penultimate sternite slightly emarginae in middle *G. penicillata* (Borelli)
- 5(4). Posterior margin of penultimate sternite entire
- 6(7). Posterior margin of penultimate sternite in middle acute *G. emarginata* (Ramamurthi & David)
- 7(6). Posterior margin of penultimate sternite in middle rounded *G. analis* (Ramamurthi & David)

- 8(3). Penultimate sternite without a tuft of setae, in middle, on posterior margin
- 9(10). Head with a deep cavity, in middle, close to hind margin (rarely weakly developed) ***G. sisera*** (Burr)
- 10(9). Head without a cavity
- 11(12). Elytra present as narrow lateral ovate flaps on mesonotum
..... ***G. burri*** (Srivastava)
- 12(11). Elytra narrowed at base exposing a transverse scutellum; afterwards, in apical half, enlarged and meeting along the median line
- 13(16). Sides of abdominal segments obtuse angled or convex posteriorly, rugose & ecarinate; genitalia with parameres along the internal margin concave, tip blunt, not strongly narrowed; distal lobes without chitinous rods or virga
- 14(15). Genitalia with parameres narrowed in apical one third with tip obtuse, apical margin oblique ***G. punctata*** (Srivastava)
- 15(14). Genitalia with parameres gently broader apically, tip represented by a small point, apical margin straight, parallel to basal margin
..... ***G. krishnappai*** sp. n.
- 16(13). Sides of abdominal segments acute angled posteriorly, with a longitudinal carina of segments 5–7 only; genitalia with parameres narrowed gradually from apical one third with tip pointed; inner margin almost straight, apical angle and margin forming an arc; distal lobes with a chitinous rod and fine virga ***G. nilgiriensis*** (Srivastava)

***Gonolabis electa* Burr**

(Figs. 144–146)

Gonolabis electa Burr, 1910, *Fauna British India, Dermaptera* : 79, pl. 3, fig. 21a (Male, Female; Ceylon; Java); Burr, 1910, *Trans. ent. Soc. Lond.*, 1910 : 169, 170, 171; Burr, 1912, *Annln naturh. Hofmus Wien*, 26 : 74 (1 Female; Cochin-China); Burr, 1915, *J. R. micr. Soc.*, 1915, pl. 12, fig. 8 (male genitalia); Borelli, 1926, *Treubia*, 8 : 255 (Java); Borelli, 1927, *Suppl.ent.*, 15 : 70 (Sumatra); Borelli, 1932, *Bull. Reffles Mus.*, 7 : 82; Hebard, 1927, *Proc. Acad. nat. Sci. Philad.*, 79 : 26 (Sumatra); Boeseman, 1954, *Zool. Verh., Leiden*, 21 : 31 (Sumatra); Hincks, 1954, *Verh. naturh. Ges. Basel*, 65(1) : 10, fig. 1 (male genitalia; 1 Male; Sumba, Flores); Popham and Brindle, 1966, *Entomologist*, 99 : 273; Brindle, 1967, *Mem. est. Mus. Zool. Univ. Coimbra*, No. 302 : 11; Brindle, 1968, *Ark. Zool.*, 20(25) : 534 (Male; Sumatra); Brindle, 1971, *Ent. scand. Suppl.*, 1 : 217, fig. 18 (Male; Ceylon); Brindle, 1977, *Rev. suisse. Zool.*, 84(2) : 454 (Male, Female; Sri Lanka); Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren*, 8° Zool., 225 : 69, figs. 84–88, (Male, Female; Africa—probably adventive); Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 48; Sakai, 1982, *Bull. Daito Bunk Univ.*, 20 : 26; Sakai, 1987, *Dermapterorum Cat.*, 20 : 2310; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 20 : 24; Srivastava, 1984, *Bull. zool. Surv. India*, 5(2–3) : 10 (Male; Mauritius); Steinmann, 1989, *Das Tierreich*, 105 : 190, fig. 303–304; Steinmann, 1989, *World Catalogue of Dermaptera* : 286.



Figs. 144-146 : *Gonolabis electa* Burr, Male; 144. Dorsal view; 145. Penultimate sternite and forceps; 146. Genitalia.

Gonolabis calas Fernando, 1961, *Ceylon. J. Sci., biol. Sci.*, 4 : 42, figs. 6-8 (2 Males; Ceylon) : Steinmann, 1989, *Das Tierreich*, 105 : 190 (treated as synonym of *Gonolabis electa* Burr, 1910).

Male : General colour reddish brown to black; antennae dark brown or lighter in colour; basal segment sometimes yellow; sides of pronotum and legs yellow, femora darker.

Head broader than long, frons convex, sutures faint, hind margin scarcely emarginate in middle posteriorly. Eyes shorter than post-ocular area. Antennae 15-segmented, 1st stout gently expanded apically, shorter than the distance between antennal bases; 2nd short; 3rd long and cylindrical; 4th elongated, shorter than 3rd; 5th cylindrical almost equal to 3rd, remaining gradually thinning and increasing in length distally, each narrowed at base. Pronotum about as long as broad, quadrate, gently widened posteriorly, all margins straight, prozona gently convex and indistinctly separated from weakly depressed metazona, median sulcus faintly marked. Apterous. Mesonotum with hind margin straight and metanotum emarginate posteriorly. Legs typical of the genus, hind tarsi with 1st segment almost equal to the combined length of 2nd and 3rd. Abdomen narrowed at base, gradually increasing in width posteriorly and attaining maximum width at 9th tergite, surface above punctulated, weakly convex, sides of segments acute angled posteriorly. Penultimate sternite broadly

rounded posteriorly, scarcely emerginate in middle. Ultimate tergite approximately one and half times broader than long, almost smooth, sometimes with one or two rows of punctulations, weakly raised on either side of middle line, median sulcus distinct, laterally with a short, oblique carina, hind margin in middle almost straight, oblique above the base of forceps. Pygidium vertical. Forceps with branches remote at base, short, arcuate, trigonal above in basal one third, afterwards depressed, internally obscurely serrated. Genitalia with parameres, flat, broad, about twice as long as broad, externally rounded near apex; distal lobes with virga discernible or not visible in old specimens, chitinous pads present.

Female : Agrees with males in most characters except that ultimate tergite narrowed posteriorly; penultimate sternite less broadly rounded and convex posteriorly in middle and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	6.5–10.0	6.5–7.0
Length of forceps	1.0–1.5	1.0–5.0

Types : 'Type Male' of *Gonolabis electa* Burr, 1910 in BMNH.

Burr (1910) in the original description has not mentioned the number of specimens except 'Type' in the author's collection. However, the legend to Pl. III, fig. 21 it is mentioned as 'Type Male'

Syntypes 2 Male of *Gonolabis calas* Fernando, 1961, deposited in the Department of Zoology, University of Ceylon, Colombo, Sri Lanka.

Distribution : Sri Lanka : Southern, Western Sabaragamuwa, Uva, North Western and Central Provinces.

A widely distributed species in the Oriental Region, recorded from Sri Lanka, Malayasia, Vietnam, Indonesia (Java, Sumtra and Lesser Sunda Isls) and Philippine Isls.

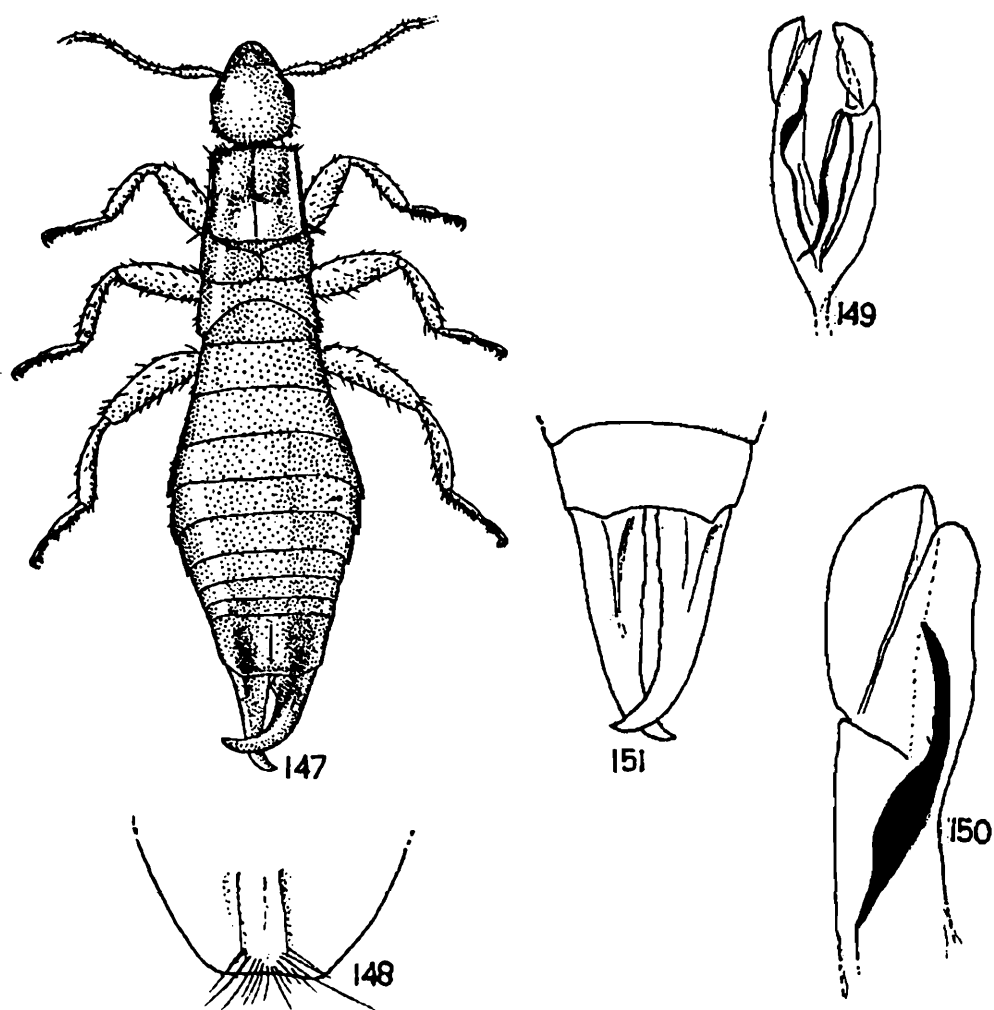
Also recorded from Africa as adventive (Brindle, 1978), Mauritius (Srivastava, 1984a) and Seychelles.

Remarks : This species can be easily separated from other Indian species by its smaller size and comparatively broader parameres in being about twice as long as broad with external apical angle and margin broadly rounded.

Gonolabis penicillata (Borelli)

(Figs. 147–151)

Euborellia penicillata Borelli, 1911, *Boll. Musei. Zool. Anat. comp. R. Univ. Torino*, **26** (640) : 3 (Male, Female & nymphs; India : Nilgiri, Coonoor); Borelli, 1912, *Bull. Mus. Hist. nat. Paris*, **18** (4) : 229; Burr, 1911, *J. Asiat. Soc. Beng.*, **7**(11) : 779 (South India : Ootacmund); Burr, 1911, *Genera Insect.*, **122** : 31; Burr, 1914, *Rec. Indian Mus.*, **10** : 285 (South India : Ootacmund).



Figs. 147-151 : *Gonolabis penicillata* (Borelli), Male; 147. Dorsal view; 148. Posterior half of penultimate sternite; 149. Genitalia; 150. Paramere and a portion proparamere and distal lobe, enlarged; Female; 151. Ultimate tergite and forceps.

Epilabis penicillata; Burr, 1915, *J. R. micr. Soc.*, **1915** : 539, pl. 11, fig. 15 (male genitalia); Hebard, 1923, *Mem. Dep. Agric. India, ent. Ser.*, **7**(11) : 304 (Male, Female; India : Nilgiri Hills, Ootacmund); Borelli, 1931, *Revue suisse Zool.*, **38** (11) : 297; Ramamurthi, 1960, *Bull. Ent. Madras*, **1** : 34 (India : Nilgiri Hills); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16** (1) : 12; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 23; Srivastava, 1978, *Bull. zool. Surv. India*, **1**(1) : 72 (74 Males, 78 Females & 49 nymphs; India : Tamil Nadu, Nilgiri Hills, Naduvatam, 6000 ft.); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 30 (Male, Female; India : Ootacmund, 2330m & N.E. slope of Dodabetta Peak, 2475m); Steinmann, 1989, *Das Tierreich*, **105** : 173, figs. 280-281.

Carcinophora penicillata : Popham & Brindle, 1966, *Entomologist*, **99** : 275; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 85.

Epilabis (Epilabis) penicillata; Ramamurthi & David, 1973, *Zool. Anz.*, **190** : 436; Steinmann, 1989, *World Catalogue of Dermaptera* : 256.

Carcinophora (Epilabis) penicillata; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Gonolabis penicillata; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 88.

Male : General colour blackish to reddish brown; mouth parts, antennae with basal segments, sides of pronotum and legs yellowish or yellowish brown.

Head smooth, shining, slightly longer than broad, weakly convex, sutures faint, hind margin feebly emarginate in middle. Eyes short, about $\frac{1}{3}$ as long as post-ocular area. Antennae 17-segmented; 1st stout, gently expanded apically, slightly shorter than the distance between antennal bases; 2nd about as long as broad; 3rd long and slender; 4th slightly shorter than the 3rd; 5th slightly shorter than 3rd but longer than 4th; 6th about as long as 3rd; remaining gradually increasing in length and thinning. Pronotum smooth, slightly, longer than broad, gently widened posteriorly, sides straight, gently reflexed, hind margin lightly convex, median sulcus distinct; prozona and metazona convex and well differentiated. Elytra faintly punctulate, axillary angles rounded off to show a transverse scutellum, posteriorly lobed, inner margin along the median line slightly overlapping. Metanotum faintly punctulate, hind margin broadly concave. Legs typical of the genus, hind tarsi with 1st segment slightly longer than the combined length of 2nd and 3rd, covered with two rows of thick hairs on underside. Abdomen spindle shaped, tergites weakly convex, faintly punctate, sides of segments rugose, from 4th to 9th acute angled posteriorly but carina present on 5th to 9th only. Penultimate sternite transverse, narrowed posteriorly, hind margin truncate, sometimes scarcely emarginate in middle, along the median line in posterior half with a convexity, furnished with a tuft of setae apically, close to hind margin. Ultimate tergite transverse, gently narrowed posteriorly, weakly convex above, median sulcus distinct, close to hind margin faintly rugose, above the base forceps weakly tumid, hind margin trisinate, laterally above the base of forceps oblique. Pygidium vertical. Forceps with branches remote or subcontiguous, stout at base, afterwards tapering apically, left branch almost straight in basal two thirds and incurved afterwards, right branch more strongly incurved a little beyond middle and crosses over the left, apices gently hooked, trigonal above in basal one third only, internally at base with a minute tooth. Genitalia with parameres a little more than twice as long as broad, gently narrowed towards inner apical angle, membrane distinct; distal lobes with a chitinous rod.

Female : Agrees with male in most characters except that penultimate sternite obtuse posteriorly, lacking tuft of setae in middle close to hind margin; ultimate tergite more strongly narrowed posteriorly and forceps simple & straight, inner margin faintly serrated.

Measurements : (in mm)

	Male	Female
Length of body	12.0–22.0	10.0–21.0
Length of forceps	2.3–3.5	1.8–3.5

Types : Borelli (1911) in the original description mentions several examples, consisting of male, Female & Juvenile in (*Paris Museum*). Therefore all this material could be treated as Syntypes.

However, Steinmann (1989a, p. 256) states "Type Male : Museo ed Istituto di Zoologia Sistemica, Torino"

Distribution : India : Tamil Nadu, Nilgiri Hills (Coonoor, ca 1800m; Ootacamund, 2330m and Dodabetta Peak, 2475).

Remarks : This species occurs in large numbers in various localities of India : Nilgiri Hills and shows variation in body size and general colouration.

***Gonolabis emarginata* (Ramamurthi & David)**

(Figs 152–155)

Epilabis (Epilabis) emarginata Ramamurthi and David, 1973, *Zool. Anz.*, **190** : 437, figs. 4–6 (Male, Female; India : Tamil Nadu, Coonoor, 1800m); Steinmann, 1989, *World Catalogue of Dermaptera* : 256.

Epilabis analis (nec Ramamurthi and David); Srivastava, 1978, *Bull. zool. Surv. India*, **1**(1) : 72 (1 Male; India : Tamil Nadu, Naduvattam, 6000 ft.).

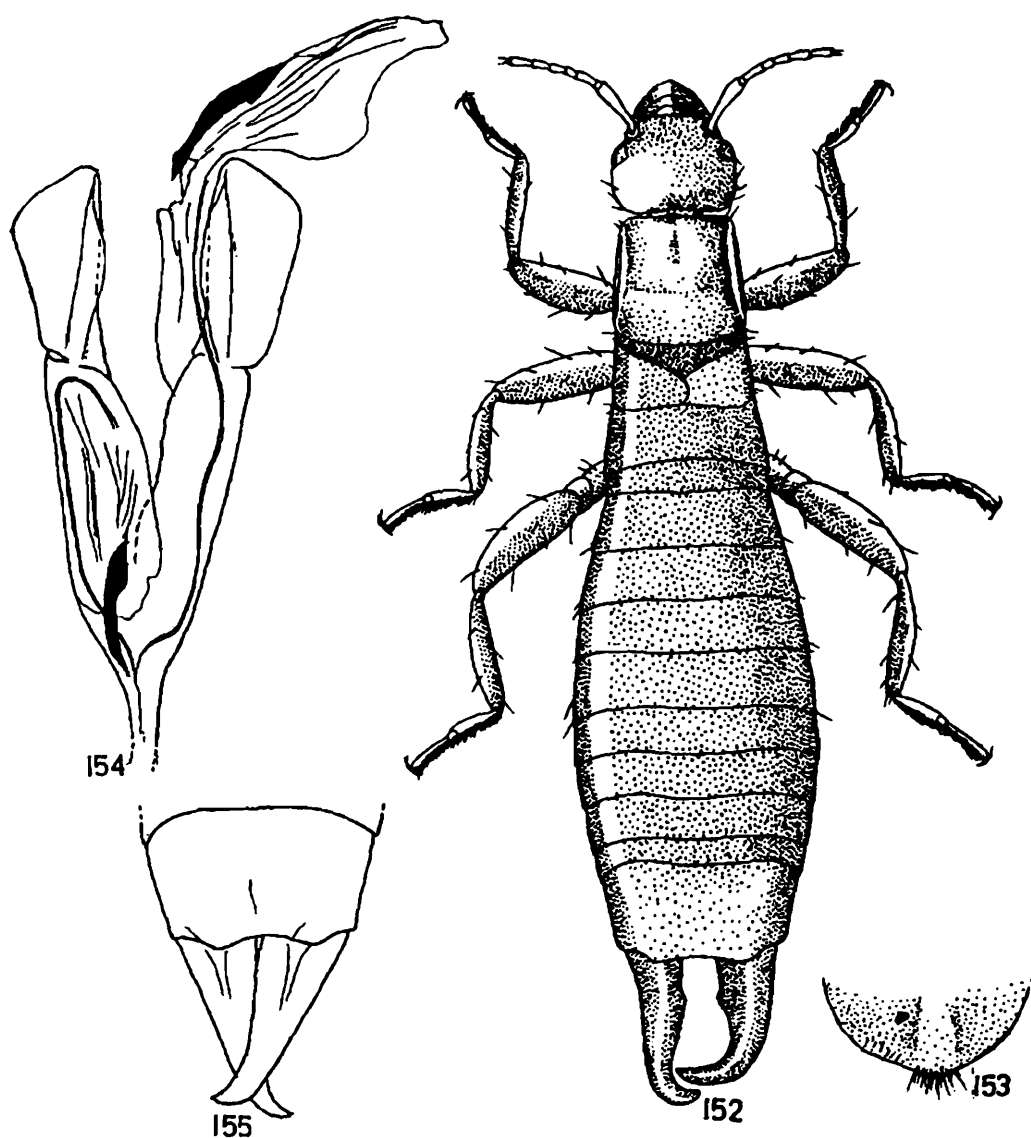
Carcinophora (Epilabis) emarginata; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Epilabis emarginata; Steinmann, 1989, *Das Tierreich*, **105** : 174.

Gonolabis emarginata; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 88.

Male : General colour reddish brown to black; basal antennal segment, mouth parts and legs yellow.

Head triangular, a trifle longer than broad, frons convex, sutures obsolete, hind margin in middle with a slight emargination. Eyes about half as long as the post-ocular area. Antennae 17-segmented, basal segment stout, expanded apically, slightly shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long & slender; 4th a little shorter and stouter than preceding; 5th slightly longer than 4th but shorter than 3rd; 6th about as long as 3rd; 7th onwards segments gradually thinning, each narrowed at base. Pronotum slightly longer than broad, anteriorly as broad as the posterior margin of head, sides straight, gently reflexed and diverging posteriorly, hind margin subrotundate; prozona and metazona weakly convex. Elytra and metanotum same as in *G. penicillata*. Legs typical of the genus, hind tarsi with 1st segment slightly shorter than 3rd, covered on underside with two rows of thick hairs. Abdomen spindle shaped, tergites weakly convex, micro-reticulated, sides of segments acute angled posteriorly with a carina on 5th to 7th only. Pygidium not distinct, vertical. Penultimate sternite with hind margin rounded and in middle with an acute point covered with a tuft of setae. Ultimate tergite transverse, gently narrowed posteriorly, weakly convex above laterally, hind margin trisinate, above the base of forceps oblique. Forceps stout, subcontiguous at base, gradually tapering apically, left branch almost straight in basal 2/3, afterwards incurved, right branch strongly incurved a little beyond middle, trigonal in basal 1/3, afterward depressed, apices hooked with tip sharply pointed, inner margin with a triangular tooth at basal 1/3, otherwise margin obscurely serrated. Genitalia with parameres a little over twice as long as broad, gently expanded at external apical angle, internal apical angle obtuse; membrane broader in middle; distal lobes with virga and a chitinous rod.



Figs. 152-155 : *Gonolabis emarginata* (Ramamurthi and David); Male; 152. Dorsal view; 153. Posterior half of penultimate sternite; 154. Genitalia; Female; 155. Ultimate tergite and forceps.

Female : Agrees with males in most characters except that penultimate sternite obtuse posteriorly, without median apical tuft of setae and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	13.5–14.5	13.3–15.7
Length of forceps	2.6–3.0	3.0–3.1

Types : Holotype Male, Allotype Female and Paratypes 2 Females with the author.

Distribution : India : Tamil Nadu, Nilgiri Hills.

Remarks : The record of *Epilabis analis* by Srivastava (1978) on a male, is actually referable to this species.

The present description is based upon several males and females from India (Tamil Nadu, Nilgiri Hills) determined by Dr. G. K. Srivastava, preserved in Z.S.I.

Male parameres of Holotype figured by Ramamurthi & David (1973) show a slight emargination in middle of external margin which may not be structural. It may be perhaps due to shrinkage during mounting. The parameres figured in this work are slightly different but overall shape fits within the intra-specific variational range as has been observed in the case of *Gonolabis sisera* (Burr).

***Gonolabis analia* (Ramamurthi & David)**
(Figs. 156–162)

Epilabis (Epilabis) analis Ramamurthi & David, 1973, *Zool. Anz.*, **190** : 436, figs. 1–3 (Male, Female; India : Tamil Nadu, Nilgiri, 2100m); Steinmann, 1989, *World Catalogue of Dermaptera* : 255.

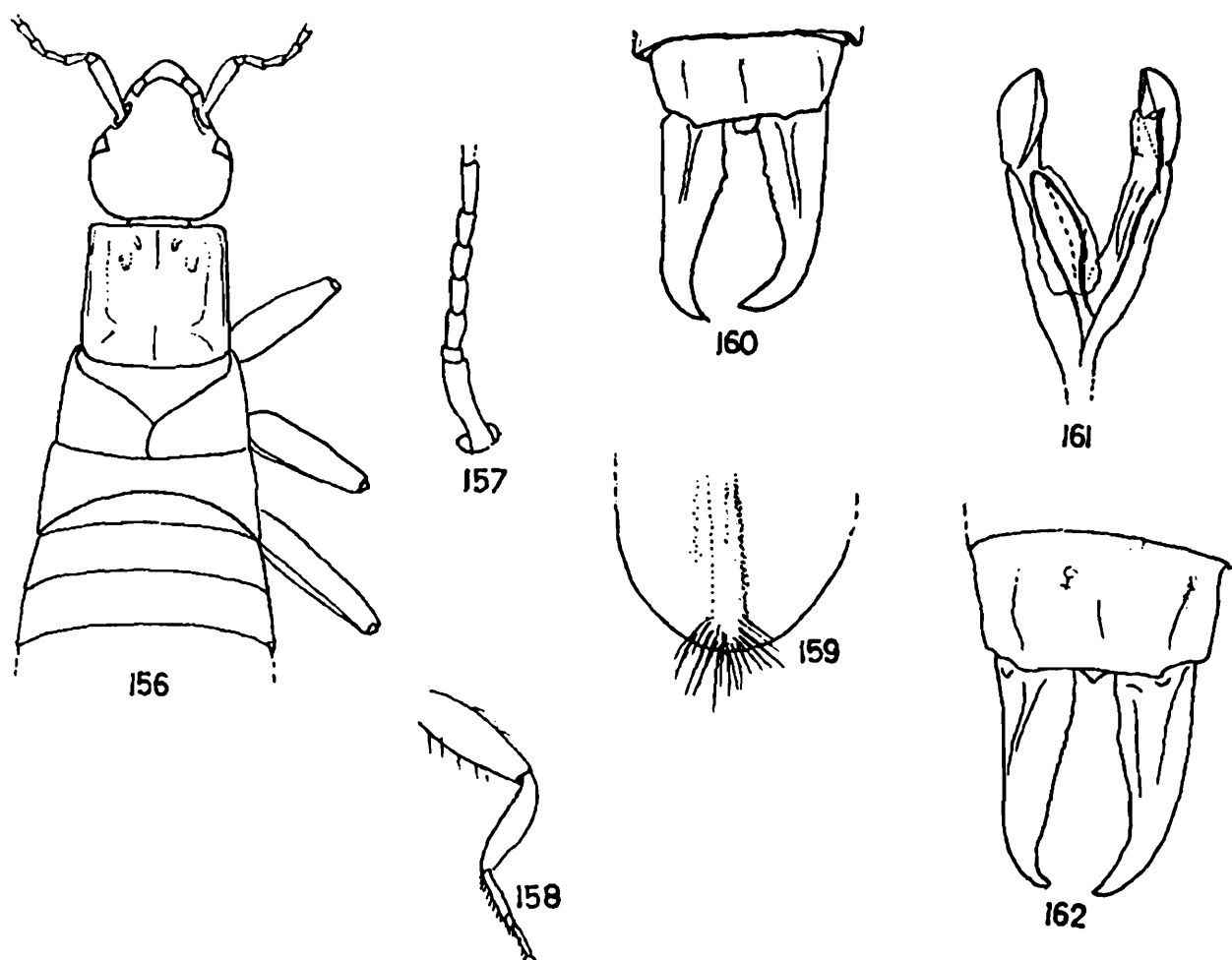
Epilabis analis; Steinmann, 1989, *Das Tierreich*, **105** : 175.

Carcinophora (Epilabis) analis; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Gonolabis analis; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 87.

Male : General colour reddish to blackish brown; legs and antennae yellow.

Head smooth, slightly longer than broad, frons raised, occiput and genae weakly depressed, hind margin in middle feebly emarginate. Eyes shorter than post-ocular area. Antennae 16-segmented or more (generally apical segments broken); 1st stout, expanded apically, only slightly shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long and slender; 4th & 5th equal and both equal to 3rd in length; 6th onwards gradually increasing in length and each narrowed basally. Pronotum slightly longer than broad, anteriorly about as broad as head, sides straight, gently reflexed and diverging posteriorly, hind angles rounded and margin subtruncate, median sulcus distinct; prozona and metazona weakly raised. Elytra same as in *G. penicillata*. Wings wanting. Metanotum transverse, hind margin broadly emarginate. Legs typical of the genus. Abdomen enlarged in middle, tergites weakly convex, sides of segments 5–8 rugose, acute angled posteriorly and carinate. Penultimate sternite with all margins rounded, narrowed posteriorly, a median raised area from middle to apex present with a tuft of hairs close to hind margin. Ultimate tergite transverse, gently narrowed and sloping backwards, laterally above gently raised, median sulcus short but distinct, hind margin in middle straight, laterally above base of forceps oblique and emarginate. Forceps remote or subcotiguous and stout at base, tapering apically, left branch almost straight, incurved in apical 1/3 and right branch strongly incurved in a little beyond apical 1/2, trigonal above in basal 1/3, inner margin finely serrated with a tooth at basal 1/3. Genitalia with parameres a little two times longer than broad, inner apical angle acute, external apical angle rounded or convex; membrane oblique and broader in middle; distal lobes with a distinct virga and chitinous plate.



Figs. 156-162 : *Gonolabis analis* (Ramamurthi and David), Male; 156. Anterior portion of body; 157. A few basal antennal segments; 158. Hind leg; 159. Hind portion of penultimate sternite; 160. Ultimate tergite and forceps; 161. Genitalia; Female; 162. Ultimate tergite and forceps.

Female : Agrees with male in most characters except that sides of abdominal segments on sides convex posteriorly and ecarinate; penultimate sternite obtuse posteriorly, lacking apical tuft of setae; ultimate tergite comparatively more narrowed and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	13.0-16.0	13.0-17.7
Length of forceps	3.1-3.5	3.0-3.1

Types : Holotype Male, Allotype Female and Paratype 1 Male with the author.

Distribution : India : Tamil Nadu, Nilgiri Hills.

Remarks : The above description of the species is based upon specimens from India, Nilgiri Hills det. by Dr. G. K. Srivastava and preserved in the Zoological Survey of India.

This species is very close to *G. emarginata* (Ramamurthi and David) but differs mainly by the shape male penultimate sternite in having the hind margin rounded (vs hind margin rounded with a small acute point in middle in *G. emarginata*).

***Gonolabis sisera* (Burr)**

(Figs. 163–169)

Euborellia sisera Burr, 1914, *Rec. Indian Mus.*, **10** : 286, (2 Males; S. India, Anamalai Hills, 2400–4200ft., under dead logs).

Epilabis sisera; Burr, 1915, *J. R. micr. Soc.*, **1915** : 539, pl. 11, fig. 17 (male genitalia); Borelli, 1931, *Revue suisse Zool.*, **38** (11) : 298, fig. 4–9 (Male, Female; India : Anamalais (Valparai) and Nilgiri Hills (Hill Grove & Coonoor); Ramamurthi, 1968, *Zool. Anz.*, **181** : 131 (S. India); Srivastava, 1970, *Eos, Madr.*, **45** : 32 (Male, Female; India : Anamalai Hills, Cinchona, 3500 ft.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 23; Srivastava, 1978, *Bull. zool. Surv. India*, **1** (1) : 72, figs. 1A–B (10 Males, 13 Females & 7 Nymphs; India, Tamil Nadu, Anamalai Hills, 3500 ft.); Steinmann, 1981, *Acta. zool. hung.*, **27** : 93 (Male; India : Anamalai Hills, Chinchona, 3500 ft.).

Carcinophora sisera; Popham and Brindle, 1966, *Entomologist*, **99** : 275; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 85.

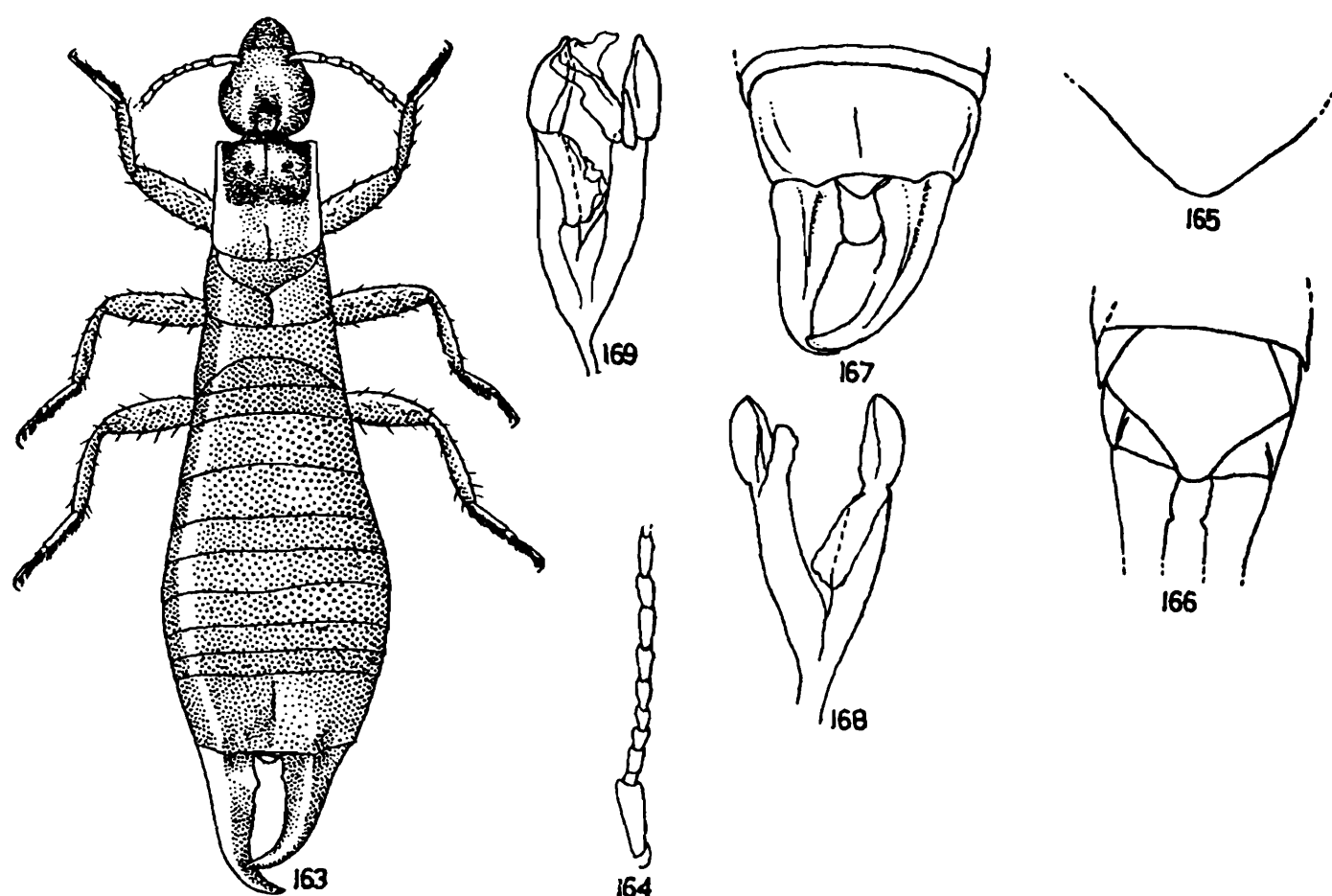
Epilabis (Cryptolabis) sisera; Ramamurthi and David, 1973, *Zool. Anz.*, **190** : 438.

Foramenolabis sisera; Steinmann, 1981, *Folia ent. hung.*, **42** (34) : 180, fig. 13; Steinmann, 1989, *Das Tierreich*, **105** : 153; Steinmann, 1989, *World Catalogue of Dermaptera* : 282; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Gonolabis sisera; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 88

Male : General colour reddish to blackish brown; three basal and a few anteapical antennal segments and legs yellows, often latter orange yellow.

Head slightly longer than broad, frons convex, close to hind margin above with an oblong deep cavity, sutures faint. Eyes distinct, about 1/2 as long as the post-ocular area. Antennae 18-segmented, basal segment stout, slightly shorter than the distance between antennal bases, gently expanded apically; 2nd short, about as long as broad; 3rd long and slender; 4th subclavate, slightly shorter than the preceding; 5th subclavate, about as long as 3rd; 6th onwards segments increasing gradually in length and thinning, each narrowed at base and expanded apically. Pronotum longer than broad, gently widened posteriorly, apical lateral angle, a little projecting, lateral margin straight, hind margin and lateral angles briefly rounded, median sulcus distinct; prozona convex and metazona depressed. Elytra in shape similar to *G. penicillata*. Legs stout, tarsi long, covered with thick hairs on underside; hind tarsi with 1st segment almost equal to combined length of 2nd and 3rd. Abdomen broader in middle from 6th to 8th tergites, convex above, finely punctuate, sides of segments 6th to 9th acute angled posteriorly, rugose and carinate. Penultimate sternite triangular, posteriorly in middle obtusely rounded. Ultimate tergite transverse, narrowed posteriorly, smooth, weakly convex, laterally above raised, median suture distinct but



Figs. 163-169 : *Gonolabis sisera* (Burr), Male; 163. Dorsal view; 164. A few basal antennal segments; 165. Hind portion of penultimate sternite; 166. Penultimate sternite and bases of forceps; 167: Ultimate tergite and forceps; 168-169. Genitalia (Figs. 164-167 from the Nomotype (Holotype) Male).

short, hind margin in middle almost straight, laterally above base of forceps oblique and lightly emarginate. Forceps subcontiguous, stout, tapering apically, left branch in apical 1/3 and right branch incurved beyond apical 1/2, crosses over left or touching, apices hooked, tips pointed, trigonal above in a little beyond basal 1/3, inner margin with a minute tooth at basal 1/3. Genitalia with parameres a little over twice as long as broad, external angle convex, tip acute or obtusely produced, membrane oblique, enlarged in middle, often covering inner margin of paramere; virga not distinct.

Female : Agrees with male in most characters except that head without a concavity; sides of abdominal segments convex; penultimate sternite obtuse in middle posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	18.0-25.0	17.0-20.0
Length of forceps	3.0-5.5	4.0-4.5

Types : Nomotype Male (which may considered as the Holotype) preserved in IARI.

Burr's (1914) original description was based on 2 Males. Besides above Nomotype Male, perhaps the other Male (Paratype) is deposited in BMNH.

Distribution : India : Tamil Nadu : Anamalai Hills, 2400–4200 ft.; Nilgiri Hills (Valparai, Hills Grove, Coonoor and Udhgamandalam (néc Ootacmund) and Kerala.

Remarks : This species occurs in large numbers in Western Ghats (India) and is quite distinctive in having a deep cavity on the head but in one male from Kerala preserved in the Zoological Survey of India, Calcutta, it is almost obsolete and the penultimate sternite is distinctly projecting in middle posteriorly.

Male parameres show minor variation but overall shape is of Gonolabid type. Apex may be narrowed to a obtusely produced point or small point. The membrane is broader in middle, covering sometimes, the inner margin of paramere to make it appear as wavy especially, in mounts from old specimens.

***Gonolabis burri* (Srivastava)**

(Figs. 170–172)

Epilabis burri Srivastava, 1970, *Ceylon J. Sci. (Bio. Sci.)*, **8** (2) : 40, figs. 1a–d (Male, Female; India : Maharashtra, Satara dist., Mahabaleshwar); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 22; Steinmann, 1989, *Das Tierreich*, **105** : 178.

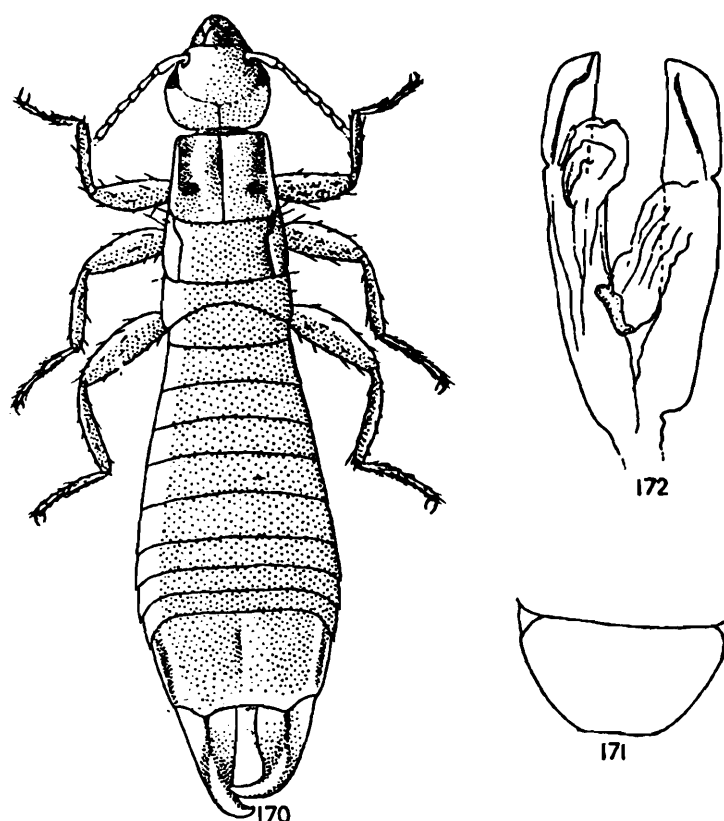
Carcinophora (Epilabis) burri; Sakai, 1982, *Bull Daito Bunka Univ.*, **20** : 29.

Epilabis (Epilabis) burri; Steinmann, 1989, *World Catalogue of Dermaptera* : 256.

Gonolabis burri; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 87.

Male : General colour brownish black; elytra and pronotum black but latter yellow on sides; legs light brown and femora banded with black.

Head slightly longer than broad, triangular, smooth, frons convex, sutures distinct, hind margin slightly emarginate in middle. Eyes short, about 1/3 as long as post-ocular area. Antennae 13-segmented, 1st stout gently expanded apically, slightly shorter than the distance between antennal bases; 2nd about as long as broad; 3rd long and slender; 4th and 5th shorter than 3rd; 6th almost equal to 3rd, remaining segments thinning apically. Pronotum about as long as broad, slightly widened posteriorly, sides straight and gently reflexed, hind margin subtruncate and angle briefly rounded, median sulcus distinct; prozona weakly convex and metazona depressed. Elytra present as narrow, ovate, lateral flaps on mesonotum. Metanotum with hind margin broadly emarginate. Legs typical of the genus. Abdomen narrowed anteriorly, tergites convex, finely punctulated, sides of segments 6 to 9 convex posteriorly, striate. Penultimate sternite transverse, narrowed posteriorly, hind margin rounded or subrotundate with slight emargination in middle. Ultimate tergite smooth, transverse, disc weakly convex, median sulcus faint and laterally above with a raised longitudinal fold, hind margin trisuiate. Forceps with branches subcontiguous and stout at base, tapering apically, left branch almost straight, incurved in apical 1/4, right branch strongly incurved in apical 1/3 and slightly crosses over left branch,



Figs. 170-172 : *Gonolabis burri* (Srivastava), Holotype Male; 170. Dorsal view; 171. Penultimate sternite; 172. Genitalia.

apices hooked with tip pointed, trigonal above in basal 1/3, afterwards depressed, internal margin finely crenulated. Genitalia with parameres a little over twice as long as broad, external apical angle along with apical margin convex, inner apical angle obtuse; oblique membrane narrow; distal lobe with chitinous denticulated pads.

Female : Agrees with males in most characters except that sides of abdominal segments smooth; forceps with branches contiguous, straight and tapering apically.

Measurements : (in mm)

	Male	Female
Length of body	10.3–13.1	9.6–11.0
Length of forceps	1.7–2.0	1.72

Types : Holotype Male, Allotype Female, Paratypes : 1 Male, 1 Female & 1 nymph deposited in Z.S.I.

Distribution : India : Maharashtra.

Remarks : Amongst the Indian species it can be easily separated by the presence of abbreviated elytra as narrow, ovate lateral flaps.

In addition to above type material, a Male specimen from India : Maharashtra, Poona, 3 km from Sinhgad, 23.v.1979 (*M.S. Pradhan* coll.), det. by Dr. G. K. Srivastava, is also preserved in the collections of Z.S.I.

***Gonolabis punctata* (Srivastava)**

(Figs. 173–178)

Epilabis punctata Srivastava, 1978, *Bull. zool. Surv. India*, **1**(1) : 74, figs. 2 A–F (Male, Female and nymphs; India, Tamil Nadu, Shevroy Hills, 4500 ft.); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 29 (1 Male, 4 Females and 3 nymphs; India : Tamil Nadu, Shevroy Hills, Yercaud, 4000 ft.); Steinmann, 1989, *Das Tierreich*, **105** : 177.

Carcinophora (Epilabis) punctata; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Epilabis (Epilabis) punctata; Steinmann, 1989, *World Catalogue of Dermaptera* : 257.

Gonolabis punctata; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 88.

Male : General colour dull blackish to reddish brown. Legs testaceous yellow. Finely punctate all over the body including elytra.

Head triangular, longer than broad, sutures faint, hind margin straight; eyes much smaller than post-ocular area in length. Antennae 17-segmented, stout, 3rd longer than 4th and 5th but equal to 6th, remaining gradually increasing in length distally. Pronotum finely punctate, slightly broader than long, anteriorly straight, laterally straight but diverging posteriorly, hind angles well rounded and margin subtruncate. Elytra and metanotum same as in the preceding species. Abdomen convex, very slightly enlarged in middle, sides of segments obtuse angled posteriorly, ecarinate, often rugosely punctate. Penultimate sternite triangular, obtusely rounded posteriorly, finely punctate, pubescent along the posterior margin. Ultimate tergite transverse, gently contracted posteriorly, sparsely punctate, median sulcus deep, hind margin straight, laterally oblique, gently sinuate. Forceps weakly asymmetrical, remote and trigonal at base with a ridge in basal one fourth only, afterwards depressed, tapering, right brach more incurved than the left, apices gently hooked and pointed, inner margin with a faint tooth at basal one fourth only. Genitalia as seen in fig. 177.

Female : Agrees with male in most characters except that the sides of abdominal segments rounded and forceps almost symmetrical.

Measurements : (in mm)

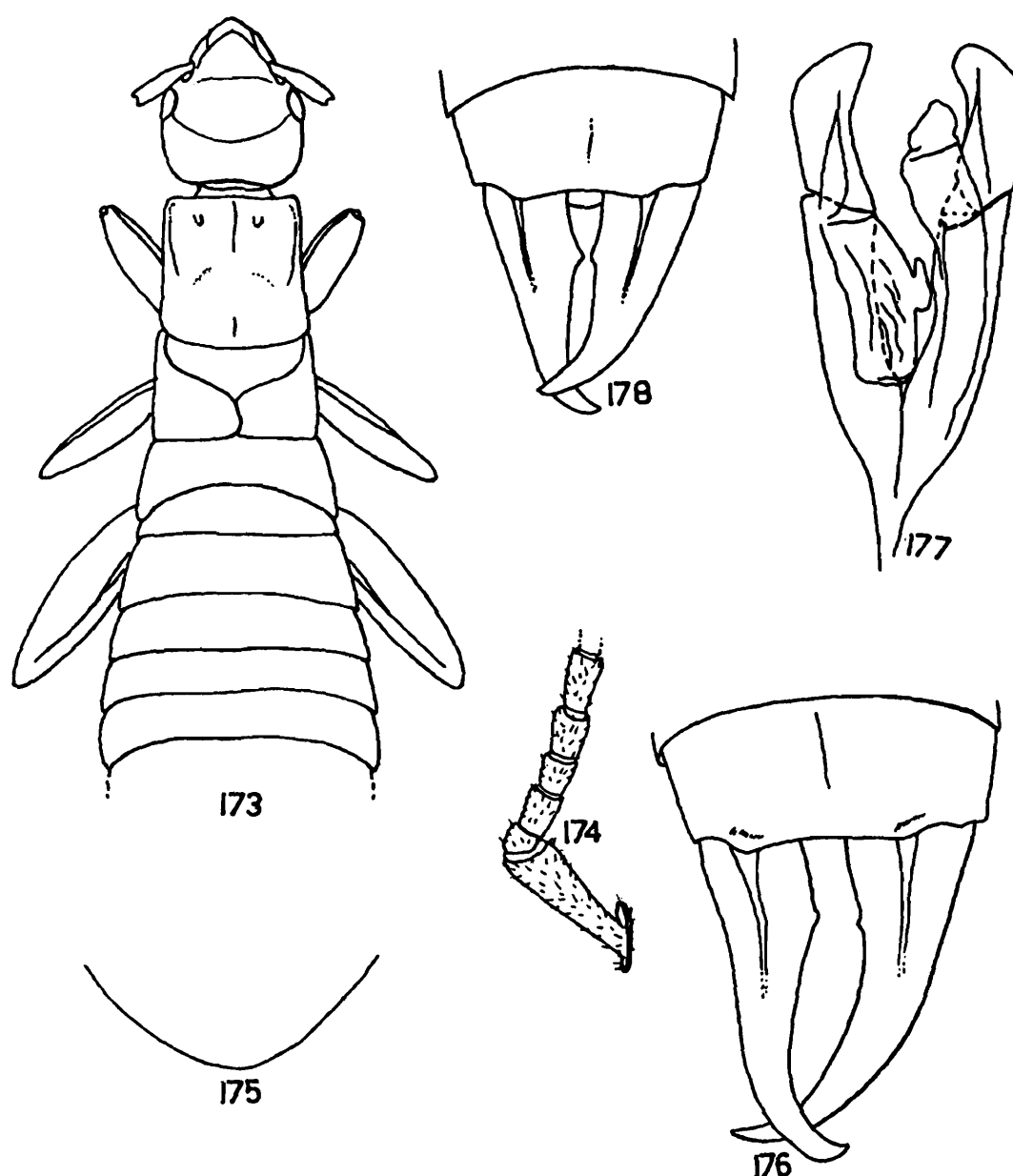
	Male	Female
Length of body	14.2–17.5	14.1–19.3
Length of forceps	3.3–3.5	3.3–4.0

Types : Holotype Male, Paratypes : 12 Males, 26 Females and 75 nymphs deposited in MZM.

Paratypes : 2 Males, 2 Females and 2 nymphs deposited in ZSI.

Distribution : India : Tamil Nadu, Shevroy Hills, 4500 ft.

Remarks : This species resembles closely with *Anisolabella greeni* (Burr) in having the whole body punctate but the shape of parameres are quite distinctive. The latter was originally described from Sri Lanka and probably it does not occur in India.



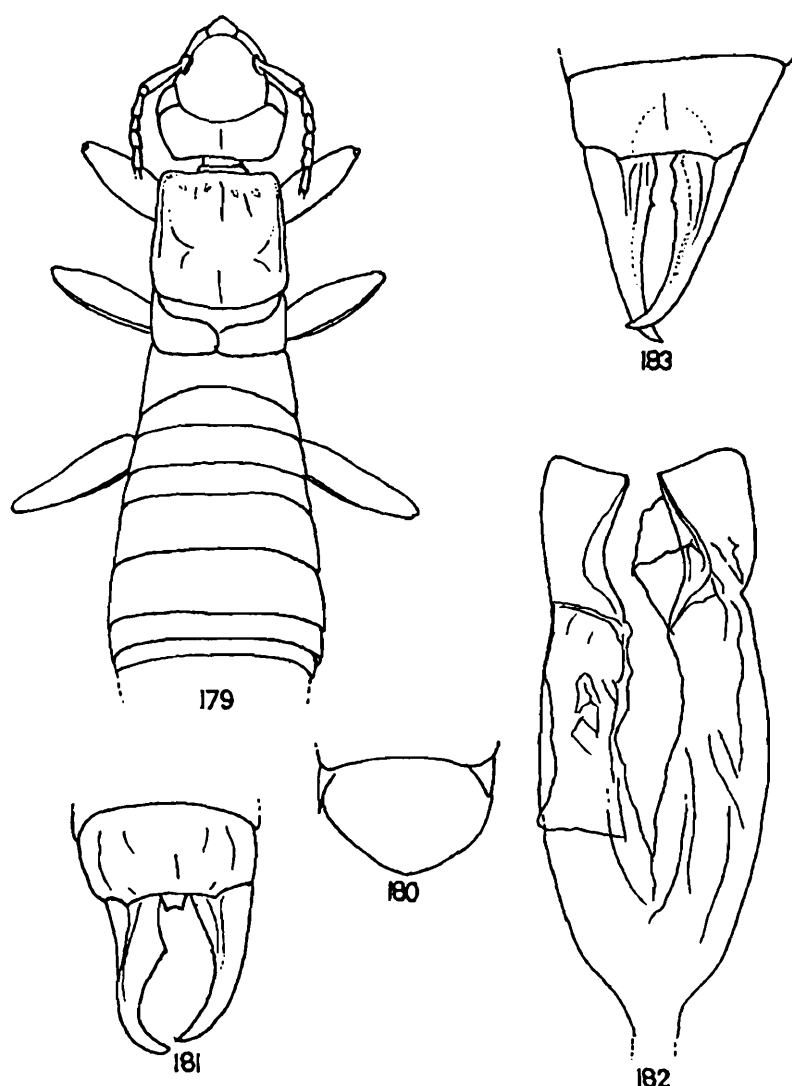
Figs. 173-178 : *Gonolabis punctata* Srivastava; Male; 173. Dorsal view; 174. A few basal antennal segments; 175. Hind portion of penultimate sternite; 176. Ultimate tergite and forceps; 177. Genitalia; Female; 178. Ultimate tergite and forceps.

Perhaps all other records of *E. greeni* from India (Burr, 1914, Hebard, 1923) are referable to this species.

***Gonolabis krishnappai* sp. n.**
(Figs. 179-183)

Male : General colour shining brownish black; mouth parts, legs and sides of pronotum and 15th antennal segment pale yellow or brown.

Head longer than broad, frons and occiput weakly raised, in middle with micro-reticulations, sutures faint, hind margin emarginate in middle. Eyes small, shorter than post ocular area. Antennae 17 (+?) segmented; 1st stout, about as long as the



Figs. 179-183 : *Gonolabis krishnappai* sp.n., Holotype Male; 179. Anterior portion of body except ultimate tergite and forceps; 180. Penultimate sternite; 181. Ultimate tergite and forceps; 182. Genitalia; Paratype Female; 183. Ultimate tergite and forceps.

distance between antennal bases; 2nd short, about as long as broad; 3rd long and slender; 4th stouter and shorter than 3rd; 5th almost equal to 4th; 6th onwards gradually increasing in length distally; a few apical ones thin and rod shaped. Pronotum smooth, anteriorly as broad as head, gently widened posteriorly, lateral margin straight and gently reflexed; hind margin rounded; prozona convex, weakly differentiated from depressed metazona, median sulcus distinct. Elytra smooth, abbreviated, narrowed at base, exposing a broad scutellum, posteriorly forming a broad lobe, meeting along the middle line. Wings absent. Legs typical of the genus. Abdomen long and cylindrical, slightly enlarged in middle, tergites convex, punctulate, sides of segments 7th to 9th convex posteriorly, punctulated. Penultimate sternite transverse, smooth, narrowed posteriorly, hind margin convex in middle. Ultimate tergite transverse, obscurely punctulated, gently depressed in middle posteriorly, hind margin trisinate, laterally

oblique. Pygidium vertical, narrowed posteriorly with hind margin straight. Forceps with branches remote at base, attenuated posteriorly, almost straight in basal two thirds, afterwards right branch gently and left branch strongly incurved, apices gently hooked, in basal one fourth above trigonal, afterwards depressed, internal margin smooth, except for a small triangular tooth at basal one third. Genitalia with parameres one and half times longer than broad, square shaped, all margins straight, except internal concave, distal lobes with faintly denticulated pads.

Female : Agrees with males in most characters except that the penultimate sternite obtuse in middle posteriorly: ultimate tergite narrowed posteriorly and forceps simple and straight.

Measurements : (in mm)

	Holotype	Paratype
	Male	Female
Length of body	14.5	17.1
Length of forceps	3.0	3.5

Material examined : India : Karnataka : Chikmagalur Dist., Mudgera, ca 648 m, ex leaf litter, Holotypes Male (genitalia mounted between two coverslips and pinned with the specimen), Paratype Female, 20. vi. 1987 (S. Krishnappa); deposited in the Z.S.I.

Remarks : This species comes very close *Gonolabis punctata* (Srivastava) but differs by the shape of parameres in being square shaped, gently broader apically (*vs* narrower in apical one third in *G. punctata*), tip represented by a small point (*vs* obtusely rounded) and apical margin straight (*vs* oblique and convex).

Gonolabis nilgiriensis¹ (Srivastava)
(Figs. 184–189)

Epilabis nilgiriensis Srivastava, 1978, *Bull. zool. Surv. India*, **1**(1) : 72, figs. 1 D–I (Male, Female and nymphs; India, Tamil Nadu, Naduvattam, 6000 ft.); Steinmann, 1989, *Das Tierreich*, **105** : 172.

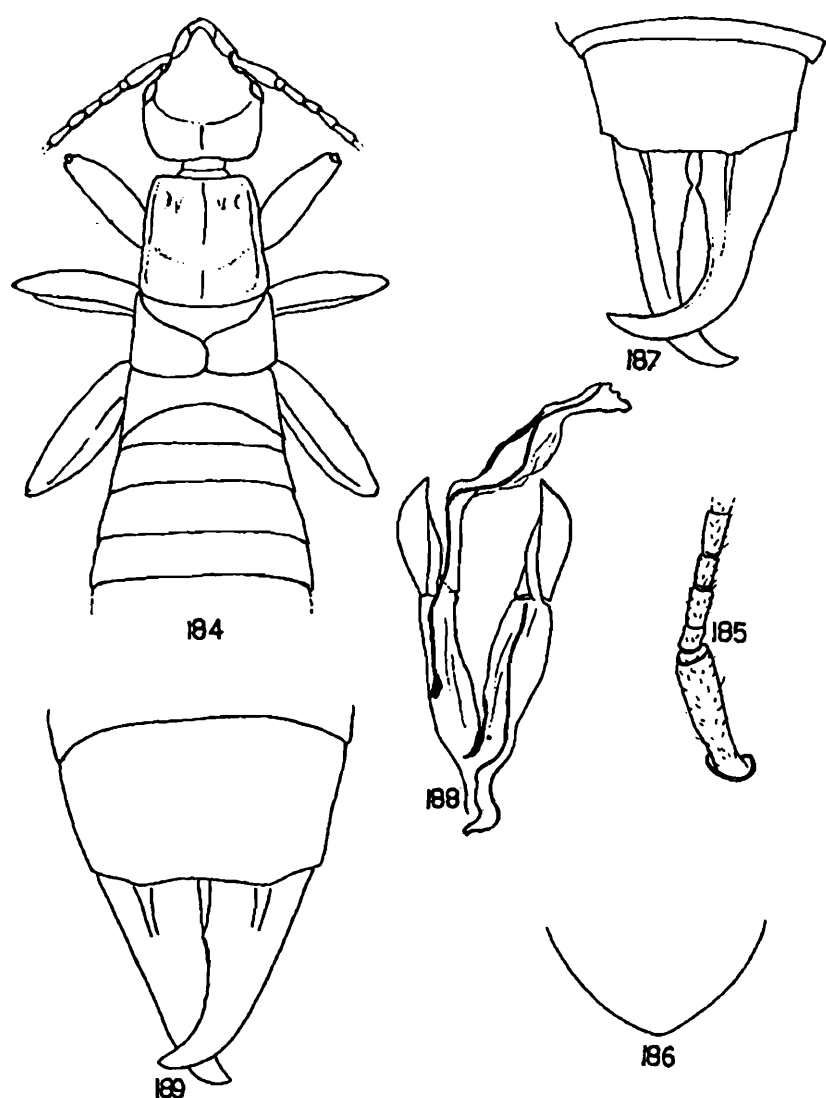
Carcinophora (Epilabis) nilgiriensis; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Epilabis (Epilabis) nilgiriensis; Steinmann, 1989, *World Catalogue of Dermaptera* : 256.

Gonolabis nilgiriensis; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 88.

Male : General colour blackish brown, legs testaceous brown.

Head triangular, convex, smooth, sutures fine but distinct. Eyes much shorter than post-ocular area in length. Antennae 17-segmented, 1st equal to 2nd to 4th together; 3rd slightly longer than 4th and equal to 5th, remaining segments long, slender, each gently narrowed basally, gradually increasing in length distally. Pronotum as long as broad, anterior and lateral margins straight, flat, posteriorly subtruncate



Figs. 184-189 : *Gonolabis nilgiriensis* (Srivastava), Male; 184. Anterior portion of body; 185. A few basal antennal segments; 186. Posterior half of penultimate sternite; 187. Ultimate tergite and forceps; 188. Genitalia; Female; 189. Ultimate tergite and forceps.

and gently widened, median sulcus faint; prozona weakly raised. Elytra same as in *G. penicillata* (Borelli). Metanotum transverse, finely punctulate, broadly emarginate posteriorly. Abdomen finely punctulate, enlarged in middle, sides of segments posteriorly acute, carinate on 5th to 7th only. Penultimate sternite obtusely rounded posteriorly, manubrium twice as long as the sternite and dilated at apex. Ultimate tergite sparsely punctate, transverse, gently contracted posteriorly, hind margin in middle subtruncate, laterally oblique and emarginate, median sulcus distinct in anterior half only. Forceps subcontiguous, trigonal in basal 1/3, gradually tapering apically, left branch almost straight in basal two thirds, afterwards incurved, right branch strongly incurved at about middle and crossing over the left, apices gently hooked, internally with a faint tooth at about basal one fourth, otherwise unarmed. Genitalia as seen in fig. 188.

Female : Agrees with male in most characters except that the sides of abdominal segments convex and ecarinate and forceps somewhat symmetrical.

Measurements : (in mm)

	Male	Female
Length of body	12.7–18.3	12.5–18.0
Length of forceps	2.7–3.0	2.5–2.6

Types : Holotype Male, Paratypes : 9 Males, 10 Females and 2 nymphs deposited in MZM.

Paratypes : 2 Males and 2 Females deposited in ZSI.

Distribution : India : Tamil Nadu, Nilgiri Hills, Naduvatum, 6000 ft.

Genus *Apolabis* Burr

Apolabis Burr, 1915, *J. R. micr. Soc.*, **1915** : 538 (Type species : *Forcinella hottentota* Dohrn, 1867); Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren*, **8° Zool.**, **225** : 71 (proposed as synonym of *Anisolabis* Fieber, 1853); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 22; Srivastava, 1986, *Rec. zool. Surv. India*, **83** (1–2) : 1; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 88.

Eulabis Zacher, 1911, *Zool. Jb.*, **30** : 377 (Type species : *Eulabis polita* Zacher, 1911); Burr, 1911, *Genera Insect.*, **122** : 34; Popham & Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Carcinophora* Scudder, 1876); Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 88 (treated as synonym of *Apolabis* Burr, 1915).

Zacheria Steinmann, 1975, *Acta zool. hung.*, **21** : 205 (a new name for *Eulabis* Zacher, 1911); Steinmann, 1977, *Annls hist.-nat. Mus. natn. hung.*, **69** : 90; Steinmann, 1978, *Dt. ent. Z.*, **25** : 182; Steinmann, 1984, *Ent. Abh. st. Mus. Tierk Dresden*, **48** : 67; Steinmann, 1989, *Das Tierreich*, **105** : 30; Steinmann, 1989, *World Catalogue of Dermaptera* : 305; Srivastava, 1999, *Res. zool. Surv. India*, **97** (1) : 88 (treated as synonym of *Apolabis* Burr, 1915).

Thekalabis Kapoor, 1967, *J. nat. Hist.*, **1** : 335 (Type species : *Thekalabis genitalis* Kapoor, 1967); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 22; Srivastava, 1984, *Rec. zool. Surv. India*, **83** (1–2) : 1 (treated as synonym of *Apolabis* Burr, 1915); Steinmann, 1977, *Annls hist.-nat. Mus. natn. hung.*, **69** : 90; Steinmann, 1978, *Dt. ent. Z.*, **25** : 182; Steinmann, 1984, *Ent. Abh. st. Mus. Tierk Dresden*, **48** (7) : 67; Steinmann, 1989, *Das Tierreich*, **105** : 32; Srivastava, 1999, *Rec. zool. Surv. India* **97** (1) : 88 (treated as synonym of *Apolabis* Burr, 1915).

Male genitalia with parameres three times longer than broad, broadest at or near base, gradually narrowed apically, tip may be produced into obtuse point or acuminate; distal lobes with or without virga.

Type species : *Forcinella hottentota* Dohrn, 1867.

Distribution : Oriental, Ethiopian, Neotropical and Australian Regions.

Remarks : At present only four species are known occur in India, of which three are distributed in Peninsular India and one is found in N.E. India (Arunachal Pradesh and Tripura).

Key to species (on Males only)

- 1(2). Body thickly pubescent; elytra abbreviated in the form of a narrow, ovate lateral flaps on mesonotum ***A. aborensis*** (Burr)
- 2(1). Body not thickly pubescent, occasionally short fine pubescence present on abdomen; elytra abbreviated, narrowed strongly at base, in apical half dilated into broad lobes which meet along the median line
- 3(4). Sides of abdominal segments ecarinate; penultimate sternite broadly rounded posteriorly ***A. castetsi*** (Bormans)
- 4(3). Sides of certain abdominal segments with a median carina; penultimate sternite narrowed posteriorly, feebly obtuse in middle
- 5(6). Parameres with external and internal margin undulate and tip gently incurved ***A. genitalis*** (Kapoor)
- 6(5). Parameres triangular, external and internal margins straight and tip straight and pointed ***A. ramachandrai*** (Ramamurthi & David)

***Apolabis aborensis* (Burr)**

(Figs. 190–194)

Euborellia aborensis (pars) Burr, 1913, *Rec. Indian Mus.*, 8 (2) : 137 (Male, Female; Arunachal Pradesh, Siang Dist., Rotung, 1 nymph and 1 Female, Janakmukh (excluding 1 Male, Assam, Dibrugarh); Sakai, 1970, *Dermapterorum Cat. Prael*, 1 : 26.

Paralabis aborensis : Srivastava, 1968, *Entomologist's Rec. J. Var.*, 80 : 292 (excluding 1 Male; Assam, Dibrugarh and the discription of male genitalia); Srivastava, 1971, *Entomologist's Rec. J. Var.*, 83 : 22 (excluding figs. B, D and F); Srivastava & Roychowdhury, 1975, *Newsl. zool. Surv. India*, 1 (2) : 22 (Male, Female; Tripura); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 23; Srivastava, 1985, *Rec. zool. Surv. India*, 82 : (1–4) : 42 (India : Arunachal Pradesh, Tirap dist.).

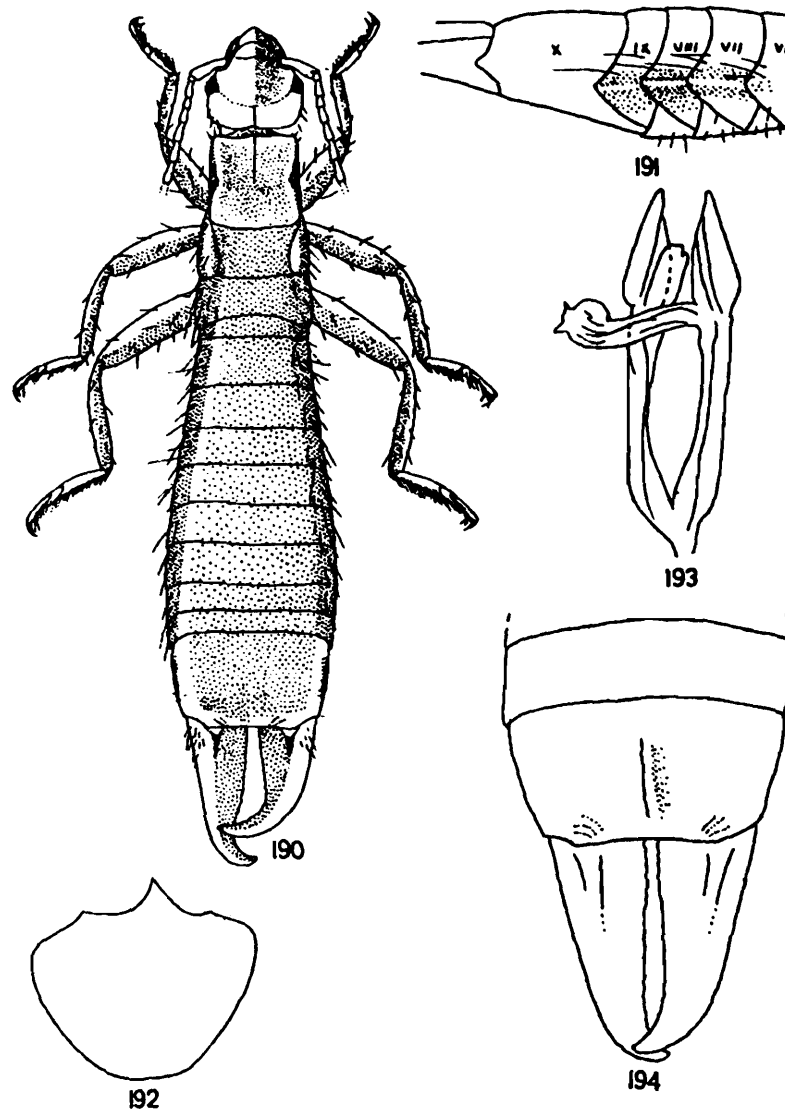
Anisolabis (Paralabis) aborensis; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 27.

Anisolabis aborensis; Steinmann, 1984, *Ent. Abh. st. Mus. Tierk. Dresden*, 48 (7) : 72; Steinmann, 1989, *Das Tierreich*, 105 : 139, fig. 226; Steinmann, 1989, *World Catalogue of Dermaptera* : 205.

Apolabis aborensis; Srivastava, 1986, *Rec. zool. Surv. India*, 83 (1–2) : 10, figs. 21–25 (Male, Female, India : Arunachal Pradesh, Assam & Tripura); Srivastava, 1999, *Rec. zool. Surv. India*, 97 (1) : 89.

Male : General colour reddish brown, often shaded with black in parts, antennae, sides of pronotum and legs yellowish brown. Form moderately depressed, thickly pubescent with long and short hairs.

Head about as long as broad, triangular, smooth, frons weakly raised and occiput comparatively depressed, sutures fine, hind margin straight. Eyes black, not very prominent, much shorter than the post-ocular area. Antennae 15-segmented or more,



Figs. 190-194 : *Apolabis aborensis* (Burr), Male; 190. Dorsal view; 191. Sides of abdominal segments and base of forceps; 192. Penultimate sternite; 193. Genitalia; Female; 194. Ultimate tergite and forceps.

1st stout, expanded apically, about as long as the distance between antennal bases; 2nd short; 3rd long and slender; 4th and 5th, both shorter than the 3rd; 6th almost equal to 3rd, remaining gradually increasing in length and each thinning apically. Pronotum slightly longer than broad, laterally a little reflexed and parallel, posterior margin feebly rounded, disc flat, pro- and metazona weakly differentiated, median sulcus faint. Elytra present as narrow, ovate flaps on the sides of mesonotum. Metanotum transverse and broadly emarginate posteriorly. Sternal plates typical of the genus. Legs normal, hind tarsi with 1st segment slightly longer than the 2nd and 3rd together, clad with fine pubescence and a row of thick chitinous hairs on underside. Abdomen weakly depressed, punctate, gradually expanded posteriorly, sides of segments 7th to 9th rugosely punctate, acute angled posteriorly, an oblique carina present on the segments 7th to 9th only but carina on 9th segment sometimes weak. Penultimate sternite narrowed posteriorly with margin rounded. Ultimate tergite

transverse, punctation faint and sparse, pubescence wanting, gently narrowed posteriorly with hind margin between the branches of forceps straight and above oblique and emarginate, laterally above with a weak longitudinal fold, median sulcus faint. Forceps contiguous or subcontiguous, trigonal in basal 1/3, afterwards depressed, tapering, almost straight in basal 1/3, thence incurved with right branch more strongly so, apices gently hooked and pointed. Genitalia with parameres three times longer than broad, broadest at base, narrowing apically with tip acute; distal lobes without any discernible virga.

Female : Agrees with male in most characters except that the penultimate sternite obtuse posteriorly; ultimate tergite comparatively more narrowed posteriorly and forceps almost symmetrical and less incurved in apical 1/4.

Measurements : (in mm)

	Male	Female
Length of body	12.3–14.9	12.0–15.9
Length of forceps	2.0–2.5	2.0

Types : Burr's (1913b) original description of the species was based on 2 Males, 5 Females from Rotung, 1400 ft., including the Nomotype Male; 1 Female, 1 nymph from Janakmukh, 600 ft., and 1 Males, from Dibrugarh.

Of these Nomotype (= Holotype) Male, 4 Females (= Paratypes) from Rotung and 1 Female, 1 nymph (= Paratypes) are preserved in Z.S.I. and 1 Female (= Paratype) is in the collections of BMNS.

1 Male from Dibrugarh has been designated as the Holotype of *Anisolabella carinatus* (Srivastava, 1987a).

The fate of 1 Male from Rotung, however, is not known. Perhaps, it may be, in the collections of BMNH since a part of the Indian Museum (now Z.S.I.) collection is available there.

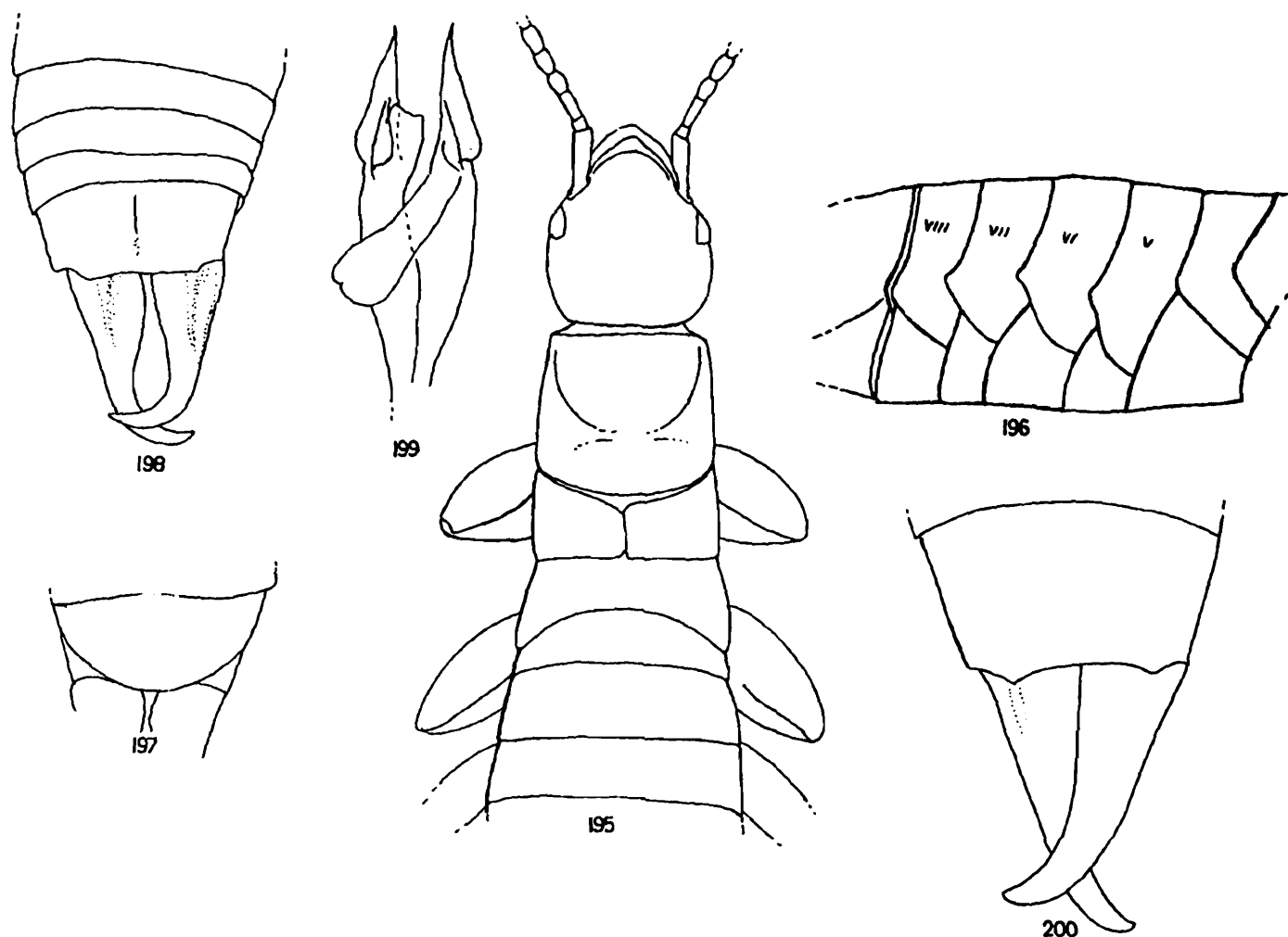
Distribution : India : Arunachal Pradesh (Siang dist., Roing; Lohit dist., Deopani and Tirap dist., Hornbill, Firm Base and Namdapha); Assam (Janakmukh) and Tripura (Bramacharra, Teliamura).

Remarks : This species can be easily separated from the other Indian species of the genus in having strongly pubescent body and the elytra as narrow, lateral, ovate flaps on mesonotum.

Besides, it is interesting that this species is confined to the Hills of NE India whereas the remaining three are endemic to Western Ghat Hills in Peninsular India.

***Apolobis castetsi* (Bormans)**
(Figs. 195–200)

Carcinophora castetsi Bormans in Bolivar, 1897, *Annls. Soc. ent. Fr.*, **66**, 284 (Males; India : Madras, Kodaikanal); Bormans, 1900, *Das Tierreich*, **11** : 41; Kirby; 1904, *Syn. Cat. Orth.*, **1** : 15; Popham & Brindle, 1966, *Entomologist*, **99** : 275; Sakai, 1970,



Figs. 195-200 : *Apolabis castetsi* (Bormans), Male; 195. Anterior portion of body; 196. Sides of abdominal segments; 197. Penultimate sternite and bases of forceps; 198. Hind portion of body; 199. Genitalia; Female; 200. Ultimate tergite and forceps.

Dermapterorum Cat. Prael, 1 : 84; Steinmann, 1989, *Das Tierreich*, 105 : 59; Steinmann, 1989, *World Catalogue of Dermaptera* : 246.

Psalis castetsi; Burr, 1910, *Fauna British India, Dermaptera* : 77; Burr, 1911, *Genera Insect.*, 122 : 31.

Paralabis castetsi : Hebard; 1923, *Mem. Dep. Agric. India ent. Ser.*, 7 : 204 (Male, Female and Juv.; India, Tamil Nadu, Kodaikanal).

Apolabis castetsi : Borelli, 1931, *Rev. suisse Zool.*, 38 : 295; Hincks, 1954, *Mem Inst. Franc. Afr. noire*, 40 (4) : 104; Ramamurthi, 1960, *Bull. Ent.*, 1 : 34, fig. 1; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 22; Srivastava 1986, *Rec zool. Surv. India*, 83 (1-2) : 2 (Male, Female; India : Tamil Nadu, Madura dist., Kodaikanal, 2125m); Srivastava, 1999, *Rec. zool. Surv. India*, 97(1) : 89.

Carcinophora (Carcinophora) castetsi; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 30.

Carcinophora (Apolabis) castetsi; Sakai, 1987, *Dermapterorum Cat.*, 20 : 1964.

Euborellia astrusi Burr, 1911, *J. Asiat. Soc. Beng.* (N.S.), **7** : 779 (South India, Shembaganur, Madura Dist., several specimens); Borelli, 1931, *Rev. suisse Zool.*, **38**(2) : 295 (treated as synonym of *Carcinophora castetsi* Bormans); Boeseman, 1954, *Zool. Verh., Leiden*, **21** : 43.

Apolabis mnemosyne Menozzi, 1929, *Mem. Soc. ent. Ital.*, **8** : 8, figs. 1, 2 and 3. (Male : Madura, India); Borelli, 1931, *Rev. suisse Zool.*, **38** (2) : 295 (treated as synonym of *Carcinophora castetsi* Bormans).

Male : General colour dark brownish black to light blackish brown; antennae and legs yellowish brown, often shaded with black in parts.

Head triangular, slightly longer than broad, frons raised, feebly punctulate, sutures faint, hind margin slightly emarginate in middle. Eyes small, about 1/3 as long as the post-ocular area. Antennae 14-segmented; 1st stout, gently expanded apically, about as long as the distance between antennal bases; 2nd short; 3rd long and slender; remaining stouter; 4th shorter than the preceding and 5th almost equal to 3rd; 6th onwards gradually increasing in length excepting a few pre-apical ones slightly shorter. Pronotum slightly longer than broad, smooth sometimes a trifle widened posteriorly, median sulcus faintly marked, hind margin subtruncate, prozona and metazona not well differentiated. Elytra abbreviated, narrowed strongly at base exposing a large transverse scutellum, posteriorly widened and meeting along the middle line, obscurely punctulate. Metanotum transverse, obscurely punctulate and finely pubescent, hind margin broadly emarginate. Prosternum three times longer than broad, anteriorly convex, feebly narrowed between fore-coxae, hind margin truncate. Mesosternum about as long as broad, hind margin briefly convex. Metasternum transverse, slightly narrowed beyond hind coxae with hind margin truncate. Legs long, slender tarsi with 1st segment slightly longer than the combined length of 2nd and 3rd segments. Abdomen spindle shaped, finely punctulate, convex, sides of segments 5th to 9th angulate posteriorly but ecarinate, only obscurely striate sometimes. Penultimate sternite transverse, triangular, broadly rounded posteriorly with slight emargination in middle, obscurely punctate. Ultimate tergite transverse, narrowed posteriorly, gently sloping backwards, smooth, hind margin straight in middle, oblique laterally above the bases of forceps, median sulcus faint and short. Forceps with branches subcontiguous, expanded at base, tapering apically and incurved in apical 1/2, at base above with a blunt ridge, afterwards branches depressed, internal margin obscurely crenulate. Genitalia with parameres broadest at base, about four times longer than broad, apices acuminate pointed; distal lobes without virga.

Female : Agrees with males in most characters except that the sides of abdominal segments obtuse or convex; penultimate sternite obtusely triangular posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	7.5–9.5	8.0–13.0
Length of forceps	1.4–1.5	1.7–2.2

Types : Type Male and Female of *Carcinophora castetsi* Bormans, 1897, not known.

Syntype : Males, Females of *Euborellia astruci* Burr, 1910 in BMNH. Burr (1910) mentions several specimens only which could be treated as Syntypes.

Syntype Males of *Apolabis mnemosyne* Menozi, 1929 not known.

Distribution : India : Tamil Nadu, Madura Dist., Kodaiknal and Shembaganur.

This species is confined in the above said localities. It should be included in the list of endangered species.

Remarks : It occurs in a variety of habitats, such as under stones close to water bodies and under bark of logs and stems of trees.

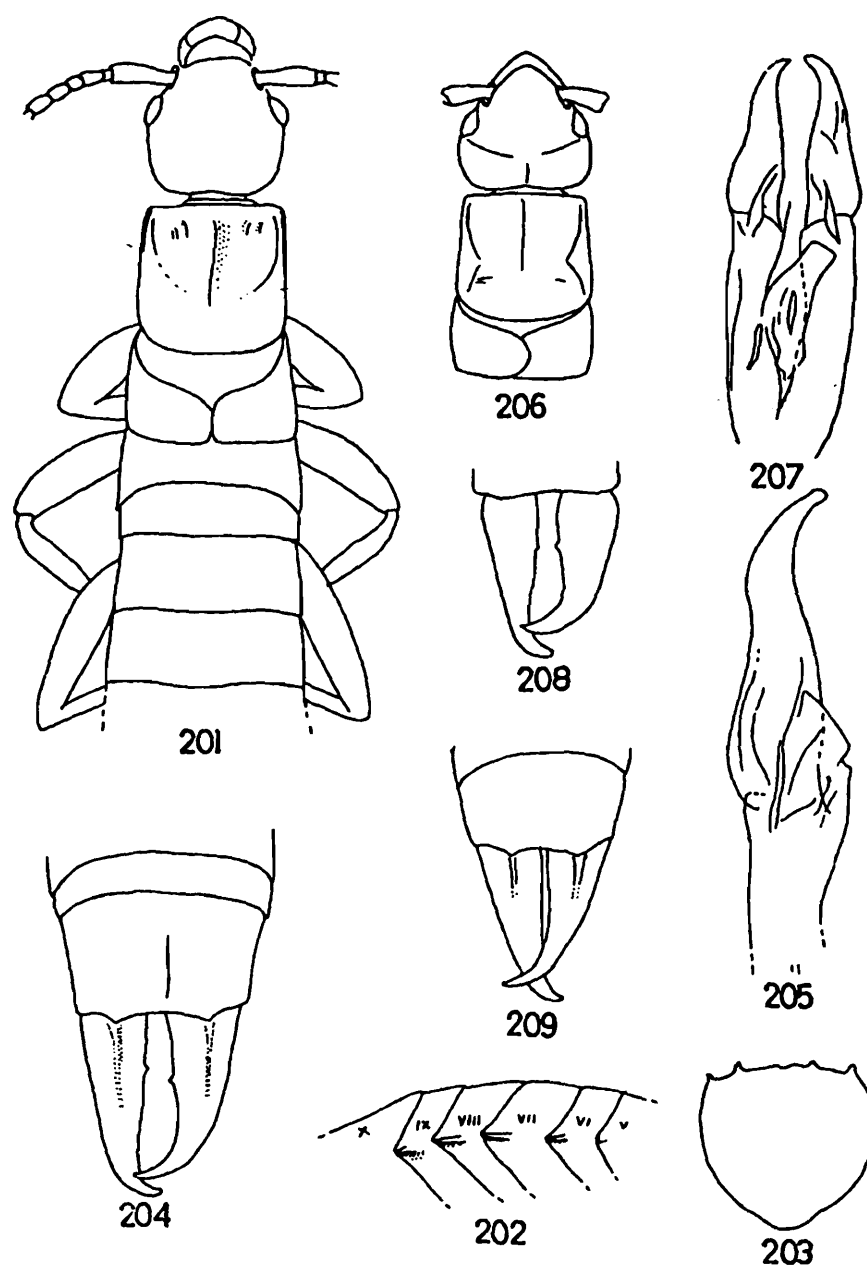
Although viable populations are available but within a restricted area as stated above.

***Apolabis genitalis* (Kapoor)**
(Figs. 201–209)

Thekalabis genitalis Kapoor, 1967, *J. nat. Hist.*, **1** : 335, figs. 1–3 (Male; India, Kerala, Thekkady, 855m); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 22; Srivastava, 1986, *Rec. zool. Surv. India*, **83** (1–2) : 5, figs. 7–15 (Male, Female and nymphs; India : Kerala, Thekkady, 855m); Steinmann, 1977, *Annls hist.-nat. Mus. natn. hung.*, **69** : 90, fig. 8; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 89; Steinmann, 1978, *Dt. ent. Z.*, **25** : 182; Steinmann, 1984, *Ent. Abh. st. Mus. Tierk. Dresden*, **48** (7) : 68; Steinmann, 1989, *Das Tierreich*, **105** : 32; Steinmann, 1989, *World Catalogue of Dermaptera* : 305; Sakai, 1982, *Bull Daito Bunka Univ.*, **20** : 30.

Male : General colour shining dark brownish black; antennae with basal two segments and legs dark brown.

Head slightly longer than broad, smooth, frons moderately raised, sutures fine but distinct, hind margin emarginate. Eyes shorter than the post-ocular area. Antennae 17-segmented, 1st stout, gently expanded apically, slightly longer than the distance between antennal bases; 2nd small, transverse; 3rd long, slender, gently expanded apically; 4th stout, only slightly longer than broad; 5th stout, longer than 4th but equal to 3rd, remaining stout and each gradually increasing in length excepting a few apical ones slightly shorter and thin. Pronotum slightly longer than broad, smooth, anteriorly straight, gently widened posteriorly with hind margin gently convex, sides depressed, median sulcus faint, prozona moderately convex and well differentiated from flat metazona. Elytra abbreviated, smooth, narrowed at base, exposing a transverse scutellum, broadened apically and meeting along the median line. Metanotum faintly punctulate with hind margin broadly emarginate. Sternal plates typical of the genus. Legs moderately long, hind tarsi with 1st segment slightly longer than the combined length of 2nd and 3rd segments. Abdomen spindle shaped, moderately convex, punctulate, covered with short yellow pubescence, on the sides of tergites above with three lobate, smooth patches arranged in the form of a triangle,



Figs. 201-209 : *Apolabis genitalis* (Kapoor), Male; 201. Anterior portion of body; 202. Sides of abdominal segments; 203. Penultimate sternite; 204. Hind portion of body; 205. A portion of genitalia showing left paramere; 206. Anterior portion of body showing head, pronotum and elytra; 207. Genitalia; 208. Ultimate tergite and forceps; Female; 209. Ultimate tergite and forceps (figs. 206-208 are from Holotype Male).

sides of segments 6th to 9th, rugosely punctate, acute angled posteriorly and carinate; on 5th faint convexity present. Penultimate sternite punctulate, obtusely triangular posteriorly. Ultimate tergite obscurely punctulate, transverse, moderately convex, hind margin between branches of forceps straight and above sinuate and oblique. Pygidium vertical, narrowed posteriorly. Forceps subcontiguous, expanded at base, tapering apically, almost straight in basal 2/3, afterwards incurved, apices gently hooked and pointed, in basal 1/3 trigonal with a blunt ridge above, internally at basal

1/3 with a faint tooth. Genitalia with parameres three times longer than broad, narrowed apically, internal and external margin undulate, tip slightly incurved; distal lobes with a short chitinous rod.

Female : Agrees with males in most characters except that the sides of abdominal segments convex, ecarinate, finely punctulate; ultimate tergite more strongly narrowed posteriorly and forceps simple, contiguous and straight.

Measurements : (in mm)

	Male	Female
Length of body	12.0–14.6	11.5–12.2
Length of forceps	2.0–2.6	2.0–2.1

Types : Holotype Male deposited in IARI.

Distribution : India : Kerala, Thekkaday, 885 m. Known only from the Type locality.

Remarks : This species appears to be closely related to *A. castetsi* (Bormans) but differs, in male, by its slightly larger size; sides of abdominal segments rugose with a longitudinal carina on 6th to 9th only; shape of penultimate sternite obtusely triangular posteriorly and the apical portion of parameres in being slightly incurved.

Apolabis ramachandrai (Ramamurthi and David)
(Figs. 210–214)

Epilabis (Cryptolabis) ramachandrai Ramamurthi and David, 1973, *Zool. Anz.*, **190**(5–6) : 438, figs. 7, 8 (Male; India, North Malabar, Taliparamba); Steinmann, 1989, *World Catalogue of Dermaptera* : 255.

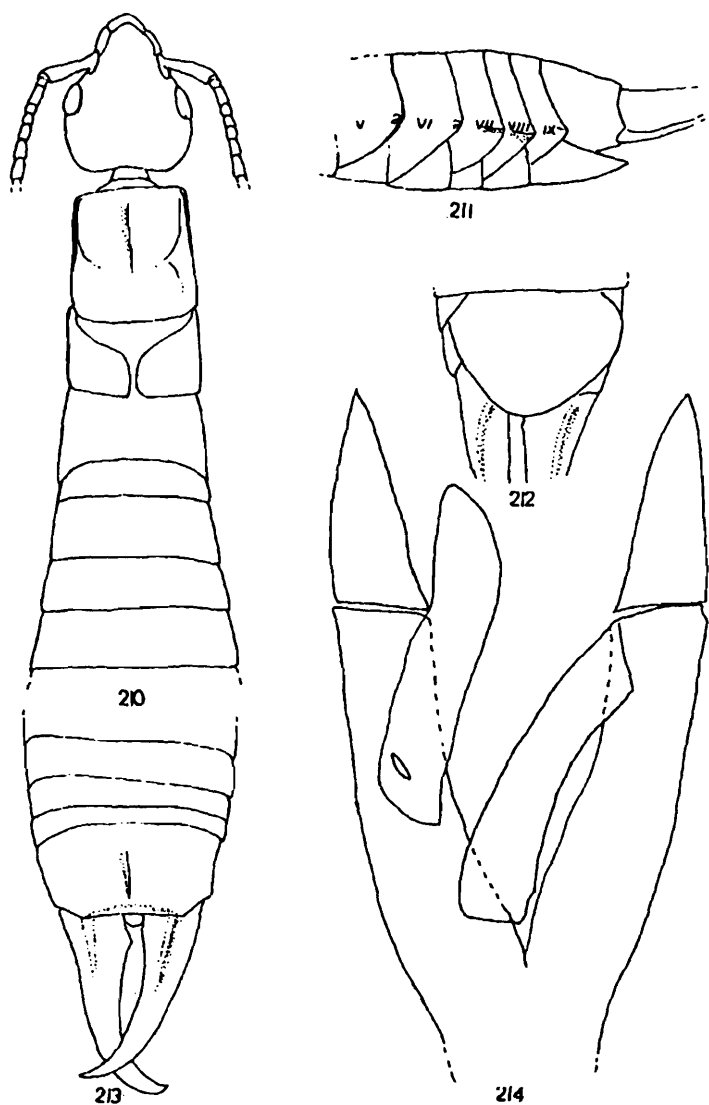
Apolabis ramachandrai; Srivastava, 1978, *Bull. zool. Surv., India*, **1** (1) : 7; Srivastava, 1986, *Rec. zool. Surv. India*, **83** (1–2) : 8, figs. 16–20 (Holotype Male; India, Kerala, N. Malabar, Taliparamba); Srivastava, 1999, *Rec. zool. Surv. India* **97** (1) : 89.

Carcinophora (Cryptolabis) ramachandrai; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 29.

Epilabis ramachandrai; Steinmann, 1989, *Das Tierreich*, **105** : 179, fig. 290.

Male : General colour dark brownish black, head on frons in part, pronotum and elytra shining reddish; antennae and legs light brown.

Head longer than broad, weakly convex, micro-sculptured, sutures obsolete, hind margin emarginate. Eyes prominent, only slightly shorter than the post-ocular area. Antennae (in Holotype Male with 15 segments on the right and 18 on the left remaining) 1st stout, gently expanded apically, about as long as the distance between antennal bases; 2nd short; 3rd long and slender; 4th about as long as broad; 5th slightly longer than broad but both shorter than the 3rd; 5th onwards segments gradually increasing in length and thinning. Pronotum longer than broad, gently widened posteriorly, sides and anterior margin straight, hind margin briefly rounded, prozona weakly raised, metazona gently depressed, median sulcus faint but complete. Elytra abbreviated, near base narrowed, exposing a large transverse scutellum, posteriorly



Figs. 210-214 : *Apolabis ramachandrai* (Ramamurthi and David), Holotype Male; 210. Anterior portion of body; 211. Sides of abdominal segments and base of forceps; 212. Penultimate sternite and bases of forceps; 213. Hind portion of body; 214. Genitalia (fig. 214 after Ramamurthi and David, 1973).

enlarged, meeting along the median line, smooth. Metasternum transverse, punctulate, hind margin broadly emarginate posteriorly. Sternal plates and legs typical for the genus. Abdomen finely punctulate, gradually enlarging posteriorly, each tergite above laterally with three smooth lobular patches, arranged into a triangle, sides of segments rugosely punctulate, segments 7th to 9th acute angled posteriorly with a faint carina and segments 5th and 6th obtuse posteriorly with a small tubercle. Penultimate sternite triangular with hind margin obtusely produced in middle. Ultimate tergite transverse, sparsely punctulate, moderately convex, narrowed posteriorly, hind margin between the bases of forceps straight and above the branches concave and oblique. Forceps subcontiguous, dilated at base, afterwards tapering, almost straight in basal half, thence gently curved with apices pointed and hooked, at base above trigonal with a ridge present in basal 1/4; internally left arm provided with a small tooth near base and right one with a feeble sinuation, afterwards obscurely crenulate. Genitalia

with parameres roughly triangular, narrowed apically with tip pointed, distal lobes with a short chitinous rod.

Female : Unknown.

Measurements : (in mm)

	Male
Length of body	20.0
Length of forceps	4.5

Type : Holotype Male with the author.

Distribution : India : North Malabar, Taliparamba.

Remarks : Through the courtesy of Sri B. N. Ramamurthi the Holotype Male, without male genitalia, was available for study.

On the basis of the shape of elytra this species comes close to *A. castetsi* (Bormans) and *A. genitalis* (Kapoř) but differs from both by its larger size and the shape of parameres which are triangular with all margins straight and tip narrowed and pointed.

Genus *Anisolabis* Fieber

Anisolabis Fieber, 1853, *Lotos*, **3** : 257 (Type species : *Forficula maritima* Bonelli, in Gené, 1832 – designated by Scudder, 1876, *Proc. Boston Soc. nat. Hist.*, **18** : 289); Bormans & Krauss, 1900, *Das Tierreich*, **11** : 4; Burr, 1910, *Fauna British India, Dermaptera* : 80; Burr, 1911, *Genera Insect.*, **122** : 28; Bey-Binko, 1936, *Fauna de L'URSS, Dermaptera* : 36; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 344; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 53; Steinmann, 1975, *Acta. zool. hung.*, **21** : 205; Steinmann, 1979, *Reichenbachia*, **17** : (8) : 57; Steinmann, 1989, *Das Tierreich*, **105** : 60; Steinmann, 1989, *World Catalogue of Dermaptera* : **204**; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 21; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1) : 89; Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren, in-8° Zool.*, **225** : 71.

Forcinella Dohrn, 1862, *Stettin. ent. Ztg.*, **23** : 226 (Type species : *Forficula maritima* Bonelli in Gené, 1832), Burr, 1910, *Fauna British India, Dermaptera* : 80 (treated as synonym of *Anisolabis* Fieber, 1853).

Labidurodes Dubrony, 1879, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **14** : 355 (Type species : *Labidurodes robustus* Dubrony, 1879); Burr, 1911, *Genera Insect.*, **122** : 32; Popham & Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Anisolabis* Fieber, 1853); Srivastava, 1983, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **84** : 382 (*Labidurodes robustus* Dubrony, 1879 transferred to *Anisolabis* Fieber, 1853 with *Labidurodes egregius* Günther, 1929 as its synonym).

Logicolabis Zacher, 1910, *Zool. Jb.*, **30** : 375 (Type species : *Anisolabis vosseleri* Burr, 1907 designated by Burr, 1911, *Genera Insect.*, **122** : 33); Popham & Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Anisolabis* Fieber, 1853).

Spondox Burr, 1974, *Nova Caledonia, Zool.*, **1** : 317 (Type species : *Spondox sarasani* Burr, 1914); Popham & Brindle, 1966, *Entomologist*, **99** : 272 (treated as synonym of *Anisolabis* Fieber, 1853).

Build slender or stout. Mesosternum convex posteriorly. Metasternum produced between hind coxae with hind margin truncate. Male genitalia with parameres five to seven times longer than broad, parallel sided or slightly dilated in middle or at base, tip obtuse, virga present or absent.

Type species : *Forficula maritima* Bonelli, in Gené, 1832.

Distribution : All regions.

Remarks : Srivastava (1999) has redefined the various genera of Anisolabidinae on the shape of male parameres. This genus can be separated from *Carcinophora* Scudder, in having the tip of parameres obtuse.

At present only five species are known from Indian subcontinent of which three are reported from India and two from Sri Lanka. The specimens recorded by Brindle (1971) as *Euborellia kudagae* from Sri Lanka are referable to *Euborellia annulipes* (Lucas).

The status of *A. gaudens* Burr, is doubtful since it is known by females only.

Rejected records : The record of *Anisolabis maritima* (Bonelli) from South India by Burr (1914) and Steinmann (1981) are either based on females or nymphs, are doubtful (Srivastava, 1991).

According to Brindle (1977) the record of *Anisolabis dubronii* (Kirby) and *A. kudagae* Burr from India by Gangola (1968) are erroneous.

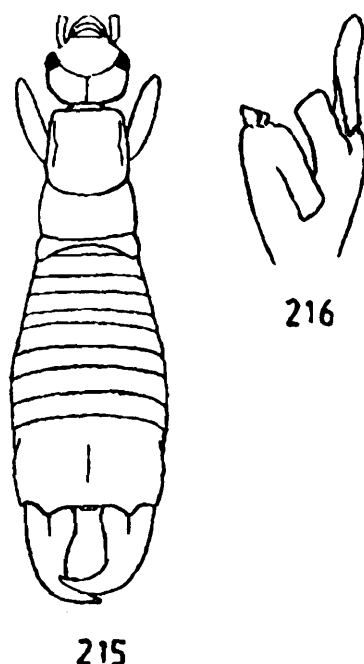
Key to species (based on males only)

- 1(4). Size larger (15.5 mm or more)
- 2(3). Genitalia with parameres narrow, about four times longer than broad, almost of uniform width with tip acute *A. rubella* Brindle
- 3(2). Genitalia with parameres broad, about two times longer than broad; broadest in middle, narrowed apically with tip obtuse *A. kudagae* Burr
- 4(1). Size smaller (7.8–10.3 mm)
- 5(6). Sides of abdominal segments 5th to 9th acute angled posteriorly with an oblique carina on 6t to 8th or 9th. *A. deplanata* Srivastava
- 6(5). Sides of abdominal segments 5th to 9th obtuse angled posteriorly and ecarinate *A. bhowmiki* Srivastava

Anisolabis rubella Brindle

(Figs. 215–216)

Anisolabis kudagae (néc Burr, 1901); Burr, 1910, *Fauna British India, Dermaptera* : 84 (Partim, male from Maskeliya only); Burr, 1915, *J. R. micr. Soc.*, 1915 : Pl. XI, fig. 1 (Male genitalia).



Figs. 215-216 : *Anisolabis rubella* Brindle, Holotype Male; 215. Dorsal view; 216. Male genitalia (after Brindle, 1977).

Anisolabis rubella Brindle, 1977, *Entomologist's Rec. J. Var.* **89** : 146, figs. 1 & 2 (Male in Dorsal view and genitalia) (Holotype Male; Maskeliya, Ceylon); Steinmann, 1984, *Ent. Abh. st. Mus. Tierk Dresden*, **48** (7) : 81; Steinmann, 1989, *Das Tierreich*, **105** : 150; Steinmann, 1989, *World Catalogue of Dermaptera* : 232.

Anisolabis (Anisolabis) rubella; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 28; Sakai, 1987, *Dermapterorum Cat.*, **20** : 2126.

Male : Shining reddish brown; legs yellow; antennae dark brown with basal two and basal 1/2 of 3rd segment yellow.

Head about as long as broad, hind margin scarcely emarginate in middle, sutures fine and distinct, frons tumid. Antennae multisegmented (no details available from the original description and figure shows only basal segments), basal segment stout, gently narrowed basally, shorter than the distance between antennal bases. Eyes distinctly shorter than the post-ocular area. Pronotum impunctate, glabrous, about as long as broad, widened posteriorly. Mesonotum transverse, about twice as broad as long with hind margin truncate. Metanotum transverse, hind margin broadly emarginate. Legs typical of the genus. Abdomen broadened posteriorly, tergites weakly convex, first and second tergites impunctate, remaining punctate, size and density of punctures increasing on posterior tergites; sides of abdominal segments produced but not pointed posteriorly, segments 8-9 rugoso-striate, ecarinate. Ultimate tergite transverse, more or less impunctate, at base on sides rugoso-striate, curved ridge laterally above present, hind margin trisinuate, laterally above bases of forceps oblique. Penultimate sternite missing in the Holotype Male. Forceps with branches stout, almost straight in basal half, afterwards incurved with apices hooked, right branch

more strongly curved, trigonal in basal 1/4 above, inner margin denticulated. Genitalia with parameres narrow, a little above five times longer than broad, tip obtuse; distal lobes without virga or denticulated pads.

Female : Unknown.

Measurements : (in mm)

	Male
Length of body	13.0
Length of forceps	2.5

Type : Holotype Male deposited in BMNH

Distribution : Sri Lanka (Maskeliya).

Remarks : This species is very close to *Anisolabis kudagae* Burr, also endemic to Sri Lanka, but differs in having the basal two and basal part of third antennal segment yellowish (*vs* uniformly coloured in *A. kudagae*) and genitalia with parameres narrow; a little more than five times longer than broad with tip acute (*vs* broader, three times longer than broad with tip obtuse).

***Anisolabis kudagae* Burr**

(Figs. 217–223)

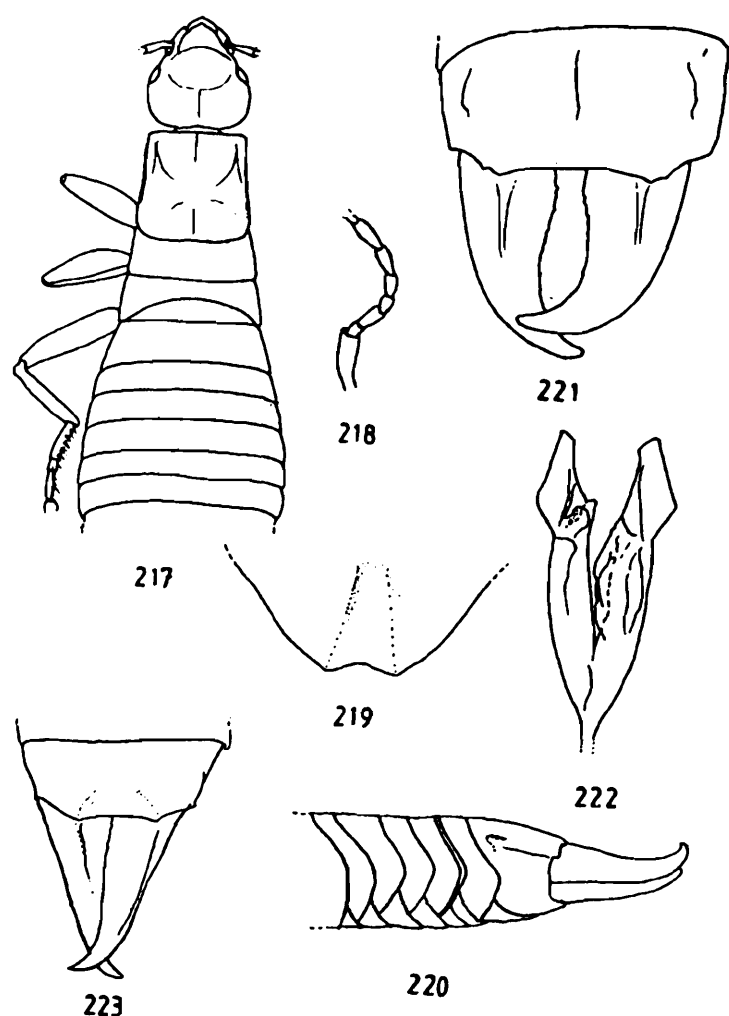
Anisolabis kudagae Burr, 1901, *J. Bombay nat. Hist. Soc.*, **14** : 320 (Male, Female; Hattan; Hattan Ceylon); Burr, 1910, *Fauna British India, Dermaptera* : 84 (Partim, Male and Female from Hutton only); Burr, 1911, *Genera Insect.*, **122** : 29; Burr, 1912, *Annln naturh. Mus. Wien*, **26** : 78 (1 Male; Ceylon, 1861); Kirby, 1904, *Syn. Cat. Orth.*, **1** : 19; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** (2) : 59; Brindle, 1977, *Entomologist's Rec. J. Var.*, **89** : 14, figs. 3 (Male genitalia); Brindle, 1977, *Revue suisse Zool.*, **84**(2) : 455 (1 Male; Ceylon, Central Hakgala); Steinmann, 1989, *Das Tierreich*, **105** : 151; Steinmann, 1989, *World Catalogue of Dermaptera* : 219.

Euborellia kudagae; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 26.

Anisolabis (Anisolabis) kudagae; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 27; Sakai, 1987, *Dermapterorum Cat.*, **20** : 2053; Sakai, 1987, *Dermapterorum Cat*, **19** : 2535.

General colour blackish brown, abdominal tergites in posterior half reddish brown; antennal segments reddish brown. Build stout.

Male : Head longer than broad, hind margin emarginate in middle, smooth, shining, frons feebly convex, sutures fine but distinct. Eyes shorter than post-ocular area. Antennae with 16 segments or more (in the material examined partly broken off), 1st stout, slightly shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long and cylindrical; 4th slightly longer than broad, stouter than preceding; 5th slightly longer than 4th and gently expanded apically, 6th onwards segments gradually thinning and increasing in length distally. Pronotum about as long as broad, smooth, anterior and lateral margins straight, latter gently reflexed, gently



Figs. 217-223 : *Anisolabis kudagae* Burr, Male; 217. Anterior portion of body; 218. A few basal antennal segments; 219. Posterior half of penultimate sternite; 220. Sides of abdominal segments and forceps; 221. Ultimate tergite and forceps; 222. Genitalia; Female; 223. Ultimate tergite and forceps.

widened posteriorly with margin subtruncate; prozona weakly raised and poorly differentiated from flat metazona, median sulcus fine but well marked. Mesonotum transverse, smooth, hind margin truncate. Metanotum smooth, transverse, hind margin broadly concave. Legs typical of the genus; hind tarsi with 1st segment longer than the combined length of 2nd and 3rd segments, clad with a row of thick setae on 1st and fine pubescence on underside of all segments. Abdomen spindle shaped, tergites weakly convex, smooth, sides of segments posteriorly convex and rugose from 6th to 9th only. Penultimate sternite narrowed posteriorly, hind margin in middle with a distinct emargination, a shallow median depression extending from base up to middle of the length present; shallow punctures present basally, in apical half rugosely striate. Ultimate tergite transverse, almost smooth except for one or two linear rugosity, disc moderately raised, laterally above with a short fold, hind margin thickened, lightly concave, above bases of forceps oblique and concave; median sulcus short, distinct in middle. Forceps stout and trigonal in basal one third, afterwards depressed, tapering apically, almost straight in basal 1/3, afterwards incurved, right branch

more strongly with its tip crossing over the left, inner margin finely serrated. Genitalia with parameres three times longer than broad, roughly sigmoid, broad in basal 1/3, narrowed apically, distal lobes without virga or teeth.

Female : Agrees with male in most characters except that abdominal tergites feebly punctate; penultimate sternite obtuse in middle posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	11.4–16.5	11.5–13.5
Length of forceps	2.5–2.8	3.2–3.7

Types : Syntypes 1 Male, 1 Female in BMNH.

Distribution : Sri Lanka : Kudaga, Hattan; Uva Province; Madulsima and Namunukuli.

Remarks : The above description is based on following specimens determined by Burr, as *Anisolabis kudagae* and preserved in the Zoological Survey of India :

One Male labelled as : (i) Indian Mus.; (ii) ♂; (iii) ♂ Namunukuli, Ceylon, July, 1910 and (iv) 6223/16 and genitalia mounted between two coverslips by G. K. Srivastava and attached to the pin.

One Female labelled as : (i) Indian Mus., (ii) ♂; (iii) Ceylon : Uva P. Madulsima, W.V.I.OI; (iv) 6224/16; (v) *Anisolabis kudagae*—handwritten by Burr.

One Female labelled as : (i) Indian Mus.; (ii) ♀; (iii) Namunukuli, Ceylon, 2–1910; (iv) 6222/16.

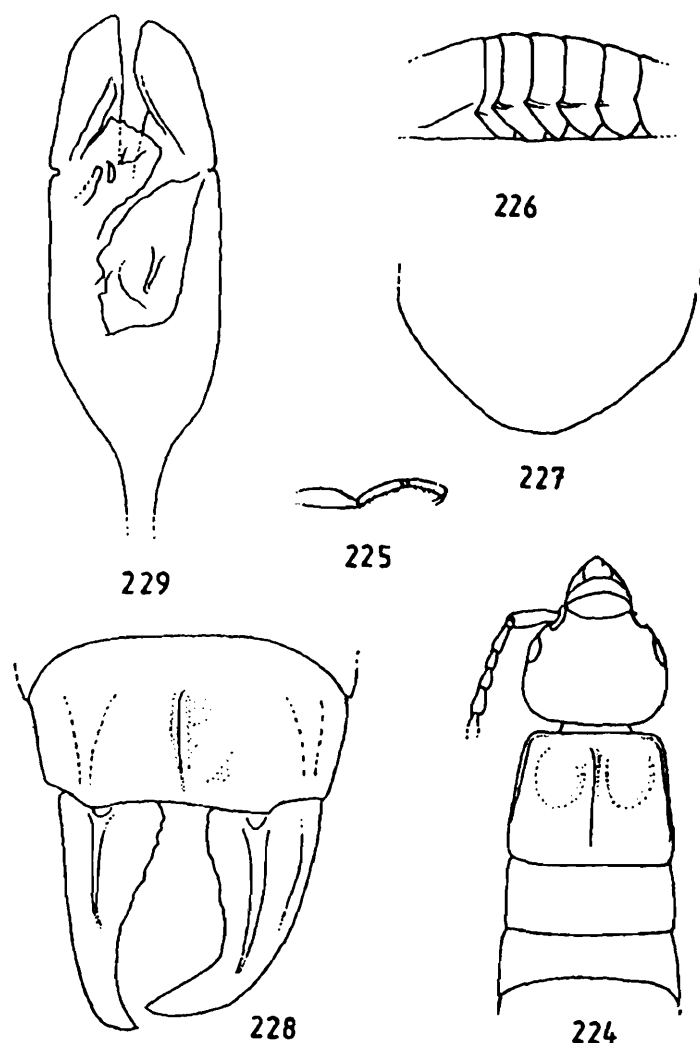
Records of *Euborellia kudagae* from Ceylon Brindle (1971) is referable to *E. annulipes* and *Anisolabis kudagae* by Gangola (1968) from India is doubtful which may treated as rejected.

Burr (1912) has recorded '1 Male from 'Ceylon, 1861' which is deposited in NMWA. Sakai (1987, vol. xix p. 2535) has figured perhaps this specimen which measures 9.0 mm, including forceps. The status of this male could be ascertained only after the examination of its genitalia.

This species and *A. rubella* Brindle, are identical in morphological details except for male genitalia.

***Anisolabis deplanata* Srivastava**
(Figs. 224–229)

Anisolabis deplanata Srivastava, 1985, *Rec. zool. Surv. India*, **82** (1–4) : 42, fig. 1–6 (Holotype Male, Paratype 1 Male, India : Arunachal Pradesh, Tirap District; Paratype 1 Male, West Bengal, Darjeeling District); Srivastava, 1991, *Rec. zool. Surv. India*, **89** (1–4) : 248; fig. 9–12; Steinmann, 1989, *Catalogue of World Dermaptera* : 210.



Figs.224-229. *Anisolabis deplanata* Srivastava, Holotype Male; 224. Anterior portion of body; 225. Hind tarsi; 226. Sides of abdominal segments; 227. Hind portion of penultimate sternite; 228. Ultimate tergite and forceps; 229. Genitalia.

Aborolabis martensi Brindle, 1987, *Courier Forsch.-Inst. Senckenberg*, **93** : 336, figs. 12, 17 (Holotype Male, Paratype 1 Female; Nepal, Gorkha District).

Male : General colour brownish black. Antennae brownish black but lighter than the body colour, 2nd yellowish, 4th or 5th distal segments dirty white. Pronotum along the lateral border yellow. Legs yellow, femora banded with brownish black in basal half. Posterior margin of abdominal tergites lighter in colour.

Head cardiform, smooth, slightly longer than broad, feebly narrowed posteriorly behind eyes, hind margin almost straight, frons convex, sutures obsolete. Eyes small, about half as long as the post-ocular length. Antennae 13-segmented, 1st stout, expanded apically, about as long as the distance between antennal bases; 2nd about as long as broad; 3rd long and slender; 4th and 5th subequal, shorter than 3rd; 6th onwards gradually increasing in length but stouter and expanded apically, a few apical segments shorter and almost globular. Pronotum smooth, about as long as

broad, gently widened posteriorly, all margins straight, sides feebly reflexed, median sulcus faint, prozona moderately raised and metazona depressed. Meso- and metanotum transverse, smooth, former posteriorly truncate and latter broadly emarginate. Thoracic sternites typical of the genus, mesosternum with hind margin lightly convex and metasternum posteriorly truncate. Legs typical of the genus, hind tarsi with 1st segment slightly longer than the third, claws without an arolium. Abdomen covered with fine, short pubescence, spindle shaped, moderately convex, tergites finely punctulate; sides of segments 5th to 9th acute posteriorly, rugosely punctulate and with an oblique ridge on segments 6th to 8th whereas a faint tubercle only present on segments 4th and 5th posteriorly. Penultimate sternite transverse, obscurely punctulate, posteriorly in middle truncate; manubrium a little over three times longer than the length of the sternite, apex forming a narrow elongated loop. Ultimate tergite transverse, obscurely punctulate, shining, disc in middle feebly depressed with a short median sulcus, hind margin straight between the branches of forceps and laterally oblique. Forceps with branches subcontiguous and trigonal in basal one third; the upper ridge distinct in basal one third, afterwards depressed and tapering apically, incurved in apical one third, right branch more strongly curved, apices pointed. Genitalia with parameres about half as long as pro-parameres and three times longer than broad; distal lobes with small denticulated pads (fig. 229).

Female : Agrees with male in most characters, except branches of forceps simple and straight, tapering apically, comparatively broad.

Measurements : (in mm)

	Male	Female
Length of body	6.9 – 7.5	7.5
Length of forceps	0.7 – 1.0	1.0

Types : Holotype Male, Paratypes 2 Males of *Anisolabis deplanata* Srivastava in Z.S.I.

Holotype Male, Paratype 1 Female of *Aborolabis martensi* Brindle, in SMF and Paratypes 1 Male and 1 Female in MM.

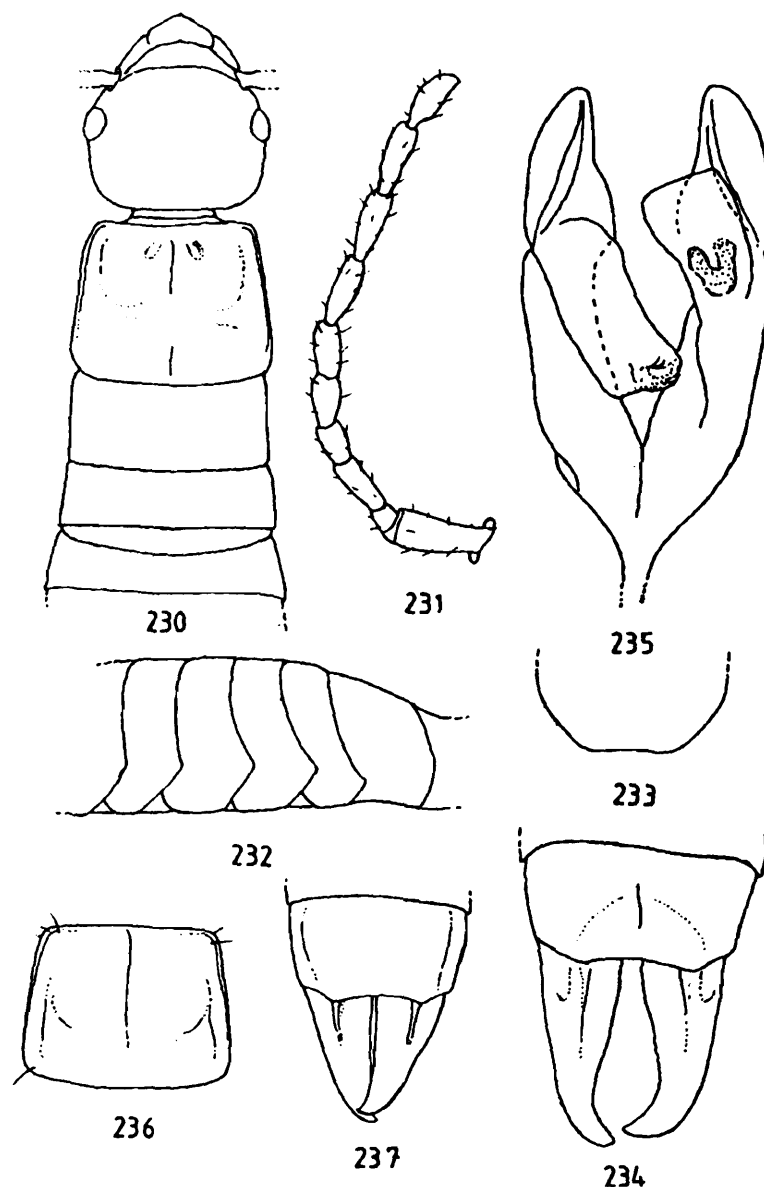
Distribution : India (Arunachal Pradesh) and Nepal (Gorkha dist.)

Remarks : On the basis of males this species can be easily discriminated from the other known oriental species of the genus by being smaller in size (7.6–8.5 mm including length of forceps); in having sides of abdominal segments 4th to 9th acute angled, with a median oblique carina on segments 6th to 9th only and a vestige of carina at posterior extreme of angle on 4th and 5th and characteristic genitalia.

***Anisolabis bhowmiki* Srivastava**

(Figs. 230–235)

Anisolabis bhowmiki Srivastava, 1991, *Rec. zool. Surv. India*, **91** (1–4) : 246, figs. 1–6 (Holotype Male; India : West Bengal, Darjeeling District, Sonada, 1971m).



Figs. 230-237 : *Anisolabis bhowmiki* Srivastava, Holotype Male; 230. Anterior portion of body; 231. Antennal segments; 232. Sides of abdominal segments; 233. Hind portion of penultimate sternite; 234. Ultimate tergite and forceps; 235. Genitalia; *Anisolabis gaudens* Burr, Female; 236. Pronotum; 237. Ultimate tergite and forceps.

General colour blackish brown, mouth parts, one or two ante-apical antennal segments yellow; legs yellow with basal half of femora banded with blackish brown.

Male : Head slightly longer than broad, shining, frons convex, sutures obsolete, hind margin with slight emargination in middle. Eyes small, about $\frac{1}{2}$ as long as the post-ocular area. Antennae (partly broken, on the right side with 5 basal and on the left 15 segments remaining) with basal segment stout, gently expanded apically, slightly shorter than the distance between antennal bases; 3rd long and cylindrical, longer than 4th and 5th; 4th slightly shorter than 5th, subclavate, stouter; 5th slightly stouter than 4th, subclavate; 6th almost equal to 3rd but stouter, narrowed basally

and gently expanded apically; remaining gradually increasing in length and thinning. Pronotum transverse, gently widened posteriorly, all margins straight, sides gently reflexed, median sulcus faint, prozona weakly raised, hardly differentiated from weakly depressed metazona. Mesonotum and metanotum transverse, former with hind margin truncate and latter broadly emarginate. Elytra and wings absent. Legs typical of the genus. Abdomen gently expanded in middle, convex, lateral tubercles on 3rd and 4th tergites obsolete, sides of segments 5th to 9th obtuse angled posteriorly, ecarinate, rugulosely punctulate. Penultimate sternite obscurely punctulate, transverse, hind margin scarcely emarginate in middle, Ultimate tergite transverse, smooth, shining, sloping backwards, median sulcus distinct, hind margin trisinate, laterally oblique. Forceps subcontiguous, expanded at base, tapering apically, left branch almost straight, right bent in basal half, apices gently hooked and pointed, trigonal above in basal 1/3, afterwards depressed, internal margin finely serrated, Genitalia with parameres (fig. 235) about twice as long as broad, narrowed apically with tip obtuse; distal lobes with chitinous denticulated pad.

Female : Unknown.

Measurements : (in mm)

	Holotype
	Male
Length of body	9.0
Length of forceps	1.3

Type : Holotype Male in ZSI.

Distribution : India : West Bengal : Darjeeling dist., Sonada, alt. 1971 m.

Remarks : This species comes very close to *Anisolabis deplanata* Srivastava, by its small size but differs in having the sides of abdominal segments 5th to 9th obtuse angled and ecarinate. Besides the shape of parameres in this species is distinctive in being slightly expanded basally.

Uncertain Species

Anisolabis gaudens Burr (Figs. 236–237)

Anisolabis gaudens Burr, 1904, *Trans. R. ent. Soc. Lond.*, **1904** : 291 (Female not Male; Bhutan); 1910, *Fauna British India, Dermaptera* : 87; Burr, 1911, *Genera Insect.*, **122** : 30; Burr, 1913, *Rec. Indian Mus.*, **8**(2) : 138 (1 Female, India : Arunachal Pradesh, Rotung, 427m); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16** (1) : 12; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 60; Biswas, Lahiri and Ghosh, 1975, *Proc. zool. Soc., Calcutta*, **26** (1973) : 29 (3 Nymphs, not Male; Meghalaya); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 21; Srivastava, 1985, *Rec. zool. Surv. India*, **82** (1–4) : 44; Srivastava, 1991, *Rec. zool. Surv. India*, **89** (1–4) : 247, Figs 7–8; Steinmann, 1984, *Ent. Abh. st. Mus. Tierk Dresden*, **48** (7) : 75; Steinmann, 1989, *Das Tierreich*, **105** : 148; Steinmann, 1989, *World Catalogue of Dermaptera* : 214.

Anisolabis (Anisolabis) gaudens; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 27.

Male : Unknown.

Female : General colour shining blackish red, head clear brick red; antennae with basal two segments reddish. Build stout.

Head about as long as broad, convex, sutures faint; antennae 15-segmented, 4th and 5th almost globular; eyes black, shorter than post-ocular area. Pronotum transverse, gently expanded posteriorly with margin subtruncate. Elytra and wings absent. Legs normal. Abdomen smooth, gently widened posteriorly. Penultimate sternite with posterior margin rounded in middle. Ultimate tergite weakly transverse, gently narrowed from middle. Forceps with branches simple, straight, contiguous, trigonal near base, tapering, apices pointed, gently incurved and crossing, inner margin unarmed.

Measurements : (in mm)

	Female
Length of body	14.5
Length of forceps	2.6

Type : Holotype Female (néc Male) in MNHP.

Distribution : India : Sikkim (Pedong) and Arunachal Pradesh (Siang dist., Rotung).

Remarks : The original description of the species was based on 1 Female (not Male as stated) from Bhutan, Pedong. Pedong is now included under Sikkim.

The record of the species from Meghalaya by Biswas, Lahiri and Ghosh (1975) is doubtful since it is based upon nymphs, not males as reported.

Subfamily BRACHYLABIDINAE

Brachylabididae Burr, 1908, *Ann. Mag. nat. Hist.*, (8) **2** : 247; Zacher, 1911, *Zool. Jb.* **30** : 386.

Brachylabinae Burr, 1909, *Dt. ent. Z.*, **1909** : 324 (Type genus : *Brachylabis* Dohrn, 1864); Burr, 1910, *Fauna British India, Dermaptera* : 105; Burr, 1911, *Genera Insect.*, **122** : 40 (under Family Labiduridae); Popham & Brindle, 1966, *Entomologist*, **99** : 244; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 3; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 30; Brindle, 1971, *Ent. scand. Suppl.*, **1** : 200; Brindle, 1978, *Ann. Mus. Roy. Afr. Centr. Tervuren in 8°*, *Zool.*, **225** : 20; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17; Steinmann, 1975, *Acta zool. hung.*, **21** : 206; Steinmann, 1977, *Annl. hist.-nat. natn. hung.*, **69** : 96 (Key to genera); Steinmann, 1978, *Dt. ent. Z.*, **25** : 186; Steinmann, 1989, *Das Tierreich*, **105** : 280 (Revision, Key to genera); Steinmann, 1989, *World Catalogue of Dermaptera* : 306.

Brachylabidinae Steyskal, 1973, *Papéis Avulsos Zool., S. Paulo*, **26** (1) : 254; Srivastava, 1991, *Animal Resources of India* : 285.

Apterous. Build slender, elongated, legs long, tarsi with middle segment slightly longer than broad. Eyes longer, equal or shorter than the post-ocular area and distance

between antennal bases or first basal segment. Antennae with 1st segment longer than the distance between bases; 2nd short, about as long as broad; 3rd long and slender, slightly or distinctly longer than broad; 4th stouter, a trifle longer than broad; slightly shorter or equal to preceding. Lateral margin of mesonotum with a sharp carina or convexity, often dying out posteriorly. Abdomen fusiform or narrowing apically. Ultimate tergite with hind margin trisinate, laterally oblique, often above the bases of forceps projecting as a triangular or obtuse lobe. Forceps generally cylindrical, less commonly flattened along the inner margin, generally, in both sexes, similar. Pygidium vertical, hidden. Male genitalia with parameres narrowed apically, distal lobes with chitinous rods or teeth, proparameres narrow.

Type genus : *Brachylabis* Dohrn, 1864.

Distribution : In the tropical parts of the world.

Remarks : Species generally occur in soil, especially in dead and decaying leaf litter or vegetative matter. Due to their secretive habits and general body colour similar to their surrounding coupled with small size they escape the notice of general insect collector.

It is advisable to collect several specimens for each species which would increase the possibility of getting both the sexes which are generally similar externally. Often it is difficult to locate sexes on the basis of tergal counts since these are telescoped. In such cases the dissection of genitalia is essential to establish the gender.

In the present work the interpretation of the family is after Steinmann (1989).

Key to the genera (partly modified after Steinmann, 1989)

- 1(4). Eyes, in both sexes, prominent, may be about as long or shorter than the basal segment or always equal or longer than the distance between antennal bases
- 2(3). Fourth antennal segment slightly longer than broad; male genitalia especially proparameres long, narrowed posteriorly *Metisolabis* Burr
- 3(2). Fourth antennal joint about as broad as long; male genitalia, especially proparameres comparatively short and not so strongly narrowed posteriorly *Ctenisolabis* Verhoeff
- 4(1). Eyes, in both sexes, shorter than the basal antennal segment and distance between antennal bases *Brachylabis* Dohrn

Genus *Metisolabis* Burr

Metisolabis Burr, 1910, *Fauna British India, Dermaptera* : 108 (Type species : *Brachylabis voeltzkowi* Burr, 1908); Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 196; Burr, 1911, *Genera Insect.*, **122** : 42; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 351; Popham and Brindle, 1966, *Entomologist*, **99** : 245 (proposed synonymy with *Isolabis* Verhoeff, 1902); Brindle, 1966, *Trans. R. ent. Soc. Lond.*, **118** : 233 (revision and key to species); Brindle,

1969, *Faune de Madagascar*, 30 : 40; Kapoor, 1968, *Agra Univ. J. Res. (Sci)*, 16 (1) : 8; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 18 (as synonym under *Isolabis* Verhoeff, 1902); Steinmann, 1977, *Annl. hist.-nat. Mus. natn. hung.*, 69 : 96; Steinmann, 1978, *Dt. ent. Z.*, 25 : 186; Steinmann, 1989, *Das Tierreich*, 105 : 281 (revision and Key to species); Steinmann, 1989, *World Catalogue of Dermaptera* : 316; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 23; Sakai, 1987, *Dermapterorum Cat.*, 20 : 1539 (as a valid genus).

General colour black to brownish black, body coriaceous and finely punctate. Antennae stout, basal segment longer than the distance between antennal bases; 2nd about as long as broad; 3rd generally twice as long broad; 4th slightly longer than broad. Eyes prominent, longer than the distance between antennal bases and shorter or equal to basal antennal segment. Mesonotum laterally with a distinct carina or convexity, often dying out posteriorly.

Type species : *Brachylabis voeltzkowi* Burr 1908.

Distribution : Ethiopian, Malagassy and Oriental Regions.

Key to species (based on males)

- 1(2). Legs uniform black or brownish black; mesosternum laterally with a distinct convexity, dying out posteriorly; forceps stout, strongly incurved
..... *M. bifeveolata* (Bolivar)
- 2(1). Legs yellowish with apical third of femora banded with black; mesosternum laterally with a sharp and complete carina or ridge; forceps slender, almost straight in basal 2/3, afterwards gently incurved *M. caudelli* (Burr)

Metisolabis bifeveolata (Bolivar)

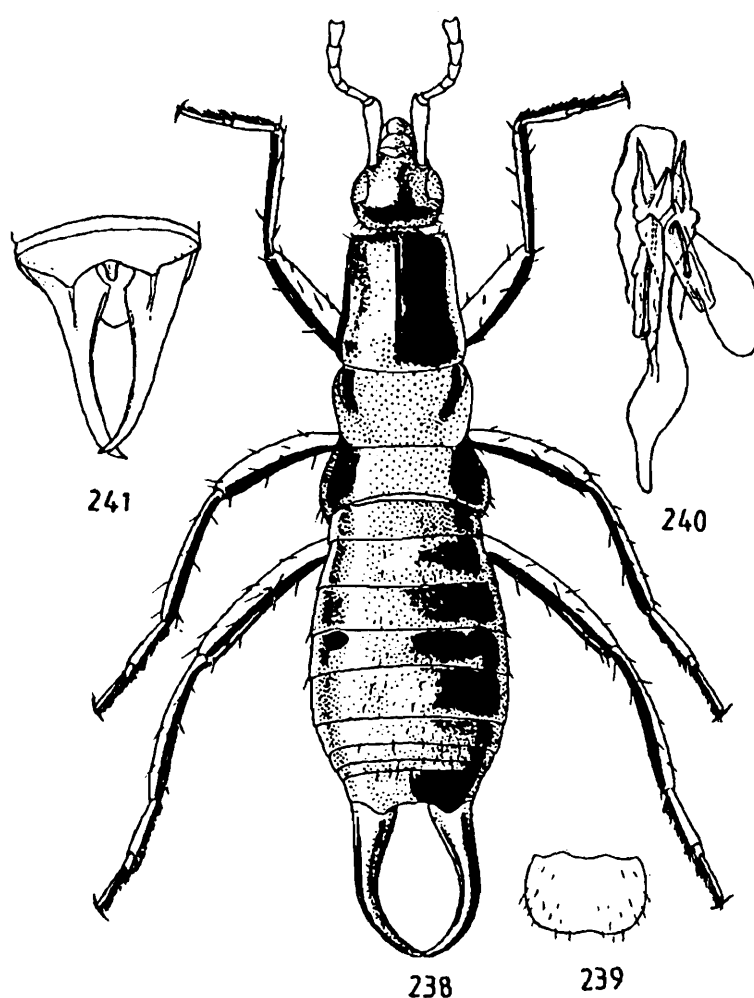
(figs. 238–241)

Brachylabis bifeveolata Bolivar, 1897, *Annl. Soc. ent. Fr.*, 64 : 285, pl. 10, fig. 1 (Male; Madras Presidency); Bormans and Krauss, 1900, *Das Tierreich*, 11 : 53 (India : Trichinopoly); Kirby, 1904, *Syn. Cat. Orth.*, 1 : 16; Burr, 1908, *Ann. Mag. nat. Hist.*, (8) 2 : 250 & 251; Hebard, 1923, *Men. Dep. Agric. India, ent. Ser.*, 7 : 231 (1 Female; Kodaikanal, Madras Presidency).

Metisolabis bifeveolata; Burr, 1910, *Fauna British India, Dermaptera*; 108; Burr, 1911, *Genera Insect.*, 122 : 42; Srivastava, 1970, *Eos, Madr.*, 45 : 323, figs. 5–6 (Male ultimate tergite and forceps and genitalia) (Male, Female; India, Tamil Nadu, Annamalai Hills, Cinchona, 3500 ft.); Steinmann, 1989, *Das Tierreich*, 105 : 286; Steinmann, 1989, *World Catalogue of Dermaptera* : 316.

Ctenisolabis bifeveolata : Burr, 1911, *J. Asiat. Soc. Beng. (N.S.)* 7 : 780 (Shembaganur, Madura dist.).

Isolabis bifeveolata; Popham and Brindle, 1966, *Entomologist*, 99 : 245; Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 10; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 18.



Figs. 238-241 : *Metisolabis bifoveolata* (Bolivar), Male; 238. Dorsal view; 239. Penultimate sternite; 240. Genitalia; Female; 241. Ultimate tergite and forceps.

Isolabis (*Ctenisolabis*) *bifoveolata*; Sakai 1982, *Bull. Daito Bunka Univ.*, **20** : 24; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1613; Sakai, 1987, *Dermapterorum Cat.*, **19** : 2366 (Male, Female, figured from the specimens of Manchester Museum).

Male : Colour black; antennae dark brown, distal segments slightly blackish; legs dark brown; punctate all over the body except forceps; golden yellow pubescence present.

Head triangular, caudal margin straight, frons tumid, sutures distinct. Eyes large, black, slightly longer than post-ocular area. Antennae 14-segmented, stout, basal segment narrowed at base and expanded at apex, long, equal to segments 2nd to 5th together; 2nd small; 3rd twice as long as broad; 4th long, only slightly longer than broad but shorter than 3rd; 5th slightly longer than 3rd; rest gradually increasing in length distally. Pronotum longer than broad, widened posteriorly, all margins straight, sides slightly raised, hind angles rounded, median suture distinct, with a pair of longitudinal patches of smooth areas on either side; prozona and metazona not differentiated. Mesonotum with a lateral convexity, strongly curving posteriorly, hind margin subtruncate. Metanotum transverse, concave posteriorly. Abdomen strongly

convex, narrowed anteriorly and posteriorly, dilated in middle, lateral tubercles on 3rd tergite blunt and 4th weakly developed; a smooth rounded patch below these folds present on 4th tergite, sides of segments rounded. Penultimate sternite transverse, rounded posteriorly with a small emargination in middle. Ultimate tergite transverse, sloping backwards in middle, sides straight, hind margin trisinate, laterally oblique, above the root of forceps with a obtuse lobe. Forceps with branches remote and somewhat dilated at base, strongly or weakly incurved, tapering posteriorly, apices pointed and meeting or crossing. Genitalia with parameres narrowed apically tip pointed; distal lobes with a distinct tubular rod and a fine virga projecting through it (fig. 240).

Female : Agrees with male in most characters except penultimate sternite with posterior margin rounded and forceps less incurved with inner margin at base crenulate.

Measurements : (in mm)

	Male	Female
Length of body	13.5–15.0	15.0–16.0
Length of forceps	2.3–3.0	2.4–2.6

Type : Type Male in MNHP (Steinmann, 1989a).

Distribution : India : Tamil Nadu (Tiruchirapalli), Shembaganur (Madura dist.), Kodaikanal, Annamalai Hills (Cinchona, 3500 ft & Valparai) and Palanis (Maryland, Tigershola, 1600 ft.).

Remarks : Some variation have been noted in the relative length of antennal segments especially from 4 to 6 segments. Eyes are generally longer than the post-ocular area but sometimes these are comparatively less prominent and forceps, in males, may be strongly or weakly incurved.

Metisolabis caudelli (Burr)

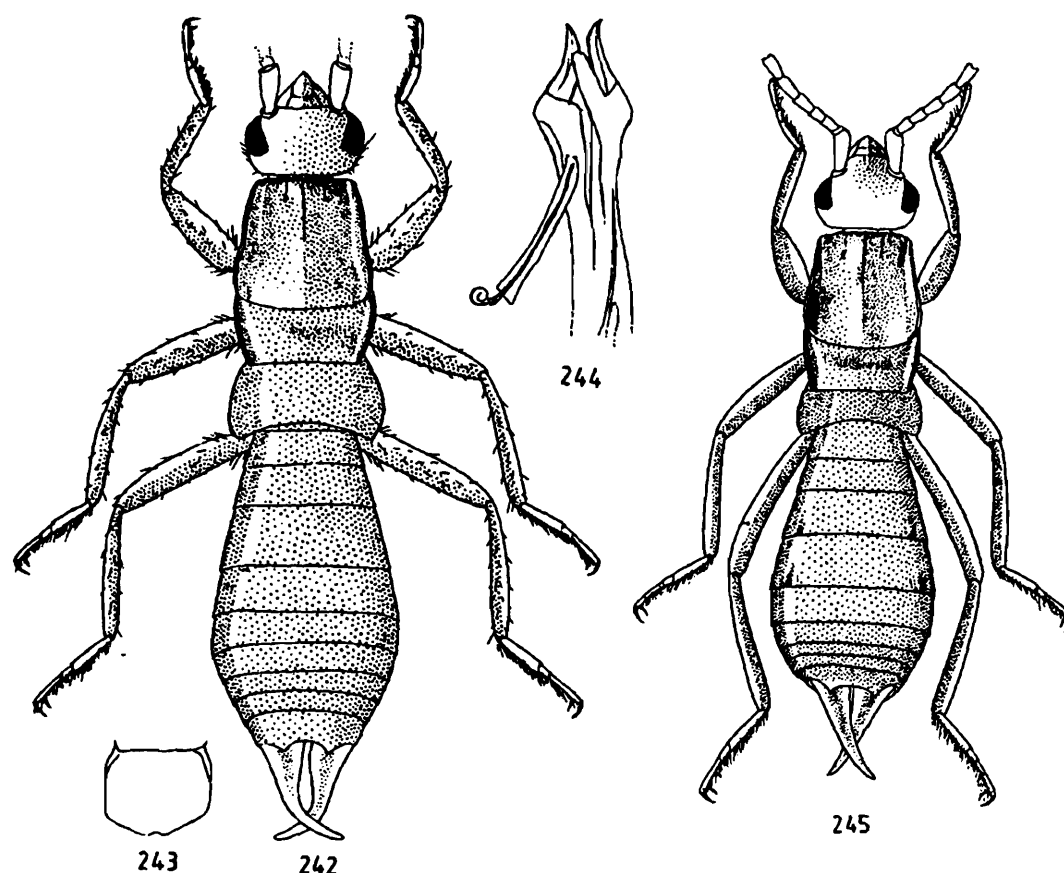
(Figs. 242–245)

Brachylabis punctata (nec Dubrony); Bormns, 1894, *Annali Mus. civ. Stor. nat. Giacomo Doria*, (2) 14 : 386 (Part of the specimens from Burma).

Brachylabis caudelli Burr, 1908, *Ann. Mag. nat. Hist.*, (8) 2 : 251 (Holotype Male; Burma Carin Cheba, 1100m, L. Fea, V–XII. –88, by Bormans as *Brachylabis punctata* Dubrony).

Metisolabis caudelli; Burr, 1910, *Fauna British India, Dermaptera* : 109; Burr, 1911, *Genera Insect.*, 122 : 42; Burr, 1912, *Annln naturah. Mus. Wien*, 26 : 81; Burr, 1913, *Rec. Indian Mus.*, 8(2) : 138 (1 Male; India : Arunachal Pradesh); Borelli, 1932, *J. fed. Malay St. Mus.*, 17(1) : 183; Biswas, Lahiri and Ghosh, 1975; *Proc. zool. Soc. Calcutta*, 26 (1973) : 28 (Female not male; India : Meghalaya, Khasi Hills, Shillong); Srivastava, 1982, *Ent. Basilensia*, 7 : 63, figs. 1–4, (Male; India : W.B. : Darjeeling); Srivastava, 1993, *Rec. zool. Surv. India*, 92 (1–4) (1992) : 54.

Isolabis caudelli; Popham & Brindle, 1966, *Entomologist*, 99 : 245; Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 (2) : 10.



Figs. 242-245 : *Metisolabis caudelli* (Burr), Male; 242. Dorsal view; 243. Penultimate sternite; 244. Genitalia; Female; 245. Dorsal view.

Isolabis (Isolabis) caudelli; Sakai, 1982, *Bull Daito Bunka Univ.*, **20** : 24; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1580.

Ctenisolabis fletcheri (néc Burr, 1910); Steinmann, 1983, *Revue suisse zool.*, **90** (3) : 544 (1 Female; India : W.B. : Darjeeling).

Ctenisolabis aciculata Steinmann, 1983, *Revue suisse Zool.*, **90** (3) : 545, fig. 3 (1 Female; India, Meghalaya, Khasi Hills).

Ctenisolabis loebli Steinmann, 1983, *Revue suisse Zool.*, **90** (3) : 546, fig. 4 (1 Female; India, W.B. : Darjeeling).

Brachylabis philetas (néc Burr, 1901), Steinmann, 1983, *Revue suisse Zool.*, **90** (3) : 546 (1 Male, (néc Female); India, W.B. Darjeeling Dist., Algarah).

Metisolabis fulgens Steinmann, 1989, *Das Tierreich*, **105** : 288, figs. 471–472 (Holotype Male and Paratype Female : Myanmar : Carin Cheba, 900–1100 m)—**Syn. nov.**

General colour dark blackish brown; antennal segments, mouth parts, apical third of femora, whole of tibia and tarsi yellowish. Body covered with fine pubescence.

Male : Head triangular, longer than broad, punctate, frons convex, hind margin almost straight. Eyes about as long as post-ocular area or distinctly longer. Antennae (partly damaged) 12-segmented or more, 1st narrowed at base, longer than the distance

between antennal bases; 2nd small; 3rd long, slender, slightly or distinctly longer than broad; 4th a trifle longer than broad and slightly shorter than 3rd or almost equal; 5th longer than broad, gently narrowed basally, generally longer than 3rd, remaining segments gradually increasing in length distally. Pronotum more strongly punctate than the head, longer than broad, anteriorly wider than the head, anterior margin and sides straight, weakly reflexed in middle, strongly diverging posteriorly, postero-lateral angles rounded and margin subtruncate, median sulcus distinct on prozona, on either side of it with a faint depression; prozona and metazona raised, little differentiated. Mesonotum punctate, transverse, laterally with a distinct raised carina, hind margin straight. Metanotum transverse, laterally ecarinate, punctate, hind margin broadly emarginate. Legs long and slender, hind tarsi with basal segment almost equal to the combined length of 2nd and 3rd. Abdomen spindle shaped, punctate, convex, sides of segments posteriorly convex, lateral tubercles on 3rd and 4th tergites weakly marked. Penultimate sternite punctate, transverse, broadly rounded posteriorly with a distinct median emargination, manubrium short, about half as long as the sternite, slightly narrowed apically. Ultimate tergite transverse, sparsely punctate as compared to abdominal tergites, sloping backwards in middle posteriorly, sides straight, posterior margin trisinate, laterally oblique, above the base of forceps projecting in the form of a triangular or obtuse lobe. Pygidium scarcely visible from above, vertical, narrowed posteriorly. Forceps with branches cylindrical, remote, regularly incurved, tapering from base to apex with apices touching or subcontiguous, straight, tapering, gently incurved in apical one third and crossing, apices pointed. Genitalia as seen in fig. 244.

Female : Agrees with males in most characters except that the ultimate tergite strongly narrowed posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	9.0–10.3	8.2–13.1
Length of forceps	1.3–2.3	1.3–2.2

Distribution : India (North-Eastern Himalayas and Khasi Hills) and Myanmar. Besides, the record of this species from Borneo (Borelli, 1932) needs checking.

Type : Holotype Male of *Brachylabis caudelli* Burr in BMNH.

Holotype female of *Ctenisolabis aciculata* Steinmann and Holotype Female of *Ctenisolabis loebli* Steinmann in MHNG.

Holotype Male and Paratype Female of *Metisolabis fulgens* Steinmann in HNAB.

Remarks : Above synonymy and intraspecific variations have been discussed in detail by Srivastava (1993a).

The description of *Metisolabis fulgens* Steinmann from Myanmar fits well within the variational range of this species and treated as a synonym.

Genus *Ctenisolabis* Verhoeff

Ctenisolabis Verhoeff, 1902, *Sber. Ges. naturf. Freunde Berl.*, **1902** : 11; Kirby, 1904, *Syn Cat. Orth.*, **1** : 21; Burr, 1908, *Ann. Mag. nat. Hist.*, (8) **2** : 248 (Proposed as synonym of *Brachylabis* Dohrn, 1864); Burr, 1910, *Trans. en. Soc. Lond.*, **1910** : 97; Burr, 1910, *Fauna British India, Dermaptera* : 109; Burr, 1911, *Genera Insect.*, **122** : 42; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 346; Popham and Brindle, 1966, *Entomologist*, **99** : 245 (treated as synonym of *Isolabis* Verhoeff, 1902); Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 8; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 24 (treated as subgenus of *Isolabis* Verhoeff, 1902); Sakai, 1987, *Dermapterorum Cat.*, **20** : 1608 (treated as subgenus of *Isolabis* Verhoeff, 1902); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 18 (treated as synonym of *Isolabis* Verhoeff, 1902); Steinmann, 1978, *Folia ent. hung.*, **69** : 96; Steinmann, 1983, *Revue suisse Zool.*, **90** (3) : 544; Steinmann, 1989, *Das Tierreich*, **105** : 289 (Revision); Steinmann, 1989, *World Catalogue of Dermaptera*; 312.

Very similar to preceding genus in general appearance and texture of the body. Apterous. Antennae with 4th segment, subclavate, stout, about as long as broad. Pronotum generally longer than broad. Mesonotum laterally with a carina or convexity, often dying out posteriorly. Metanotum transverse with hind margin straight. Legs long and slender. Abdomen cylindrical, fusiform, tergites generally punctate. Ultimate tergite transverse, trisinate along the posterior margin, above the bases of forceps produced into a narrow lobe. Male genitalia with parameres strongly narrowed apically, virga short and tubular.

Types : *Ctenisolabis togoensis* Verhoeff, 1902.

Distribution : Oriental, Ethiopian, Malagassy and Neotropical Regions.

Remarks : At present two species, namely *C. fletcheri* Burr and *C. pusilla* Steinmann, are reported from the Indian subcontinent. Former occurs in Sri Lanka and India and latter is described, on a female, from Sri Lanka.

In the absence of a male, the status of *C. pusilla* is doubtful.

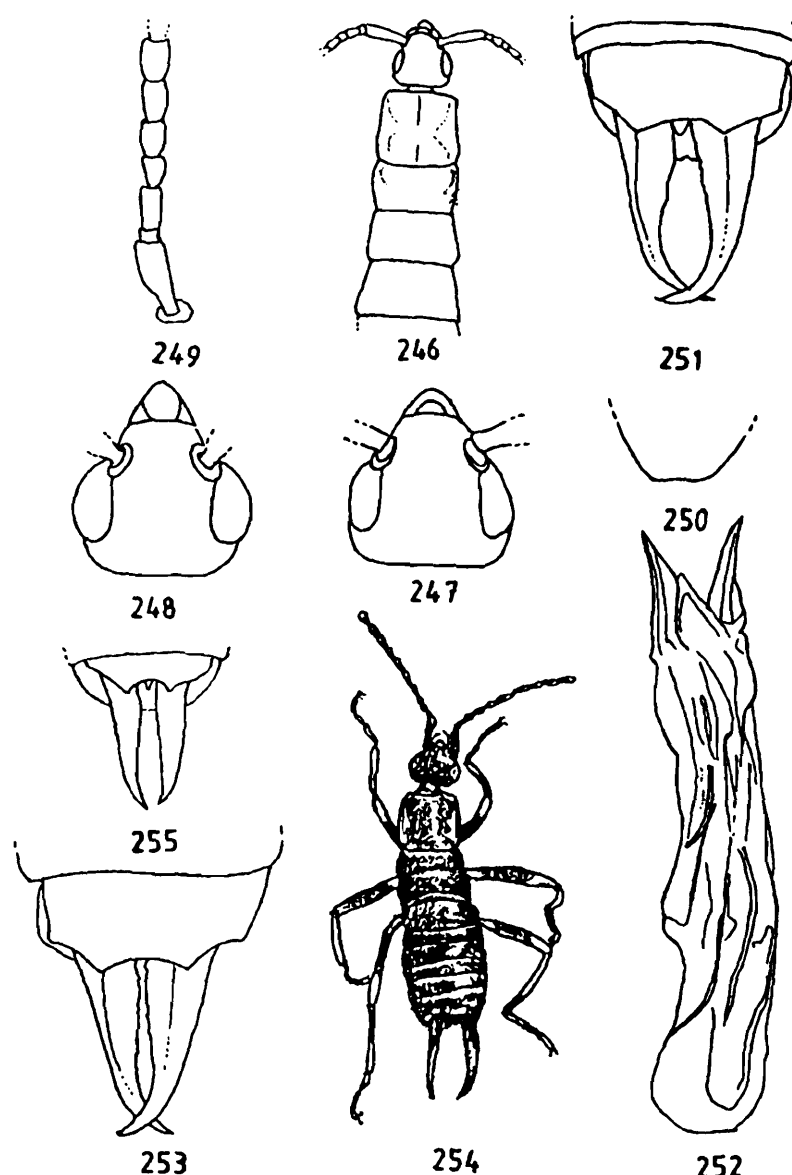
Both the species are similar in general body colour and shape and can be differentiated only on the basis of body size.

Ctenisolabis fletcheri Burr

(Figs. 246–253)

Ctenisolabis fletcheri Burr, 1910, *Fauna British India, Dermaptera* : 110, fig. 79 (Female; Ceylon, Madulsima); Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 197; Burr, 1911, *Genera Insect.*, **122** : 42; Brindle, 1971, *Ent. scand. Suppl.*, **1** : 222; Steinmann, 1978, *Folia ent. hung.*, **31** : 216; Steinmann, 1989, *Das Tierreich*, **105** : 298; Steinmann, 1989, *World Catalogue of Dermaptera*, 313 (part); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 31, figs. 23–29 (Male, Female; India : Karnataka and Tamil Nadu).

Isolabis fletcheri; Popham and Brindle, 1966, *Entomologist*, **99** : 245; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 19.



Figs. 246-255 : *Ctenisolabis fletcheri* Burr, Male; 246. Anterior portion of body; 247-248. Head showing variation in the size of eye; 249. A few basal antennal segments; 250. Hind portion of penultimate sternite; 251. Ultimate tergite and forceps; 252. Genitalia; Female; 253. Ultimate tergite and forceps; *Ctenisolabis pusilla* Steinmann, Holotype Male; 254. Dorsal view; Female; 255. Ultimate tergite and forceps. (fig. 254 after Sakai, 1987 and fig. 255 after Steinmann, 1978).

Isolabis (Ctenisolabis) fletcheri, Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 24; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1621; Sakai, 1987, *Dermapterorum Cat.*, **19** : 2369 (Type male figured, labelled as BMNH).

Male : General colour blackish brown; legs yellow with femora apically blackish brown. Covered with fine yellow pubescence and punctate all over the body.

Head longer than broad, frons strongly convex, hind margin almost straight. Eyes prominent, about twice as long as the post-ocular area. Antennae 13-segmented, 1st long, stout, expanded apically, longer than the distance between antennal bases; 2nd

short, about as long as broad; 3rd long, slender, about twice as long as broad; 4th subclavate, stout, about as long as broad, remaining gradually increasing in length and thickness, except a few apical ones. Pronotum longer than broad, expanded posteriorly, median sulcus represented by a small line extending up to the middle, all margins straight, lateral margin gently reflexed. Meso- and metanotum transverse, former with a distinct curved fold laterally, dying out posteriorly. Legs long and slender, typical of the genus. Abdomen spindle shaped, laterally with long pubescence, lateral tubercle on 3rd and 4th tergites feebly marked. Penultimate sternite triangular, hind margin with a emargination in middle, manubrium slightly longer than the sternite, almost of uniform width. Ultimate tergite transverse, sloping backwards, hind margin trisinate, laterally oblique, above the bases of forceps produced into minute lobe. Forceps long and cylindrical, remote at base, tapering apically, almost straight in a little beyond basal half, afterwards incurved, apices pointed, branches crossing a little before apex, inner margin finely serrated. Genitalia with parameres broader at base, narrowed apically with tip pointed; virga fine, tubular.

Female : Agrees with males in most characters except that the penultimate sternite obtuse posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	9.0–10.5	11.0
Length of forceps	1.0–1.5	1.5

Distribution : Sri Lanka and India (Karnataka and Tamil Nadu).

Type : Type Female in BMNH.

It may be mentioned here that Burr (1910, p. 110) in the text mentions 'Type Female' but in the legend to fig. 79 it is given as 'Male Type' From the figure it appears to be a Female specimen.

Remarks : This species is represented in Z.S.I. Collection by a male from Tamil Nadu, Vandalore, 19.vii.1980 (*Dr. K. Mathew* Coll.) hitherto not reported.

Rejected records: Borelli's (1926a) record of this species from Tajidobas, Java based upon a female and nymph is doubtful and may be treated as rejected.

Uncertain species

Ctenisolabis pusilla Steinmann (Figs. 254-255)

Ctenisolabis pusilla Steinmann, 1879, *Folia ent. hung.*, **31** : 216 (Female; Ceylon (Sri Lanka), Kendy Eliya); Steinmann, 1989, *Das Tierreich*, **105** : 296, fig. 485 (Female Ultimate tergite and Forceps figured); Steinmann, 1989, *World Catalogue of Dermaptera* : 315.

Isolabais (Ctenisolabis) pusilla; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20**: 24; Sakai, 1987, *Dermapterorum Cat.*, **19** : 2370, fig. of Holotype Female.

Female: General colour dark brown, antennae and forceps light brown; legs brown with femora yellowish white apically.

Head about as long as broad, frons convex, sutures distinct, hind margin scarcely emarginate in middle. Antennae 12-segmented, basal segment stout, gently expanded apically, longer than the distance between antennal bases; 2nd short, about as long as broad. Eyes prominent, longer than the post-ocular area. Pronotum slightly longer than broad, lateral and hind margin straight, gently dilated posteriorly, median sulcus distinct. Meso- and metanotum transverse, former with hind margin truncate, laterally carinated and latter ecarinate laterally with hind margin broadly emarginate. Elytra and wings absent. Legs typical of the genus, long, hind leg longer than the combined length of abdomen and forceps. Abdomen convex, broad, in middle, tergites punctate. Ultimate tergite transverse, hind margin emarginate in middle, with posteriorly directed pointed lobe above the bases of forceps. Forceps simple, straight, pointed apically.

Male : Unknown.

Measurements : (in mm)

Holotype

Female

Length of body
(including forceps)

6.5

Type : Holotype Female in HANB.

Distribution : Known only by the Holotype Female from Sri Lanka.

Remarks : In the absence of a male, the taxonomic status of the species, is difficult to ascertain. It can be separated from *C. fletcheri* Burr, by its smaller size.

Amongst the other Indian Anisolabid species, it comes closer to *Antisolabis formicoides* (Burr, 1911b) on the basis of body size but latter has uniformly coloured legs.

Genus *Brachylabis* Dohrn

Brachylabis Dohrn, 1864, *Stettin. ent. Ztg.*, **25** : 292 (Type species : *Forficula chiliensis* Blanchard, 1851 designated by Kirby, 1904); Kirby, 1891, *J. Linn. Soc. Lond., Zool.*, **23** : 518; Kirby, 1904, *Syn. Cat. Orth.*, **1** : 16; Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 194; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 345; Popham and Brindle, 1966, *Entomologist*, **99** : 244; Reichardt, 1968, *Papéis. Avulsos Zool., S. Paulo*, **22**(5): 36; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 3; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 23; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17; Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren in 8° Zool.*, **225**: 28; Steinmann, 1989, *Das Tierreich*, **105** : 229 (Revision): Steinmann, 1989, *World Catalogue of Dermaptera* : 306.

Nannisolabis Burr, 1910, *Fauna British India, Dermaptera* : 106 (Type species : *Nannisolabis willeyi* Burr, 1901); Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 194; Popham and Brindle, 1966, *Entomologist*, **99**: 244; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 18; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 24; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1567; Steinmann, 1989, *Das Tierreich*, **105** : 299 (treated as synonym of *Brachylabis* Dohrn, 1864); Steinmann, 1989, *World Catalogue of Dermaptera* : 307 (treated as synonym of *Brachylabis* Dohrn, 1864).

Similar in appearance to members of the genera *Metisolabis* Burr and *Ctenisolabis* Verhoeff. Eyes small, slightly shorter than the post-ocular area and shorter than the first antennal segment and distance between antennal bases. Antennae with basal segment long, narrowed apically; 2nd short; 3rd long and cylindrical; 4th and 5th subclavate. Head and body punctate. Tegmina wanting or abbreviated; wings absent. Abdomen fusiform, cylindrical. Legs long and slender. Forceps, in males, sometimes incurved, stout or simple and straight in both sexes. Male genitalia with proparameres narrow, apical incision short, paramere acute apically; distal lobes with virga; sclerotised chitinous plates present or absent.

Type species : *Forficula chiliensis* Blanchard, 1851

Distribution : Neotropical, Ethiopian, Indo-Australian and Oriental Regions.

Remarks : According to Steinmann (1989a) 11 species under this genus are included. In the Indian subcontinent only two species from Sri Lanka are reported. Out of this *Brachylabis philetas* (Burr, 1901) is so far known by females.

Key to species

- 1(2). Pronotum transverse.....*B. formicoides* (Burr)
- 2(1). Pronotum about as long as broad or longer than broad
- 3(4). Body length about 7 mm; head and pronotum punctate, latter as long as broad; forceps, in male, simple and straight..... *B. philetas* (Burr)
- 4(3). Length 9-10 mm; head and pronotum impunctate or almost so, latter longer than broad; forceps, in male, stout and strongly incurved.....
.....*B. willeyi* (Burr)

Brachylabis philetas (Burr)

Brachylabis philetas Burr, 1901, *J. Bombay nat. Hist. Soc.*, **14** : 322, fig. 1 (Male in Dorsal view- Male, Female; Ceylon : Pundyluooya); Kirby, 1904, *Syn. Cat. Orth.*, **1** : 16; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1515; Steinmann, 1989, *Das Tierreich*, **105** : 309, fig. 504 (Male hind end of body); Steinmann, 1989, *World Catalogue of Dermaptera* : 311.

Leptisolabis philetas; Burr, 1908, *Ann. Mag. nat. Hist.*, (8) **2** : 253.

Nannisolabis philetas; Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 194; Burr, 1910, *Fauna British India, Dermaptera* : 106; Burr, 1911, *Genera Insect.*, **122** : 42; Burr, 1911, *J. Asiatic Soc. Beng. (N.S.)*, **7** : 781; Popham and Brindle, 1966, *Entomologist*, **99** : 244;

Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 6; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 24; Sakai, 1987, *Dermapterorum Cat.*, 20:1515 Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 18; Brindle, 1977, *Revue suisse Zool.*, 84(2) : 456.

Size small (7.25 – 8.5 mm); whole body punctate, with a few stiff hairs.

General colour black; antennae with 2nd segment reddish and 7th & 8th whitish, remaining black.

Male : Head about as long as broad. Eyes prominent but shorter than post-ocular area. Antennae with 1st segment long, stout; 2nd short ; afterwards segments rounded, about as long as broad, gradually increasing in length up to 8th and 9th shorter than preceding. Pronotum about as long as broad, slightly widened posteriorly, lateral margin gently reflexed; mesonotum transverse, laterally with a ridge, hind margin straight and metanotum as broad as mesonotum with hind margin broadly emarginate. Legs long, testaceous, femora with a black band; hind tarsi with 1st segment longer than the combined length of 2nd & 3rd Abdomen fusiform, lateral tubercles on 2nd and 3rd distinct. Ultimate tergite small. Forceps short, slender, remote at base, slightly incurved, meeting at apex.

Female : Agrees with male in most characters except that forceps are simple, contiguous and straight.

Measurements: (in mm)

	Male	Female
Length of body	6.0	7.5
Length of forceps	1.25	1.0

Distribution : Sri Lanka (Pundyluoya).

Types : Male and Female in BMNH.

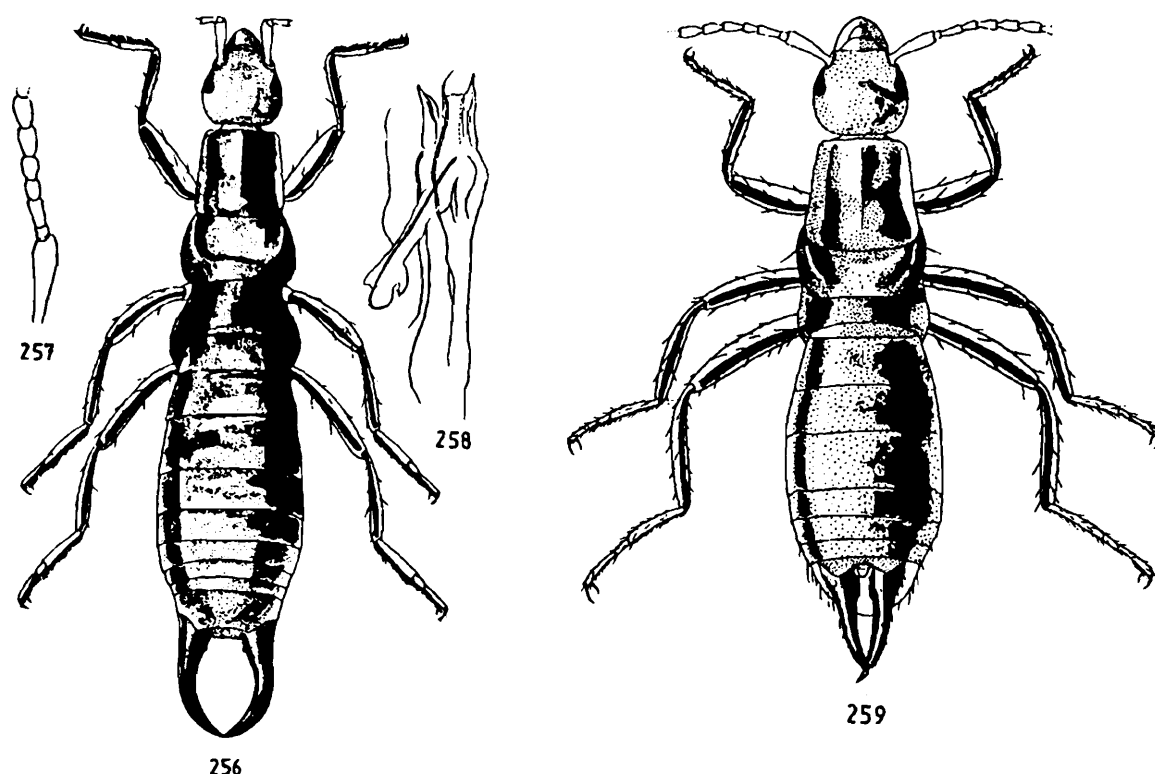
Remarks : This species is so far known by its Types. The above description is based upon available literature.

Brindle's (1971) record of the species from Sri Lanka, is referable to *Antisolabis ceylonicus* (Brindle).

***Brachylabis willeyi* (Burr)**

(Figs. 256 - 259)

Nannisolabis willeyi Burr, 1910, *Fauna British India, Dermaptera* : 107, fig. 78 (Male, Female; Ceylon Patipola & Hakgala); Burr, 1910, *Trans. ent. Soc. Lond.*, 1910 : 194; Burr, 1911, *Genera Insect.*, 122:41, Pl. 4, fig. 1 (hind tarsi); Burr, 1911, *J. Asiat Soc. Beng. (N.S.)*, 7 : 781; Popham and Brindle, 1966, *Entomologist*, 99 : 244; Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 6; Sakai, 1982, *Bull. Daito. Bunka Univ.*, 20 : 24; Brindle, 1971, *Ent. scand. Suppl.*, 1 : 222 (Male, Female; Sri Lanka, Central Prov. : Pidurutalagla, 1900 m, Harton Plains, 2000 m); Brindle, 1977, *Revue suisse Zool.*, 84 (2) : 465 (1 nymph; Sri Lanka : Central Prov., Kandy); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2: 18.



Figs. 256-259 : *Brachylabis willeyi* (Burr), Male; 256. Dorsal view; 257. A few basal antennal segments; 258. Genitalia; Female; 259. Dorsal view.

Brachylabis willeyi; Sakai, 1987, *Dermapterorum Cat.*, **20**: 1516; Sakai, 1987, *Dermapterorum Cat.*, **19**: 327 (Male, female; figures from the specimens of BMNH & MM); Steinmann, 1989, *Das Tierreich*, **105**: 308, fig. 502 (ultimate tergite and forceps of Male); Steinmann, 1989, *World Catalogue of Dermaptera*: 312.

Male : General colour dark blackish brown, shining; apial part of femora, tibia and whole of tarsi yellowish brown.

Head pilose, shallow punctures present near hind margin; longer than broad, convex, sutures obsolete, hind margin with slight emargination in middle. Antennae 14-segmented or more, 1st stout longer than the combined length of 2nd to 4th; 2nd short, about as long as broad; 3rd long, slender, slightly longer than 4th; 4th subclavate; 5th subclavate but longer than the preceding, remaining gradually increasing in length and each strongly narrowed at base. Eyes much shorter than post ocular area; Pronotum longer than broad, obscurely punctate, sides straight, gently reflexed, gently widened posteriorly, hind margin subtruncate, convex, median sulcus faint, prozona and metazona not well differentiated. Mesonotum and metanotum punctate, transverse, former with a lateral incurved fold extending up to middle of the length, a transverse depression present, hind margin faintly emarginate and latter broadly emarginate posteriorly. Legs long, slender, hind tarsi with basal segment almost equal to the combined length of 2nd and 3rd, clad with thick pubescence on underside. Abdomen spindle shaped, tergites deeply punctate, convex, lateral folds on 3rd and 4th tergites distinct, sides of segments convex. Penultimate sternite with hind margin broadly rounded and a faint emargination in middle present. Ultimate tergite

transverse, punctate, hind margin bisinuate, above bases of forceps oblique. Forceps remote at base, strongly incurved, tapering apically, tips gently hooked and pointed, inner margin ventrally with one or two small teeth. Genitalia with parameres three times longer than broad, slightly narrowed apically with tip acuminate; distal lobes with long, thin virga, basal vesicle distinct.

Female : Agrees with male in most characters except that penultimate sternite with hind margin obtusely rounded; ultimate tergite narrowed posteriorly; pygidium distinct, narrowed posteriorly and forceps simple and straight, inner margin serrated for a short distance.

Measurements : (in mm)

	Male	Female
Length of body	8.0-9.2	6.5-7.9
Length of forceps	1.0-1.6	1.5-1.65

Type : Type Male and Paratype Female in BMNH.

Distribution : Sri Lanka, Central Province : Patipola, Hakgala, Pidurutalagla, 1900 m, 2 miles NW Nuwara – Eliya, Horton Plains, 2000 m, 11 miles SSE Nuwara Eliya and Kandy.

Remarks : The above description of the species is based upon 1 Male and 1 Female determined by Brindle (1971) from Sri Lanka and preserved in the Zoological Institute, Lund, Sweden.

This species can be easily separated from the two other known species from India and Sri Lanka viz. , *B. formicoides* (Burr) and *B. philetas* (Burr) by its larger size and from the latter further by having head and pronotum smooth or almost so.

According to Brindle (1977) it is a rare species and restricted to Sri Lanka.

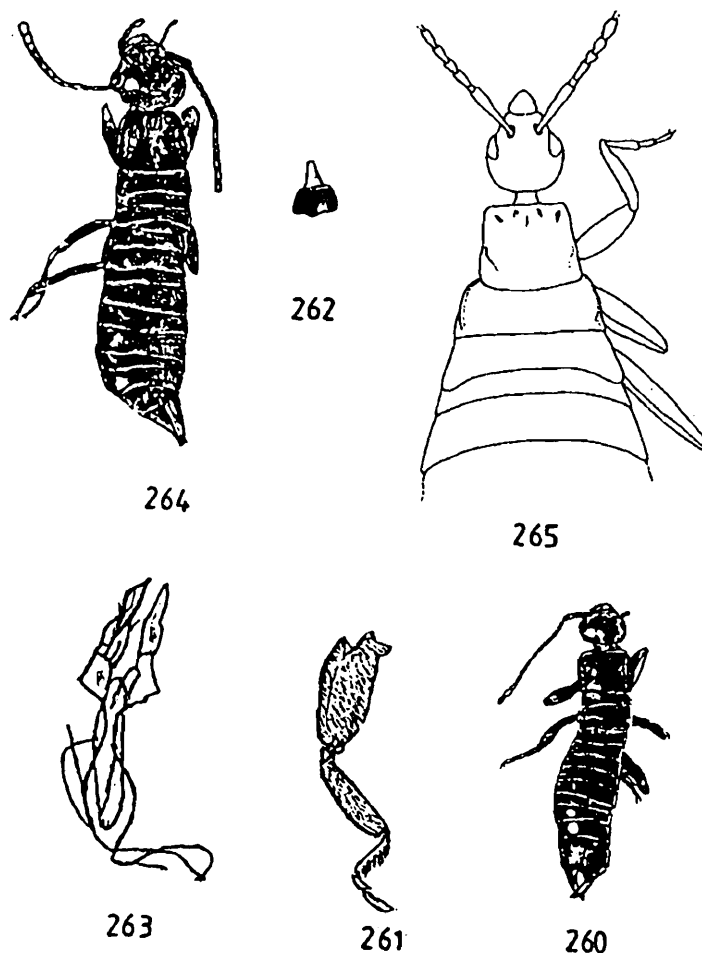
***Brachylabis formicoides* (Burr)**

(Figs. 260 - 265)

Nannisolabis formicoides Burr, 1911, *J. Asiat. Soc. Beng. (N.S.)*, **7** : 781 (several specimens including male and females; India , Tamil Nadu, Madura dist., Shembaganur); Burr, 1915, *Trans. R. ent. Soc. Lond.*, **1915** : 763, fig. 11; Hebard, 1923, *Mem. Dep. Agric. India, ent. Ser.*, **7** : 213 (Male, Female; Madras Presidency, Kodaikanal); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 8.

Antisolabis formicoides; Popham and Brindle, 1966, *Entomologist*, **99**: 244; Sakai, 1970, *Dermapterorum Cat. Prael*, **1** : 6; Sakai, 1982, *Bull. Daito Bunka Univ.*, **2** : 24; Sakai, 1987, *Dermapterorum Cat.*, **19** : 2347 (Figs. from British Mus. & Manchester Mus. specimens); Sakai, 1987, *Dermapterorum Cat.*, **20** : 1561; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 18; Steinmann, 1989, *Das. Tierreich*, **105** : 368; Steinmann, 1989, *World Catalogue of Dermaptera* : 332.

Male : General colour dark brown with shades of black on certain body parts. Antennae (partly broken) with 10th and 11th segments of right and 11th of left; apical part of femora and tibia and tarsi yellow. Body finely punctulate.



Figs. 260-265 : *Brachylabis formicoides* (Burr), Holotype Male; 260. Dorsal view; 261. Fore leg; 262. Penultimate sternite; 263. Genitalia ; Female; 264. Dorsal view; 265. Anterior portion of body. (figs. 260-264 after Sakai, 1987, p. 2347)

Head longer than broad, hind margin rounded with a faint depression in middle, frons convex, sutures obsolete. Antennae 12-segmented, 1st stout, gently expanded apically, longer than the antennal bases and eyes; 2nd short; 3rd long, cylindrical; 4th subclavate, shorter than 3rd; 5th subclavate but longer than preceding, 5th onwards gradually increasing in length, cylindrical. Eyes distinct, shorter than the post-ocular area. Pronotum transverse, gently widened posteriorly, sides straight, hind margin subtruncate, pro- and metazona hardly differentiated, median sulcus faint. Meso- and metanotum transverse, former with hind margin straight, laterally with a curved convexity and latter with hind margin broadly emarginate, without a lateral convexity. Legs long and slender, hind leg longer than the abdomen, hind tarsi with 1st segment equal to combined length of 2nd & 3rd; 2nd twice as long as broad; 3rd longer than 2nd, claw without an arolium. Abdomen fusiform, tergites finely punctulate, convex. Penultimate sternite transverse, hind margin with a small point in middle, manubrium as long as the sternite, slightly narrowed apically. Ultimate tergite, transverse, sides straight, hind margin trisinate, oblique above bases of forceps. Forceps with branches short, subcontiguous, with a faint ridge above, gently curved with apices pointed and crossing. Genitalia with parameres narrowed apically, external margin with a faint constriction in middle; virga distinct.

Female : Agrees with male in most characters except that ultimate tergite narrowed posteriorly and forceps contiguous and straight.

Measurements : (in mm)

	Male	Female
Length of body	5.5-6.8	5.9-7.5
Length of forceps	0.5-0.8	0.5-1.0

Types : Syntypes Male & Female in BMNH.

Burr (1911b) mentions "Numerous specimens....." which are not designated as Syntypes but may be treated as such.

Distribution : India : Tamil Nadu : Madura dist., Shembaganur, near Kodaiknal.

In the collections of ZSI a female specimen from "India, Tamil Nadu, Madura dist., Borijam Lake, 2000 ft", det by G. K. Srivastava, not reported earlier, is present.

Remarks : It is included under the genus on the basis of basal antennal segment being longer than the distance between antennal bases and lateral convexity on mesonotum.

This species comes close to *B. philetas* (Burr) in body size and having forceps, in males, simple and straight but differs by shape of pronotum being broader than long.

Subfamily ANTISOLABIDINAE

Antisolabidinae Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren*, in -8° Zool., **225** : 18; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 23; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1559; Steinmann, 1983, *Revue suisse Zool.*, **90**(3) : 548; Steinmann, 1989, *Das Tierreich*, **105** : 339 (Revision); Steinmann, 1989, *World Catalogue of Dermaptera* : 330.

Antisolabidinae; Srivastava, 1991, *Dermaptera*, In : *Animal Resources of India* (Zool. Surv. India.) : 285 & 287; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 76 & 96 (List of species).

Head longer than broad; eyes distinctly shorter than the post-ocular area; basal antennal segments shorter or equal to distance between bases of antennae, apical ones slender or stout. Elytra and wings absent, rarely former present in abbreviated form. Legs not slender and long. Mesonotum without lateral ridge or convexity. Abdomen fusiform, depressed. Forceps, in both, sexes simple, in males, sometimes sub-contiguous, slightly curved in apical half.

Male genitalia with proparamere fused along its length, sometimes with a short cleavage apically, virga tubular, straight and sclerotized.

Type genus : *Antisolabis* Burr, 1911.

Distribution : Ethiopian, Malgassian, Indo-Australian and Oriental Regions.

Remarks : This subfamily is represented by a single genus containing 32 species spread all over the world of which only two are known from Sri Lanka within the Indian subcontinent.

A. kelangi (Brindle), originally described from Malaysia, is now represented in Sri Lanka as a result of synonymy of *Geracodes brincki* Brindle, from Sri Lanka under it.

Genus *Antisolabis* Burr

Antisolabis Burr, 1911, *Ann. S. Afr. Mus.*, **10** : 5; Burr, 1911, *Genera Insect.*, **122** : 41; Townes, 1945 *Ann. ent. Soc. Am.*, **38** : 344; Hincks, 1957, *South African Animal Life*, **4** : 41; Popham & Brindle, 1966, *Entomologist*, **99** : 244; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 5; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 23; Sakai 1987, *Dermapterorum Cat.*, **20** : 1560; Srivastava 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 18; Steinmann, 1977, *Annls hist.-nat. Mus. natn. hung.*, **69**: 9 ; Steinmann, 1978, *Dt. Ent. Z.*, **25** : 87; Steinmann, 1989, *Das Tierreich*, **105** : 339; Steinmann, 1989, *World Catalogue of Dermaptera* : 330; Brindle, 1978, *Ann. Mus. Roy. Afr. Centr., Tervuren, in 8° Zool.*, **225** : 18.

The characters of the family are applicable to genus also.

Generally apterous, sometimes abbreviated elytra present. Basal segment of antennae about as long as the distance between antennal bases; eyes shorter than post-ocular area.

Types species : *Antisolabis myrmecoides* Burr, 1911.

Distribution : Ethiopian, Malgassian, Indo-Australian and Oriental Regions.

Key to species (bases on males only)

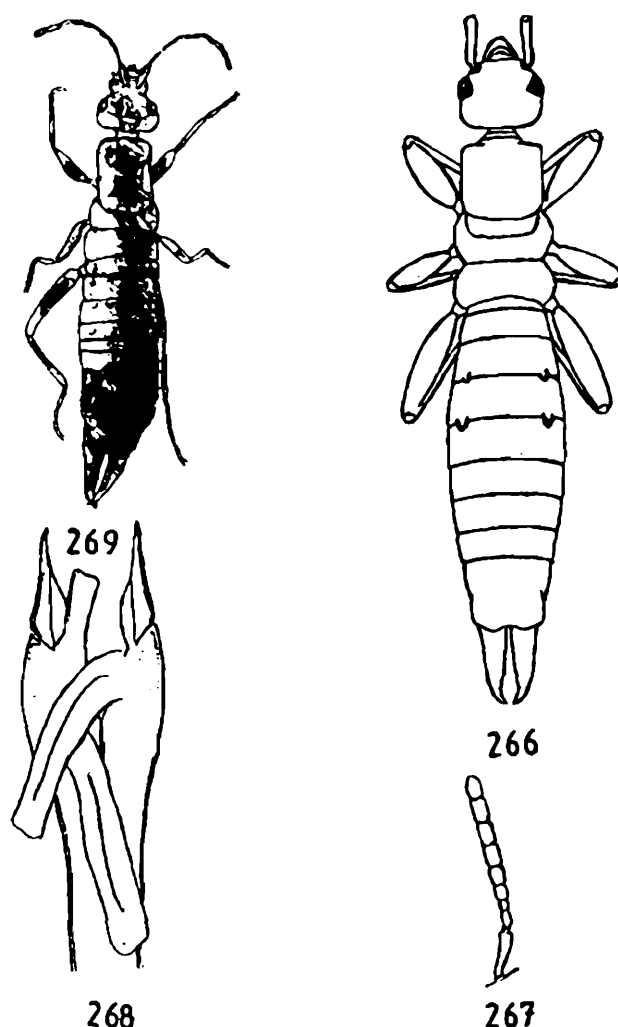
- 1(2). General colour blackish; pronotum transverse, parallel sided, genitalia with parameres broader at base, narrowed gradually towards apex, tip acuminate, virga thin, tubular *A. ceylonica* (Brindle)
- 2(1). General colour yellowish-brown; pronotum longer than broad, sides diverging posteriorly, genitalia with parameres broad in basal two third, narrowed in apical one third with tip pointed, virga thick with sclerotized and denticulated areas *A. kelangi* (Brindle)

Antisolabis ceylonica (Brindle)

(Figs. 266-269)

Nannisolabis philetas (néc Burr); Brindle, 1971, *Ent. scand. Suppl.*, **1** : 221 (10 specimen including , 1 Male, 2 Females, 7 nymphs; Sri Lanka); Sakai, 1987, *Dermapterorum Cat.*, **19** : 2327 (Female figure, Manchester only).

Nannisolabis ceylonicus Brindle, 1977, *Revue suisse Zool.*, **84**(2): 456, figs. 1-3 (Holotype Male, Paratypes Male, Females; Sri Lanka : Central Prov., Kandy env. 600 m and Mulhulla); Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 24 ; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1571.



Figs. 266-269 : *Antisolabis ceylonica* (Brindle), Male; 266. Dorsal view; 267. A few basal antennal segments; 268. Genitalia (after Brindle, 1971); Female; 269. Dorsal view (after Sakai, 1987 and labelled by him as *Antisolabis philetas* Burr but according to Brindle, 1977, p. 456, it is referable to this species).

Antisolabis ceylonica; Steinmann, 1989, *Das Tierreich*, **105** : 368, figs. 588-589; Steinmann, 1989, *World Catalogue of Dermaptera* : 331; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 96.

Apterous. General colour blackish; antennae dark brown; legs yellow except femora of all the legs dark brown at apex to apical one fourth. Head granulose, thorax and abdomen punctate; abdominal tergites less strongly punctate and close to hind margin impunctate. Glabrous, abdomen with short, yellow, depressed and long, dark hairs.

Male : Head about as long as broad, frons convex, sutures faint, hind margin straight. Antennae 10-segmented, stout, basal segment about as long as the distance between antennal bases; 2nd short; 3rd slender, twice as long as broad; 4th globular; 5th onwards segments stout. Eyes shorter than the post-ocular area. Pronotum transverse; parallel sided, hind margin subtruncate. Mesonotum and metanotum transverse, former with a curved ridge separating depressed anterior half from raised posterior half with hind margin straight and latter with hind margin broadly

concave. Legs long and slender. Abdomen fusiform, lateral tubercles on 3rd and 4th tergites weakly developed, 5th segment with a smooth oval area just posterior to lateral tubercle on 4th tergite. Penultimate sternite posteriorly rounded, with a faint excision in middle. Forceps with branches straight, subcontiguous, gradually tapering backwards, apices gently hooked, inner margin finely serrated. Genitalia with parameres pointed apically, distal lobes with virga slender.

Female : Agrees with males in most characters except that forceps more slender.

Measurements : (in mm)

	Male	Female
Length of body	5.5	5.5
Length of forceps	0.5	0.5

Types : Holotype Male, Paratypes : 16 Males and 4 Females in MHNG; 2 Males, 2 Females in MM and 2 Males, 1 Female in BMNH.

Distribution : Sri Lanka, Central Prov. : Kandy env., 600 m and Malhulla.

***Antisolabis kelangi* (Brindle)**

(Figs. 270-275)

Brachylabis kelangi Brindle, 1969, *Entomologist*, **102** : 199, figs. 1-3 (Male, Female; Malaysia : Kelang, Kapar Mangrove Forest Reserve); Sakai, 1970, *Dermapterorum Cat. Prael.*, **1**(2) : 5; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 23; -Sakai, 1987, *Dermapterorum Cat.*, **20** : 1532; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2**: 18.

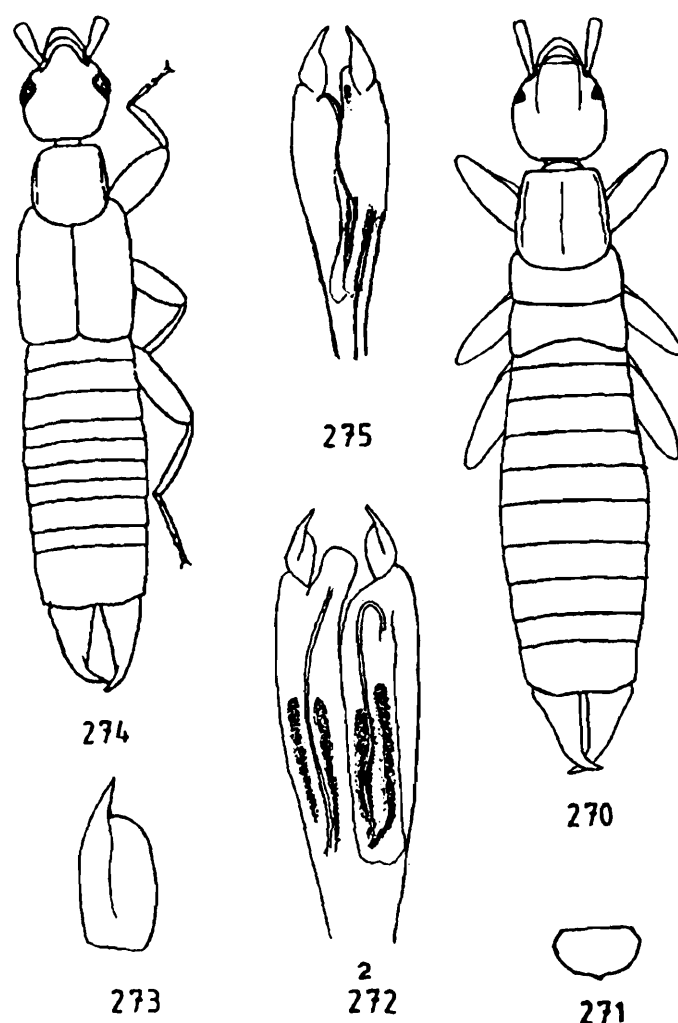
Antisolabis kelangi; Steinmann, 1989, *Das Tierreich*, **105** : 370, fig. 592 (*Geracodes brincki* Brindle treated as synonym); Steinmann, 1989, *World Catalogue of Dermaptera* : 334; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 96.

Geracodes brincki Brindle, 1971, *Ent. scand., Suppl.*, **1** : 221, figs. 21-23 (Male, Female; Yakkla, 18 mi NE Colombo); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 19; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 23; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1555; Steinmann, 1989, *Das Tierreich*, **105** : 370 (treated as synonym of *Brachylabis kelangi* Brindle, 1969).

General colour yellowish to yellowish brown; mouth parts, palpi and legs yellow; forceps brown. Body punctured and pubescent, hairs yellow, relatively long laterally.

Male : Head longer than broad, cardiform, hind margin emarginate in middle, frons convex. Antennae with 1st segment long, expanded apically, longer than the distance between antennal bases; 2nd short, transverse; 3rd twice as long as broad; 4th one and half times as long as broad; 5th slightly longer; 6th longer than 5th and equal to 3rd; remaining distal segments shorter and broader, about one and half times longer than broad.

Pronotum longer than broad, widened posteriorly, hind margin rounded, median sulcus distinct. Mesonotum transverse, lateral margin ecarinate, hind margin straight. Metanotum transverse, hind margin emarginate. Legs relatively short; femora broadened, especially of anterior legs; tarsi of hind leg with 1st segment equal to 3rd.



Figs. 270-275 : *Antisolabis kelangi* (Brindle), Male; 270. Dorsal view; 271. Penultimate sternite; 272. Genitalia; 273. Paramere enlarged; 274. Dorsal view; 275. Genitalia. (Figs. 270, 272 and 273 are after Brindle, 1969 from the Holotype Male of *Antisolabis kelangi* and figs. 271, 274 and 275 are after Brindle, 1971 from the Holotype Male of *Geracodes brincki*).

Apterous. Abdomen widened in middle, depressed, lateral tubercles on 3rd & 4th tergites hardly visible. Ultimate tergite transverse, smooth above, posterior margin scarcely emarginate in middle, laterally above bases of forceps oblique. Forceps short, cylindrical, tapering apically, tip gently hooked and gently raised upwards, inner margin irregular, but scarcely dentate. Genitalia with parameres narrowed apically, tip pointed; distal lobes with distinct virga and associated with dark, elongated, sclerotized and denticulated areas.

Female : Almost similar to male except for eight visible abdominal segments.

Measurements : (in mm)

	Male	Female
Length of body	4.0-4.5	4.0-4.5
Length of body	0.5	0.5

Types : Holotype Male, Allotype Female of *Brachylabis kelangi* Brindle, 1969 in BMNH and Paratype 1 Male in MM.

Holotype Male and Allotype Female of *Geracodes brincki* Brindle, 1971 in ZILS.

Distribution : West Malaysia and Sri Lanka.

Remarks : Although *Geracodes brincki* Brindle, has been synonymised by Steinmann (1989) under this species there is need to check the Holotypes of both species.

Geracodes brincki has well developed elytra, concealed wings and in male, penultimate sternite, is transverse with a triangular process in the middle of posterior margin.

Penultimate sternite of *Brachylabis kelangi* is not described.

Subfamily ISOLABOIDINAE

Isolaboidinae Brindle, 1978, *Senckenbergiana biol.*, **58** : 204; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Srivastava, 1982, *Ent. Basiliensia*, **7** : 63; Srivastava, 1982, *Rec. zool. Surv. India*, **79** : 464; Steinmann, 1989, *World Catalogue of Dermaptera* : 397 (under family LABIIDAE); Steinmann, 1990, *Das Tierreich*, **106**(1989) : 5 (Included under family LABIIDAE); Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4) : 147 (Placed under ANISOLABIDIDAE); Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1): 99.

Apterous. Size small to medium (7.5 mm to 13.00 mm). Forceps, in males, slender or stout, regularly incurved or straight in basal two thirds, afterwards gently incurved; in females simple and straight. Male genitalia with right distal lobe (penis lobe) atrophied with or without rudimentary virga; left distal lobe enormous with spirally coiled virga; proparameres paired but most of its apical part covered with right distal lobe.

Type genus : *Isoaboides* Hincks, 1958.

Distribution : Asia Minor to India.

Remarks : The subfamily contains the single type genus.

Genus *Isolaboides* Hincks

Isolaboides Hincks, 1958, *Eos, Madr.*, **34** : 131 (Type species : *Pseudisolabis kosswigi* Burr, 1947); Harz & Kaltenbach, 1976, *Die Orthopteren Europas*, **3** : 47 (as synonym of *Isolabella* Verhoeff, 1902); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17; Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4) : 149; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1): 99; Brindle, 1978, *Senckenbergiana biol.*, **58** : 204; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1474; Steinmann, 1989, *World Catalogue of Dermaptera* : 397 (under family LABIIDAE); Steinmann, 1990, *Das Tierreich*, **106**(1989) : 6.

Paralaboides Steinmann, 1990, *Das Tierreich*, **106** : 10 (Type species : *Pseudisolabis jonathani* Kapoor & Katiyar, 1971); Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4) : 149 (treated as synonym of *Isolaboides* Hincks, 1958).

Eyes small, shorter than post ocular area. Antennae 18-22 jointed, 1st shorter than the distance between antennal bases. Apterous. Meso- and metanotum ecarinate laterally. Legs with femora thick, hind tarsi with 1st segment almost equal to the combined length of 2nd and 3rd; 2nd distinctly longer than broad, narrow and slightly shorter than 3rd. Pygidium vertical. Genitalia with proparameres paired but genital lobe of right side atrophied and of left side well developed with virga spirally coiled.

Type species : *Pseudisolabis kosswigi* Burr, 1947.

Distribution : From Asia Minor to India.

Remarks : *Paralaboides* Steinmann, 1990 was synonymised under the genus by Srivastava (1996).

This genus is included under the family Anisolabididae on the basis of male genitalia possessing paired proparameres and the right distal lobe greatly enlarged whereas the left one vestigial.

Key to the species (based on males)

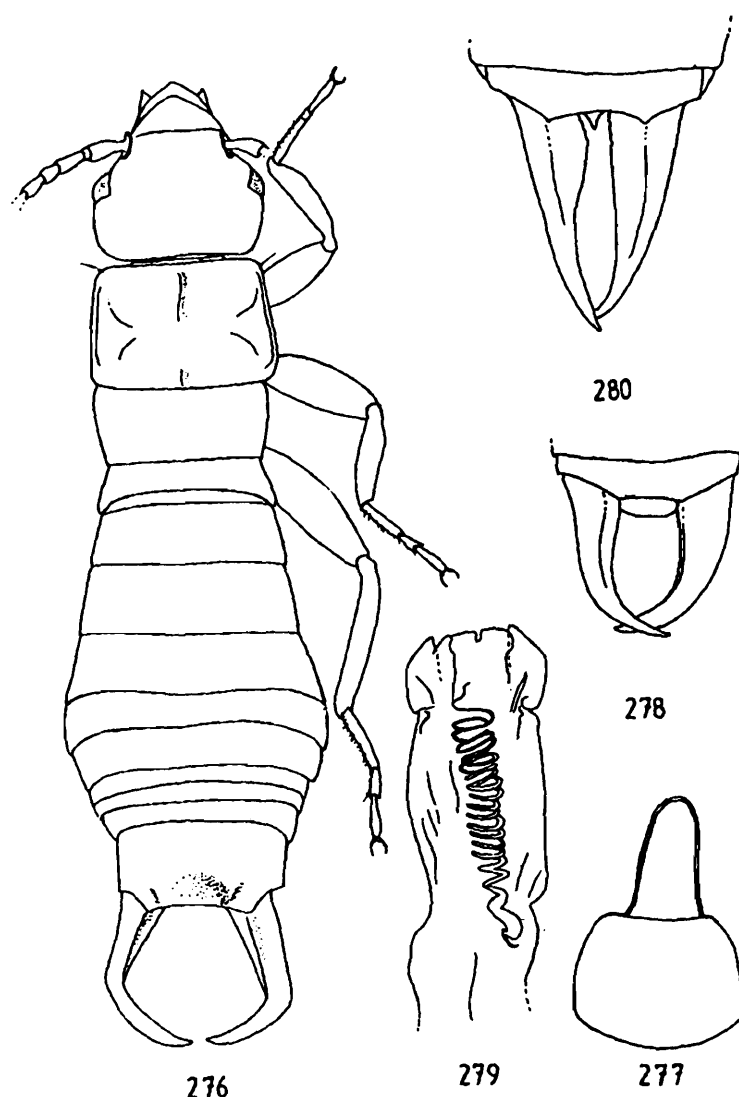
- 1(4). Penultimate sternite with hind margin entire; virga large and spirally coiled
- 2(3). Forceps (in forma macrolabia) stout and abruptly incurved in apical half; Parameres broad, anterior margin oblique, forming an obtuse angle with external margin, coils of virga short and narrow *I. burri* (Borelli)
- 3(2). Forceps (in forma macrolabia) comparatively thinner, regularly incurved; parameres narrower, broadest at base, gradually narrowing towards apex, coils of virga large and loosely arranged *I. immsi* (Burr)
- 4(1). Penultimate sternite posterolaterally with a concavity, virga short and coiled. *I. rimosus* Steinmann

Isolaboides burri (Borelli)

(Figs. 276-280)

Pseudisolabis burri Borelli, 1909, *Boll. Musei. Zool. Anat comp. R. Univ. Torino*, **24** (603) : 1 (Male, Female; NE Kashmir – along the road from Gilgit to Srinagar); Burr, 1910, *Fauna British India, Dermaptera* : **103**, fig. 35 (Male in dorsal view); Burr, 1911, *Genera Insect.*, **122** : 39, pl. 3, fig. 4 (head and sternum in ventral view); Bey-Bienko, 1936, *Faune de L'URSS, Dermaptera* : 106, fig. 30 (Male, dorsal view); Hincks, 1947, *Proc. R. ent. Soc. Lond.*, (B) **16**(5-6) : 60, fig. 3 (Male genitalia); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 7.

Isolaboides burri; Hincks, 1958, *Eos, Madr.*, **34** : 132; Popham & Brindle, 1966, *Entomologist*, **99** : 133; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1**(2) : 20; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1476; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17; Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4) : 150, figs. 1-6; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 9; Brindle, 1978, *Senckenbergiana biol.*, **58** : 204, figs. 1-3 (Male, Female; India : Kashmir, 2400-3200 m);



Figs. 276-280 : *Isolaboides burri* (Borelli), Male, 276. Dorsal view with (*f. macrolabic*) forceps; 277. Penultimate sternite with manubrium; 278. Ultimate tergite and (*f. microlabic*) forceps; 279. Genitalia; Female, 280. Ultimate tergite and forceps.

Steinmann, 1989, *World Catalogue of Dermaptera* : 392; Steinmann, 1990, *Das Tierreich*, **106** (1989) : 8; Srivastava and Lal, 1993, *Rec. zool. Surv. India*, **91** (1) (1992) : 116, figs. 11-12 (India : Himachal Pradesh).

Male : General colour brownish black or black; head and pronotum shining; meso- and metanotum and abdomen dull with short and fine pubescence; legs with femora and tibia black, joints yellow and tarsi slightly lighter in colour.

Head smooth, slightly longer than broad, frons convex, sutures obsolete. Eyes shorter than post-ocular area. Antennae 13-segmented or more, 1st stout, shorter than the distance between antennal bases; 2nd short; 3rd long and cylindrical; 4th short, globular; 5th subconical, slightly longer than receding; 6th stout but equal to 3rd, remaining subconical and gradually increasing in length. Pronotum smooth, transverse, all margins straight, gently widened posteriorly, pro- and metazona little differentiated,

median sulcus faint. Meso- and metanotum strongly transverse, former with hind margin straight and in latter emarginate. Apterous. Legs short, femora thickened, hind tarsi with 1st segment about as long as the combined length of 2nd and 3rd; 2nd narrow, but longer than broad.

Abdomen weakly convex, gently dilated in posterior two thirds, sides of segments 5 to 9 obtuse angulate posteriorly. Penultimate sternite transverse, hind margin in middle convex, manubrium about as long as the sternite and of uniform width throughout. Pygidium vertical, not visible from above, triangular, base almost filling the space between the branches of forceps. Ultimate tergite weakly transverse, gently narrowed posteriorly, hind margin laterally above the bases of forceps oblique and in middle straight, sloping backwards, faintly depressed in middle posteriorly. Forceps stout, remote at base, branches straight and diverging up to a little beyond middle, afterwards abruptly and strongly bowed (f. *macrolabia*) or almost straight and gently incurved a little before apex (f. *microlabia*) with apices gently hooked, branches trigonal in basal one third. Genitalia with parameres longer than broad, narrowed apically, externally above forming an angle a little before apex, virga of left side spirally coiled but coils narrow and compact.

Female : Agrees with males in most characters except that ultimate tergite narrowed posteriorly and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body :	8.0-9.1	8.0-9.1
Length of forceps :	1.9-2.0	2.0-2.1

Types : 4 Males, 3 Females mentioned in the original description (Borelli, 1909) may be treated as syntypes; are perhaps preserved in MIZT.

Distribution : In the mountains of India (Kashmir) and Pakistan.

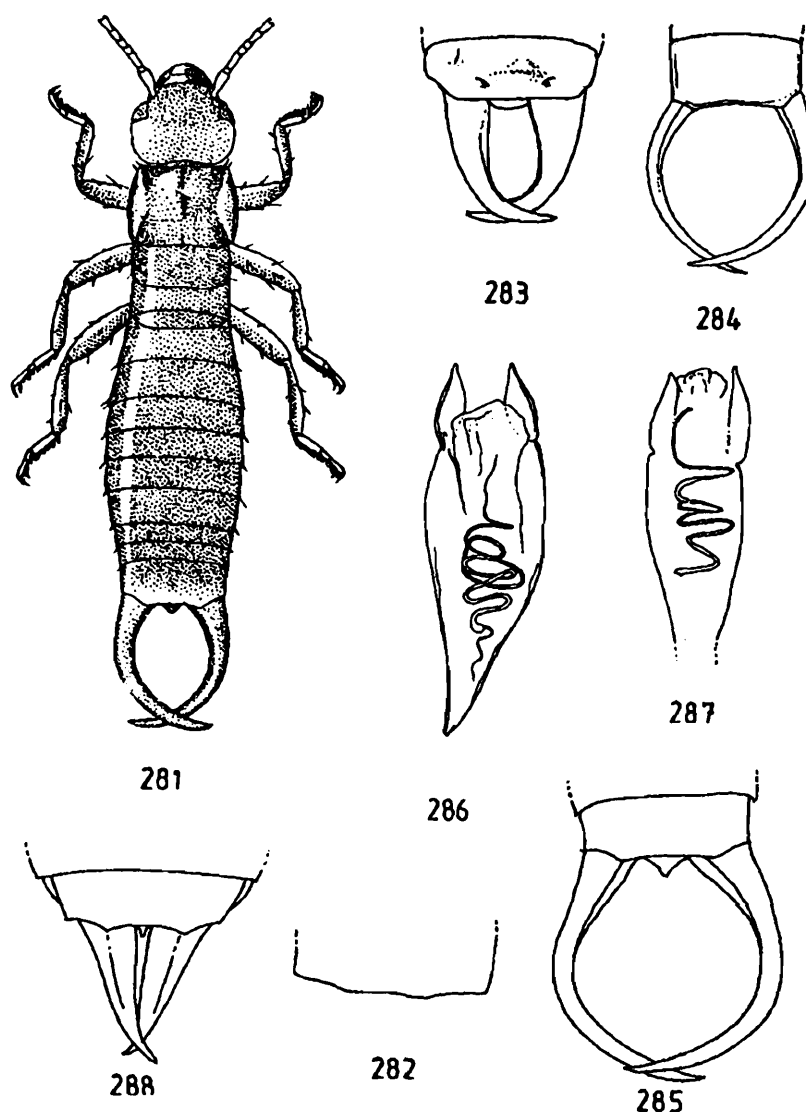
Remarks : This species can be easily determined by its strongly transverse pronotum ; stout forceps, abruptly incurved in apical two thirds or gently incurved a little before apex; genitalia with parameres externally angular near apex and virga of left side with narrow loops and arranged in a compact linear fashion.

***Isolaboides immsi* (Burr)**

(Figs. 281-288)

Pseudisolabis immsi Burr, 1913, *J. Asiat. Soc. Beng. (N.S.)*, **9** : 184 (Male, Female; North India : Base of Himalayas at Kuridi in Jaunsar, 9000 ft.); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 8.

Parisolabis immsi Hincks, 1958, *Eos, Madr.*, **34** : 132; Popham & Brindle, 1966, *Entomologist*, **99** : 133; Sakai, 1970, *Dermapterorum Cat. Prael*, **1** : 17; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Sakai, 1987, *Dermapterorum Cat.*, **19** : 2309 (Type Male, Female, BMNH and male genitalia of Type figured); Sakai, 1987, *Dermapterorum Cat.*, **20** : 1447;



Figs. 281-288 : *Isolaboides immsi* (Burr), Male, 281. Dorsal view with (*f. macrolabic*) forceps; 282. Hind margin of penultimate sternite; 283. Ultimate tergite and (*f. microlabic*) forceps; 284 and 285. Ultimate tergite and (*f. macrolabic*) forceps; 286 and 287. Genitalia; Female, 288. Ultimate tergite and forceps (Figs. 281 and 286 from the same specimen; figs. 284 and 287 from the Holotype of Male of *Pseudisolabis jonathani* Kapoor and Katiyar and fig. 285 from the Holotype Male of *Pseudisolabis santokhi* Kapoor and Katiyar).

Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17; Steinmann, 1989, *Das Tierreich*, **105** : 374; Steinmann, 1989, *World Catalogue of Dermaptera* : 340.

Isolaboides immsi; Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4): 152, figs. 7-14 (Himachal Pradesh); Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 99.

Pseudisolabis burri (néc Borelli); Burr., 1914, *Rec. Indian Mus.*, **10**(5) : 290 (Female; India : Himachal Pradesh, Simla Hills, Matiana, 8000 ft.).

Isolaboides burri (néc Borelli); Srivastava & Lal, 1993, *Rec. zool. Surv. India*, **91**(1) (1992) : 116, figs. 11 & 12 (India : Himachal Pradesh).

Pseudisolabis jonathani Kapoor & Katiyar, 1971, *J. nat. Hist.*, **5** : 499, figs. 1 & 2 (Male; India : Simla Hills, Baghi, Himachal Pradesh); Srivastava, 1996, *Rec. zool. Surv. India*, **95**(3 & 4) : 152 (treated as a synonym).

Isolaboides jonathani; Steinmann, 1978, *Dt. Ent. Z.*, **25** : 188.

Parisolaboides jonathani; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1451.

Paralaboides jonathani; Steinmann, 1989, *World Catalogue of Dermaptera* : 399; Steinmann, 1990, *Das Tierreich*, **106** (1989) : 11, fig. 10-11.

Pseudisolabis santokhi Kapoor & Katiyar, 1971, *J. nat. Hist.*, **5** : 500, figs. 3 & 4 (Male; India : under stones Manali, 1930 m, Himachal Pradesh); Srivastava, 1996, *Rec. zool. Surv. India*, **95**(3-4) : 52 (treated as a synonym).

Isolaboides santokhi; Steinmann, *Dt. Ent. Z.*, **25** : 188.

Parisolabis santokhi; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1452.

Paralaboides santokhi; Steinmann, 1989, *World Catalogue of Dermaptera* : 399; Steinmann, 1990, *Das Tierreich*, **106** (1989) : 12.

Male : General colour brownish black, sides of pronotum, tarsi and antennae somewhat lighter in colour.

Head slightly longer than broad, smooth, frons weakly convex, sutures obsolete, hind margin emarginate in middle. Eyes generally black, sometimes whitish, about half as long or slightly less than post-ocular area. Antennae 15-segmented, 1st stout, shorter than the distance between antennal bases; 2nd short; 3rd long and cylindrical, gently expanded apically, slightly longer than 4th, remaining slightly increasing in length, one or two apical segments thin and rod shaped. Pronotum slightly broader than long, apical and lateral margins straight, gently widened posteriorly, hind angles rounded and margin almost straight or showing a trace of emargination in middle, smooth, impunctate; prozona weakly raised and scarcely differentiated from depressed metazona, median sulcus faintly marked on prozona. Meso- and metanotum transverse, obscurely reticulated, former with hind margin straight and latter broadly emarginate. Legs long and slender, hind tarsi with 1st segment about as long as the combined length of 2nd and 3rd; 2nd slightly longer than broad; 3rd about twice as long as 2nd; claw without an arolium. Abdomen spindle shaped, covered with very fine and short pubescence above, on sides a few long and short hairs present, sides of segments broadly convex. Penultimate sternite transverse slightly depressed posteriorly, hind margin subtruncate. Ultimate tergite transverse, smooth, sloping backwards with a roughly triangular depression in middle posteriorly, sides straight, hind margin in middle between the branches of forceps straight, oblique above the bases of forceps, gently narrowed posteriorly in *microlabic* form. Pygidium vertical, triangular. Forceps with branches remote at base in *macrolabic* form, strongly arcuate, internally differentiated into dorsal and ventral borders up to middle, afterwards branches circular in cross section, apices pointed and hooked; in forma *microlabia* comparatively less stout, straight in basal half; afterwards gently incurved. Genitalia with parameres broader at base, gradually narrowing apically to pointed apex, external and internal margin convex, distal lobe of left side enormously developed with spirally coiled virga, coils of virga loose and broad, distal lobe of right side atrophied.

Female : Agrees with males in most characters except that penultimate sternite obtuse posteriorly in middle; ultimate tergite narrowed posteriorly; pygidium vertical, narrow, posteriorly pointed and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body :	6.4-12.0	8.6-8.8
Length of forceps :	1.2-3.0	1.1-1.3

Types : Burr (1913) in the original description of *Pseudisolabis immsi* has mentioned "Male & Female" which may be treated as Types and are preserved in BMNH.

Holotype Male of *Pseudisolabis jonathani* Kapoor & Katiyar, 1971 at Division of Entomology, IARI, New Delhi.

Holotype Male of *Pseudisolabis santokhi* Kapoor & Katiyar, 1971, at Division of Entomology, IARI, New Delhi.

Distribution: India: Himachal Pradesh (Lahaul and Spiti, Chamba, Kinnaur and Kangra districts).

Remarks : This species can be separated from *I. burri* (Borelli), in *macrolabic* form, by its strongly curved and thin forceps and genitalia with parameres narrowed apically, tip pointed and external and internal margin convex and virga with broad and loose spiral coils.

***Isolaboides rimosus* Steinmann**

(Figs. 289-291)

Isolaboides rimosus Steinmann, 1983, *Revue suisse Zool.*, **90**(3) : 251, figs. 7-8 (Male; India : U.P., Garhwal, Dhanolti, 6 km E, 2300 m); Sakai, 1987, *Dermapterorum Cat.*, **19** : 2278, pl. 25 (Photographs of Holotype Male and penultimate sternite); Sakai, 1987, *Dermapterorum Cat.*, **20** : 1483; Steinmann, 1989, *World Catalogue of Dermaptera* : 398 (under Family Labiidae); Steinmann, 1990, *Das Tierreich*, **106** (1989) : 10; Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4) : 155 figs. 16-18; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 99.

Male : General colour dark reddish brown, legs lighter in colour. Head smooth, frons convex, sutures distinct. Eyes small, shorter than post-ocular area. Antennae 17-segmented, 1st stout, shorter than the distance between antennal bases : 2nd short, quadrate; 3rd long and cylindrical, longer than 4th and 5th. Pronotum weakly transverse, parallel sided, angles rounded, median sulcus distinct. Apterous. Abdomen spindle shaped, finely punctulated, tergites convex. Penultimate sternite postero-laterally with an excised concavity, median lobe broad. Ultimate tergite transverse, posterior margin in middle lightly concave, oblique laterally above the bases of forceps. Pygidium vertical, trigonal. Forceps strongly incurved, trigonal in basal half, afterwards cylindrical, very similar to *I. burri*. Genitalia with parameres broad at base, narrowed apically, distal lobes indistinct, virga short and coiled.

Type : Holotype Male in MHNG.

Distribution : India : U.P. (Garhwal Hills).

Remarks : This species differs from all the known species of the genus by its characteristic penultimate sternite.

The male genitalia appears to represent the immature stage.

The coloured photograph of the penultimate sternite given by Sakai (1987, p. 2278) suggests that posterior concavities may not be natural but might be due to damage caused during pulling it off the specimen with forceps for the examination of genitalia.

In view of this, it seems necessary to examine the 'Type' for deciding the identity of the species.

Uncertain species

Isolabaoides tenera (Burr)

(Fig. 292)

Pseudisolabis tenera Burr, 1910, *Fauna British India, Dermaptera* : 104, fig. 36 (Male; Punjab Muree); Burr, 1911 *Genera Insect.*, **122** : 39; Kapoor 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1): 8.

Parisolabis tenera; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1**(2) : 17; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22, Sakai, 1987, *Dermapterorum Cat.*, **20** : 1447; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 17 (treated as synonym of *Isolaboides burri* (Borelli, 1909).

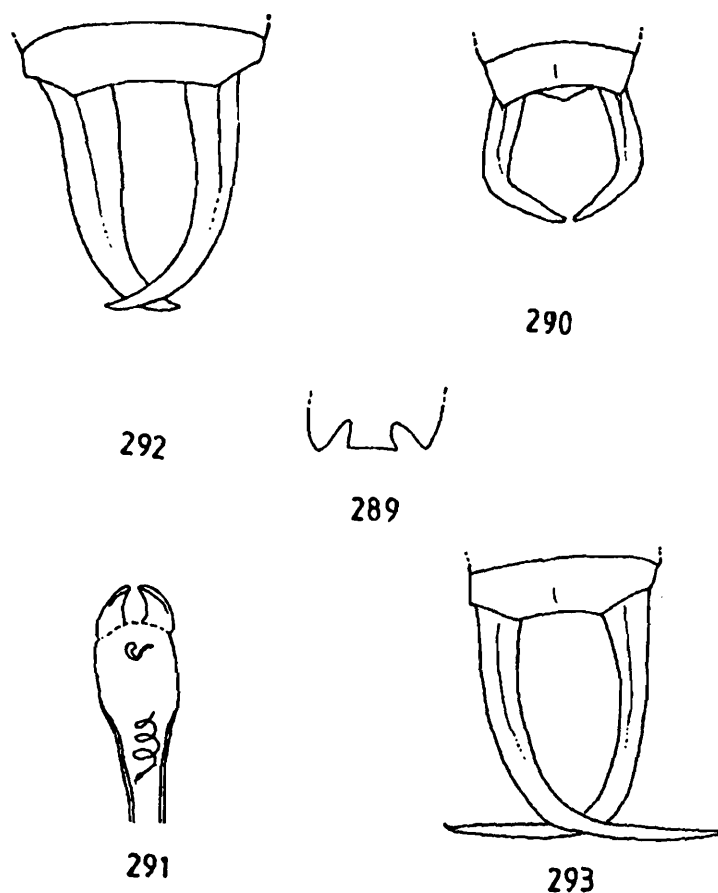
Isolaboides? tenera; Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4): 157; Srivastava, 1999, *Rec. zool. Surv. India*, **97** (1): 99; Steinmann, 1989, *Das Tierreich*, **105** : 375; Steinmann, 1989, *World Catalogue of Dermaptera* : 342.

Pseudisolabis burri (néc Borelli); Bey-Bienko, 1935, *Wiss. Ergebn. Niederl. Exped. Karakorum, Zool.* : 209 (2 Males, 2 Females; Kashmir : Sonamarg on river Sind; 5 Males, 2 Females; Valley of river Sind, 2000-2800 m).

Male : General colour dull brown with sparse pubescence.

Head slightly longer than broad, sutures obsolete. Eyes shorter than the post-ocular area. Antennae 17-segmented, 1st stout, shorter than the distance between antennal bases; 3rd long and cylindrical; 4th short, remaining increasing in length distally. Pronotum rectangular, gently widened posteriorly, sides and hind margin straight. Legs long and slender, hind tarsi with first segment equal to 2nd and 3rd together. Abdomen moderately convex, finely punctulated, contracted posteriorly. Penultimate sternite transverse, hind margin broadly rounded. Pygidium vertical, narrowed posteriorly. Ultimate tergite strongly transverse. Forceps remote at base, almost straight in most part except apices gently incurved.

Female : Not known.



Figs. 289 - 293 : *Isolaboides rimosus* Steinmann, Holotype Male, 289. Hind margin of penultimate sternite; 290. Ultimate tergite and forceps; 291. Genitalia; *Isolaboides tenera* (Burr), Type Male, 292. Ultimate tergite and forceps; *Isolaboides elegans* (Hebard), Holotype Male, 293. Ultimate tergite and forceps (Figs. 292 partly modified from Burr 1910 and 293 after Hebard, 1917).

Measurements : (in mm)

	Male
Length of body	11.5
Length of forceps	1.5

Type : Type (Holotype) Male in BMNH.

Distribution : Pakistan : Punjab, Murree.

Remarks : This species is so far known by its 'Holotype Male' but genitalia has not been described. In the original description "... second tarsal segment nearly as long as the first" has been mentioned, which is incorrect. It should be 'first tarsal segment equal to 2nd and 3rd together'

It is almost certain that this species should be included under *Isolaboides* on the basis of external morphology.

***Isolaboides elegans* (Hebard)**

(Figs. 293)

Pseudisolabis elegans Hebard, 1917, *Proc. Acad. nat. Sci. Philad.*, **69** : 236, pl. 16, figs. 2-3 (Male, Female; India : Kulu Kangra); Hebard, 1923, *Mem. Dep. Agric. India, ent. Ser.*, **7** : 212; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 8.

Parisolabis elegans; Hincks, 1958, *Eos, Madr.*, **34** : 132; Popham & Brindle, 1966, *Entomologist*, **99** : 133; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 17; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 22; Sakai, 1987, *Dermapterorum Cat.*, **20** : 1448; Srivastava, 1976, *Rec. zool. Surv. India, Occ. Pap.*, **2** : 17; Steinmann, 1989, *Das Tierreich*, **105** : 376; Steinmann, 1989, *World Catalogue of Dermaptera* : 339.

Isolaboides? elegans; Srivastava, 1996, *Rec. zool. Surv. India*, **95** (3-4) : 158, fig. 20; Srivastava, 1999, *Rec. zool. Surv. India*, **97**(1) : 99.

Male : General colour dull brown. Finely pubescent.

Head with sutures marked by very feeble impressions. Eyes shorter than post-ocular area. Antennae with 1st segment stout, shorter than the distance between antennal bases. Pronotum rectangular, widened posteriorly, sides and hind margin straight. Legs long and slender, hind tarsi with first segment almost equal to second and third together; second more than half as long as the third. Abdomen moderately convex, sides of abdominal segments broadly convex posteriorly. Penultimate sternite, transverse, hind margin rounded with slight emargination in middle. Ultimate tergite strongly transverse. Pygidium declivent; trigonal with apex rounded. Forceps with branches remote at base, regularly and strongly incurved, tapering apically with tips strongly hooked, cylindrical but in middle inner surface flattened.

Female : Agrees with males in most characters except that penultimate sternite with hind margin comparatively not so broadly rounded and forceps simple and straight, trigonal above.

Measurements : (in mm)

	Male	Female
Length of body	9.2-10.2	8.3-9.0
Length of forceps	1.8-3.0	1.8-2.8

Types : Type (may be treated as the Holotype) Male, Allotype female, Paratypes 1 Male and 2 Females at MCZH.

Distribution : India : Himachal Pradesh, Kulu Kangra.

Remarks : On the basis of external morphology it appears to be conspecific with *Isolaboides immsi* (Burr). However, its true identity can be established when the male genitalia is described.

Family LABIDURIDAE

Labiduridae Verhoeff, 1902, *Zool. Anz.*, **25** (665) : 189; Burr, 1909, *Dt. ent. Z.*, **1909** : 324; Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 161; Burr, 1911, *Genera Insect.*, **122** : 24; Burr, 1915,

J.R.micr. Soc., 1915 : 441; Zacher, 1911, *Zool. Jb.*, 30 : 309; Bey-Bienko, 1936, *Faune de l'URSS, Dermapteres* : 84; Hincks, 1952, *South African Animal Life*, 4 : 58; Brues, Melander & Carpenter, 1957, *Bull. Mus. Comp. Zool.*, Harvard, 108 : 115; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 18 (under superfamily Forficuloidea); Brindle, 1968, *Acta biol. Ven.*, 6(1) : 68; Brindle, 1973, *Ann. Mus. Roy. Afr. Centr., Tervuren, in 8° Zool.*, No. 205 : 107; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 41; Srivastava, 1988, *Fauna of India, Dermaptera* : 15; Steinmann, 1989, *Das Tierreich*, 105 : 398; Steinmann, 1989, *World Catalogue of Dermaptera* : 347.

Size medium to large (7.0 – 26.0 mm). Body generally not depressed, stout. Elytra and wings well developed except in the members of *Gonolabidura* Zacher, sometimes former abbreviated and latter absent. Male genitalia with two functional lobes, parameres with a large or small epimerite, sometime absent, virga stout, tubular, at base sometimes with a vesicle or only a dilation and inside the virga with a sinuous tube throughout the length or at base only.

Distribution : World wide.

Family ALLOSTETHINAE

Allostethidae Verhoeff, 1904, *Arch. Naturgesch.*, 1904, 115; Zacher, 1911, *Zool. Jb.*, 30 : 355; Brues, Melander & Carpenter, 1954, *Bull. Mus. Comp. Zool.*, Harvard, 108 : 115.

Allostethinae; Burr, 1910, *Trans. ent. Soc. Lond.*, 1910 : 162; Burr, 1911, *Genera Insect.*, 122 : 24; Brindle 1965, *Ann. Mag. nat. Hist.*, (8) 13 : 575; Popham & Brindle, 1965, *Entomologist*, 98 : 134; Popham & Brindle, 1968, *Entomologist*, 101 : 105; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 45 (under Superfamily Laboidea); Srivastava, 1976, *Pacif. Insects*, 17(1) : 120; Srivastava, 1978, *Eos, Madr.*, 52 : 283; Steinmann, 1978 *Acta zool. hung.*, 24 : 206; Steinmann, 1981, *Reichenbachia*, 19(24) : 140; Steinmann, 1989, *Das Tierreich*, 105 : 398; Steinmann, 1989, *World Catalogue of Dermaptera* : 348.

Size medium to large (12.0 – 32.0 mm in length); colour generally dark reddish brown to black; stout, abdomen moderately convex. Prosternum narrowed posteriorly to a sharp point. Male genitalia with proparameres paired, distal lobes with tubular and stout virga, at base occasionally dilated, parameres acute apically.

Type genus : *Allostethus* Verhoeff, 1904 (Designated by Burr, 1909, *Dt. ent. Z.*, 1909 : 324).

Distribution : Oriental Region.

Remarks : This subfamily is mainly characterised by the strongly narrowed prosternum posteriorly into a sharp point.

Three genera are included under the subfamily, of which only two viz., *Allostethus* Verhoeff, 1904 and *Gonolabidura* Zacher, 1910 are represented in India.

Key to genera

- 1(2). Elytra and wings present, occasionally latter absent; pronotum quadrate or weakly transverse; virga almost straight *Allostethus* Verhoeff

- 2(1). Apterous; pronotum distinctly transverse; virga dilated in basal half, with double curves and dilated in basal half *Gonolabidura* Zacher

Genus *Allostethus* Verhoeff

Allostethus Verhoeff, 1904, *Arch. Naturgesch.*, 1904 : 116; Zacher, 1911, *Zool. Jb.*, 30 : 362; Burr, 1911, *Genera Insect.*, 122 : 25; Townes, 1945, *Ann. ent. Soc. Am.*, 38 : 344; Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) 8 : 568; Popham and Brindle, 1968, *Entomologist*, 101 : 105; Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 31; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 32; Sakai, 1990, *Dermapterorum Cat.*, 21-22 : 4(2781); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 45; Steinmann, 1989, *Das Tierreich*, 105 : 406; Steinmann, 1989, *World Catalogue of Dermaptera* : 350.

Build stout; size large (25.0 – 30.0 mm). Antennae multi-segmented, basal segment, from 2 to 5 broader, hardly narrowing at base; 3rd segment slightly longer than broad; 4th and 5th almost quadrate. Elytra well developed, smooth and wings occasionally absent. Pro- and mesosternum strongly narrowed posteriorly. Abdomen long, cylindrical, tergites convex. Male genitalia with virga narrow and tubular with a darker stripe on one side.

Type species : *Forficula indica* Burmeister, 1838 (Designated by Burr, 1909, *Dt. ent. Z.*, 1909: 324).

Distribution : Oriental Region.

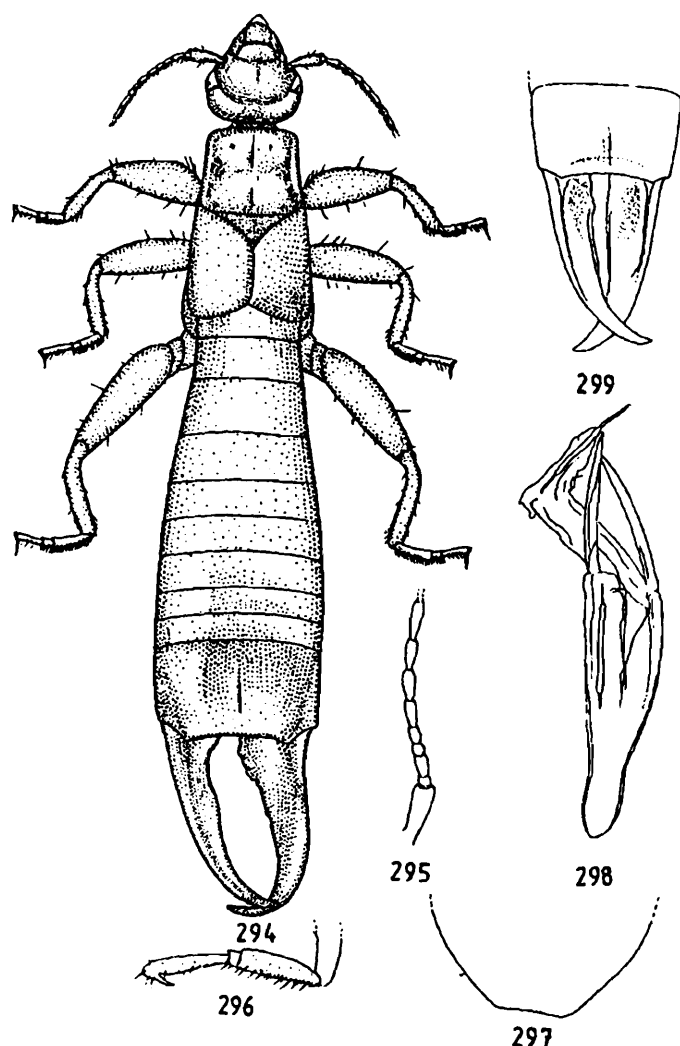
Remarks : Out of 12 known species only one species is recorded from South India.

Allostethus anamalayanus Ramamurthi (Figs. 294-299)

Allostethus anamalayanus Ramamurthi, 1968, *Zool. Anz.*, 181 : 133, figs. 5-7 (Male, Female; India : Tamil Nadu : Anamalai Hills, 3500 ft.); Srivastava, 1970, *Eos, Madr.*, 45 : 30 (3 Males, 3 Females and 2 nymphs; India : Tamil Nadu, Anamalai Hills, Cinchona, 3500 ft.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 45; Steinmann, 1978, *Acta zool. hung.*, 24 : 206; Steinmann, 1989, *Das Tierreich*, 105 : 415, figs. 659-660; Steinmann, 1989, *World Catalogue of Dermaptera* : 350; Sakai, 1990, *Dermapterorum Cat.*, 21-22 : 26 (2804, 3063 (Several figures), Pl. 10 (3201) three coloured photographs of Male and Female).

Male : General colour blackish brown, bluish sheen on head pronotum and elytra; antennae and legs brown and forceps dark reddish brown.

Build stout. Head longer than broad, frons convex, sutures fairly marked, hind margin emarginate in middle. Eyes prominent but shorter than post-ocular area. Antennae 23- (+ more) segmented, 1st segment shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long, slender, three times longer than broad; 4th stout, globular; 5th slightly longer than 3rd, narrowed basally, afterwards segments gradually thinning and each one narrowed basally, apical ones thin and rod shaped. Pronotum transverse, gently widened posteriorly, lateral margin depressed, almost straight, hind margin subtruncate, median sulcus distinct; prozona tumid indistinctly separated from weakly depressed metazona.



Figs. 294-299 : *Allostethus anamalayanus* Ramamurthi, Male; 294. Dorsal view; 295. A few basal antennal segments; 296. Hind tarsi; 297. Hind portion of penultimate sternite; 298. Genitalia; Female; 299. Ultimate tergite and forceps.

Elytra slightly longer than pronotum, hind margin obliquely truncate, axillary angle rounded off to show transverse scutellum. Legs clear yellow, hind tarsi with 1st and 3rd segment equal, claw without an arolium. Abdomen long, cylindrical, widened posteriorly, tergites convex, with an oval smooth patch above laterally, basal three tergites impunctate, afterwards punctation with microreticulation, gradually becoming heavier in posterior tergites, sides of segments convex posteriorly, rugosely punctate. Penultimate sternite transverse, narrowed posteriorly, hind margin rounded with slight emargination in middle. Ultimate tergite transverse, disc convex, sloping backwards, in anterior half sparsely and in posterior half densely punctate, a feeble lateral carina present running almost the entire length of tergite and turning obliquely inwards near posterior margin, hind margin between bases forceps almost straight and slightly raised, laterally obliquely sinuate. Forceps subcontiguous and broad at base, tapering apically, trigonal with ridge extending up to the middle of the length or more, right branch almost straight in basal 2/3, left branch almost straight in basal 1/2, afterwards strongly incurved, and crossing over right branch, apices

hooked and pointed, inner margin of right branch with a small sinuation and with one or two teeth near base, otherwise unarmed, left branch with a strong triangular tooth near base followed by several small teeth all along the length. Genitalia with parameres narrow, about five to six times longer than broad, narrowed apically with tip pointed, oblique membrane present; distal lobes with virga tubular.

Female : Agrees with males in most characters except that penultimate sternite posteriorly, in middle, obtuse; ultimate tergite comparatively narrower and forceps simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	16.0-21.0	16.0-26.00
Length of forceps	4.0-6.0	5.0-6.1

Types : Holotype male, Allotype female with the author; Paratype 1 Male in MM.

Distribution : So far only known from the type locality, i.e., India : Tamil Nadu, Anamalai Hills, Cinchona, 3500 ft.

Remarks : This species is confined to Western Ghats. In the collections of Z.S.I. several specimens from the type locality are present which include males, females and nymphs. Except for the slight variation in body colour no other morphological variation could be observed.

Genus *Gonolabidura* Zacher

Gonolabidura Zacher, 1910, *Ent. Rdsch.*, **27** : 30 (Type species : *Anisolabis piligera* Bormans, 1900 = *Gonolabidura voltzi* Zacher, 1910); Zacher, 1911, *Zool. Jb.*, **30** : 358; Burr, 1911, *Genera Insect.*, **122** : 25; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 349; Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) **8** : 592; Popham and Brindle, 1968, *Entomologist*, **101** : 105; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1): 22; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 30; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20**: 32; Sakai, 1987, *Dermapterorum Cat.*, **21-22** : 38 (2816); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 47; Srivastava, 1993, *Rec. zool. Surv. India*, **91**(1) (1992) : 72; Steinmann, 1978, *Acta zool. hung.*, **24** : 26; Steinmann, 1985, *Intern. Quart. ent. (Izmir)*, **1**(1) : 21; Steinmann, 1989, *Das Tierreich* **105** : 399; Steinmann, 1989, *World Catalogue of Dermaptera* : 354.

Protolabidura Steinmann, 1985, *Intern. Quart. ent. (Izmir)*, **1**(1) : 21 (Type species : *Gonolabidura boschmai* Boeseman, 1954); Steinmann, 1989, *World Catalogue of Dermaptera* : 356; Srivastava, 1993, *Rec. zool. Surv. India*, **91**(1) (1992) : 72 (treated as synonym).

Totally apterous; head longer than broad; antennae multi-segmented, 1st slightly shorter than the distance between antennal bases and pronotum distinctly transverse. Male genitalia with parameres long, narrow, pointed apically, distal lobes with virga dilated at base, usually with double bend, otherwise unarmed.

Type species : *Anisolabis piligera* Bormans, 1900 (= *Gonolabidura volzi* Zacher, 1910).

Distribution : Oriental Region.

Key to species (based on Males only)

- 1(4). Size larger, usually above 15 mm; sides of abdominal segments convex
- 2(3). Body colour shining black; ultimate tergite without lateral carina and forceps elongated, and straight *G. biswasi* Srivastava
- 3(2). Body colour shining brownish or reddish black; ultimate tergite with distinct lateral carina and forceps strongly arcuate *G. astruci* Burr
- 4(1). Size smaller, usually below 15 mm; sides of abdominal segments obtuse or acute
- 5(6). Size smaller, up to 11.5 mm or less; abdominal tergites shallowly and sparsely punctulate and ultimate tergite with lateral carina represented by a faint linear convexity and forceps elongated *G. minor* Burr
- 6(5). Size larger, above 12.5 mm; abdominal tergites heavily punctate; ultimate tergite with a prominent carina laterally and forceps stout and incurved ...
..... *G. nathani* Brindle

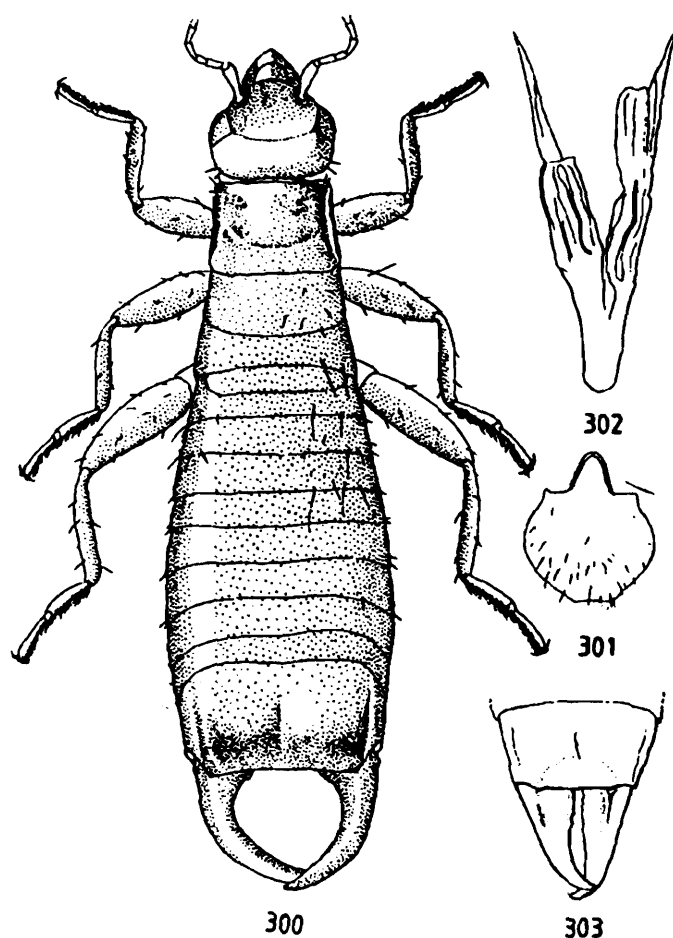
***Gonolabidura astruci* Burr**

(Figs. 300 - 303)

Gonolabidura astruci Burr, 1911, *J. Asiat. Soc. Beng. (N.S.)*, **7** : 776 (Males and Females; South India : Madura dist., Shembaganur); Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) **8** : 593, figs. 15-16 (male genitalia); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 22; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1**(1) : 33 ; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Sakai, 1987, *Dermapterorum Cat.*, **20-21** : 44 (2822), Pl. 12 (3203) coloured figures of Syntype Males, BMNH and Male and Female MM); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 47; Srivastava, 1990, *Rec. zool. Surv. India*, **87**(1) : 35 (Male, Female and nymph; India : Tamil Nadu, 8 mi NE Munnar, 6200 ft.); Steinmann, 1978, *Acta zool. hung.*, **24** : 206, fig.2 (male genitalia); Steinmann, 1989, *Das Tierreich*, **105** : 403; Steinmann, 1989, *World Catalogue of Dermaptera* : 355.

Build stout, body strongly pubescent. General colour shining, blackish brown, antennae with basal segment lighter in colour; legs yellowish brown.

Head longer than broad, smooth, sutures faint, frons convex, hind margin in middle faintly emarginate. Antennae 17-segmented (+ more), basal segment stout, narrower at base, shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd slender, a little over twice longer than broad; 4th a little stouter and shorter than preceding; 5th about as long as 3rd, narrowed basally, remaining gradually increasing in length, thinning and each narrowed basally. Eyes prominent but shorter than post-ocular area. Pronotum rectangular, slightly broader than long, smooth, impunctate, median sulcus obsolete, all margins straight, sides feebly reflexed, prozona weakly raised and metazona weakly depressed. Meso- and metanotum with same texture as the pronotum, former about as long as pronotum with hind margin truncate and latter strongly transverse, broadly concave posteriorly. Legs stout, hind tarsi



Figs. 300-303 : *Gonolabidura astruci* Burr, Syntype Male; 300. Dorsal view; 301. Penultimate sternite; 302. Genitalia; Female; 303. Ultimate tergite and forceps.

with 1st segment stout, equal to third, clad with hairs on underside, claw without an arolium. Abdomen broad, narrowed at base, gradually dilating up to 9th tergite, tergites convex, obscurely punctulate, sides of segments 6th to 9th convex, rugosely punctate. Penultimate sternite transverse, punctulate, narrowed apically with hind margin in middle truncate, pubescent, in posterior half with thick yellow long hairs. Ultimate tergite transverse, weakly raised, sloping backwards, punctulate, median sulcus distinct, laterally with a distinct ridge, hind margin slightly concave in middle and above bases of forceps oblique and concave. Pygidium vertical, narrowed posteriorly. Forceps at base remote, stout, strongly arcuate, trigonal at base above, inner margin finely serrated. Genitalia with parameres, a little over five times longer than broad, narrowed apically with tip acute; distal lobe with virga, stout dilated at base.

Female: Agrees with males in most characters except that penultimate sternite obtuse in middle posteriorly; ultimate tergite narrower with a faint linear convexity laterally and forceps simple, straight, inner margin dentate in basal half.

Nymphs : Similar to adult but smaller in size, lighter in colour, antennae with annular yellow ring at base on each segments.

Measurements : (in mm)

	Male	Female
Length of body	12.5-15.00	13.9-19.5
Length of forceps	2.5-2.9	2.4-3.5

Types : Syntype Male and Females in BMNH.

Distribution : India : Tamil Nadu : Shembaganur and Upper Manalaar, alt 1500 m, ca 50 Km W of Madurai; 8 m in NE of Munnar, 6200 ft.

Remarks : In the collection of the Zoological Survey of India, Calcutta this species is represented by 4 Males, 1 Female and 7 nymphs from India : Tamil Nadu : Upper Malanaar, alt. 1500 m, High Wavy Mts., ca 50 km W of Madurai, 15.2.1986, Coll. S.S.Saha hitherto not reported.

This species comes closer to *G. nathani* Brindle, but differs in Males, by having thick pubescence in posterior half of penultimate sternite; strongly incurved forceps and larger body size.

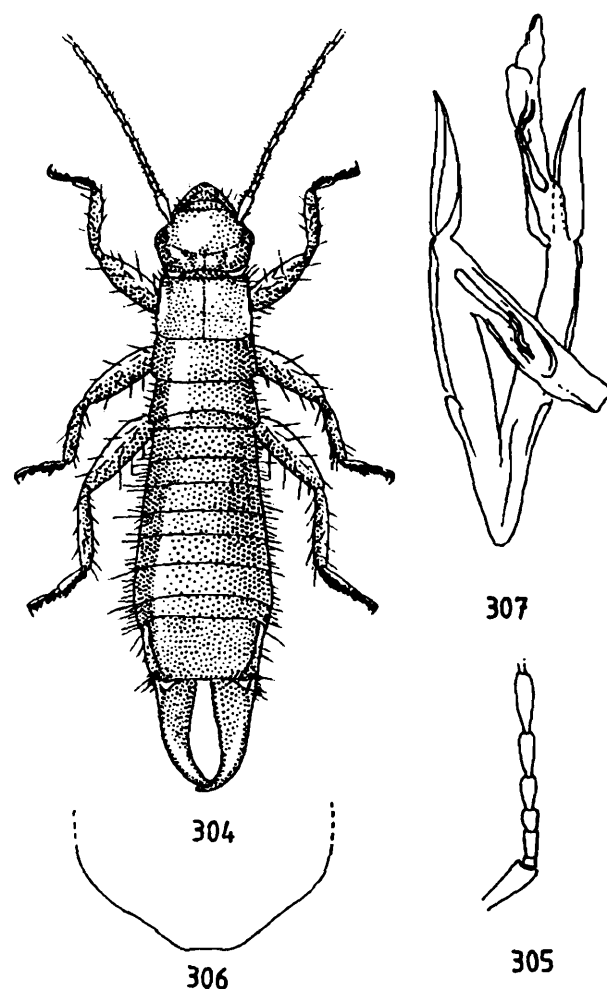
Gonolabidura minor Burr

(Figs 304 – 307)

Gonolabidura minor Burr, 1914, *Rec. India Mus.*, **10** : 284 (Male and nymph; Anamalai Hills, 4000 ft, South India); Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) **8** : 593, figs. 16 (Male; ultimate tergite and forceps and genitalia); Popham and Brindle, 1968, *Entomologist*, **101** : 105; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 22; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1**(1) : 33; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Sakai, 1987, *Dermapterorum Cat.*, **20-21** : 45 (2823), Pl. 12 – coloured figure of Male from BMNH); Srivastava, 1970, *Eos, Madr.*, **45** : 331 (Male; India : Anamalai Hills, Cinchona, 3500 ft.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2**: 47; Steinmann, 1989, *Das Tierreich*, **105** : 405; Steinmann, 1989, *World Catalogue of Dermaptera* : 356.

Build moderate; general colour shining reddish brown with traces of black on certain abdominal segments laterally, antennae with basal two segments and one or two ante-apical ones clear yellowish brown. A few long and short hairs present.

Head about as long as broad, impunctate, scarcely emarginate in middle posteriorly, frons convex, sutures fine. Eyes distinct, but shorter than post-ocular area. Antennae 15-segmented, 1st stout, gently expanded apically, shorter than the distance between antennal bases; 2nd short about as long as broad; 3rd long, slender; 4th stout but shorter than preceding; 5th about as long as 3rd but narrowed basally; 6th onwards gradually thinning and increasing in length distally, a few apical ones thin, rod shaped. Pronotum quadrate, slightly broader than long, impunctate, all margins straight, sides gently reflexed in middle, median sulcus faint, prozona raised, distinguished from weakly depressed metazona. Meso- and metanotum of same texture as pronotum, former about as long as pronotum with hind margin subtruncate and latter transverse with hind margin broadly emarginate. Abdomen long, gradually enlarging posteriorly,



Figs. 304–307 : *Gonolabidura minor* Burr, Male; 304. Dorsal view; 305. A few basal antennal segments; 306. Posterior part of penultimate sternite; 307. Genitalia.

tergites convex, sparsely and shallowly punctulated, sides of segments 7-9 acute angled posteriorly, shallowly punctulate. Penultimate sternite transverse, narrowed posteriorly with hind margin scarcely emarginate in middle, obscurely punctulated. Ultimate tergite transverse, disc flat, shallowly and sparsely punctulate, median sulcus absent, laterally above with a faint convex line merging with hind margin, above ridge of forceps, laterally sloping, hind margin scarcely sinuate in middle above bases of forceps, concave and oblique. Forceps broad, subcontiguous at base, tapering apically, in apical one third incurved, apices hooked and pointed, trigonal in basal 1/3, afterwards depressed, inner margin finely serrated. Genitalia with parameres about four times longer than broad, narrowed apically, tip acute; virga tubular dilated at base, narrowed apically, bent in apical 1/3.

Female : Agrees with males in most characters except ultimate tergite lacking lateral linear convexity and forceps simple and straight.

Measurements : (in mm)

	Male & female
Length of body	8.8-11.0
Length of forceps	1.5-2.0

Types : Male and nymph in BMNH.

Burr (1914) based the original description on one Male and nymph. Former may be treated as the 'Type' although not so designated.

Distribution : India : Tamil Nadu : Anamalai Hills, 4000 ft., Cinchona 3500 ft.

Remarks : Brindle (1965) records both the sexes but body measurements are not given separately.

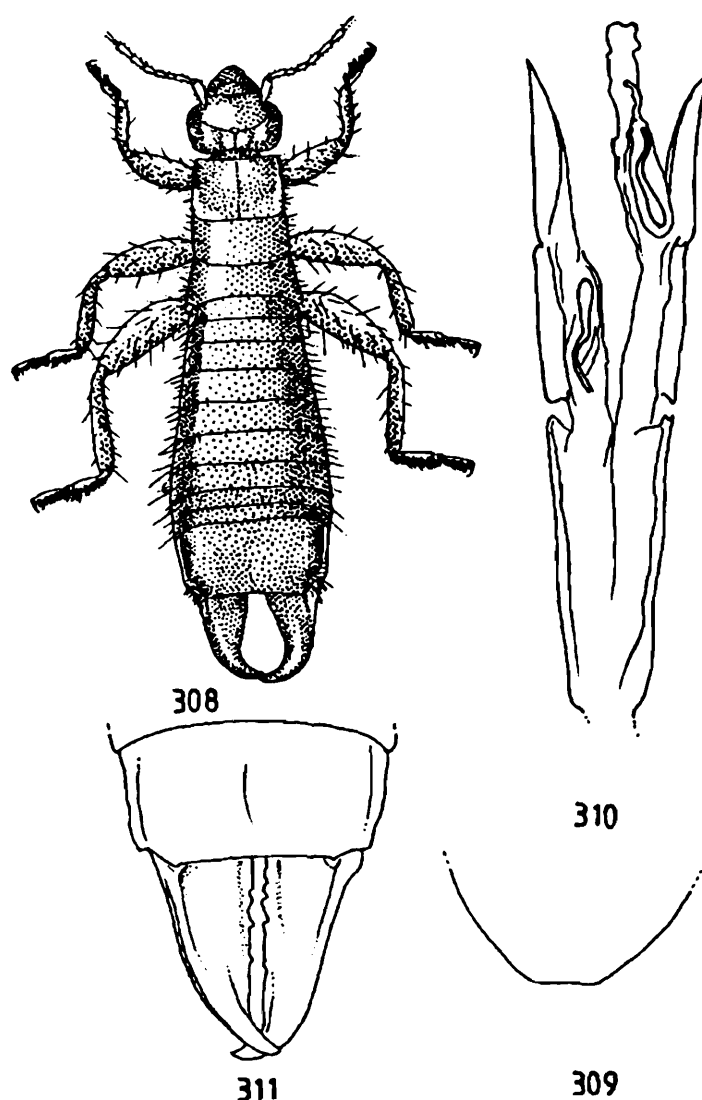
***Gonolabidura nathani* Brindle**

(Figs. 308 -311)

Gonolabidura nathani Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) 8: 594, figs. 21 (Male, genitalia) Holotype Male, 1 Female; South India : Coimbatore dist., A Valparai, 3500 ft.; Anamalai Hills, Cinchona, 3500 ft.); Ramamurthi, 1968, *Zool. Anz.*, 181 : 33 (3 Males, 3 Females & 1 nymph; Anamalai Hills, 3500 ft.); Popham and Brindle, 1968, *Entomologist*, 101 : 105; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 22; Srivastava, 1970, *Eos. Madr.*, 45 : 330 (2 Males; Anamalai Hills, Cinchona, 3500 ft.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2: 47; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20: 33; Sakai, 1987, *Dermapterorum Cat.*, 20-21: 47 (2825), Pl. 12, (Coloured photograph of Male and Female from IM, i.e., Zoological Survey of India, Calcutta); Steinmann, 1989, *Das Tierreich*, 105 : 404; Steinmann, 1989, *World Catalogue of Dermaptera*: 356.

General colour shining blackish brown or reddish black; head posteriorly, antennae with basal segment light brown; legs yellowish brown. Pubescent, more pronounced on the sides of abdominal segments.

Male : Head about as long as broad, smooth and impunctate, feebly emarginate in middle, frons tumid, sutures fine but distinct. Eyes prominent, shorter than post-ocular area. Antennae 15-segmented; 1st segment stout, narrowed at base, shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd long, slender, a little over one and half times longer than broad; 4th stout, slightly longer than broad; 5th about as long as the 3rd; 6th onwards segments gradually increasing in length and each narrowed basally, a few apical one thin. Pronotum smooth, transverse, all margins straight, median sulcus distinct, prozona weakly raised, poorly differentiated from weakly depressed metazona. Mesonotum transverse, only slightly shorter than pronotum in length and of same texture, hind margin truncate. Metanotum smooth, transverse, hind margin broadly emarginate. Legs typical of the genus. Abdomen slightly enlarged posteriorly, tergites convex above, punctate, sides of segment 7th to 9th acute angled posteriorly and rugosely punctate. Penultimate sternite transverse, punctulated, narrowed posteriorly, hind margin in middle subtruncate. Ultimate tergite transverse, disc moderately raised in middle, sloping backwards and feebly depressed in middle, median sulcus deep and distinct in middle, hind margin scarcely emarginate, above base of forceps oblique and emarginate, laterally with a sharp ridge in apical 2/3. Forceps with branches subremote and stout near base, attenuated backward, almost straight in basal 2/3, afterwards incurved, apices gently hooked, trigonal above in basal 1/3, afterwards



Figs. 308 -311 : *Gonolabidura nathani* Brindle, Male; 308. Dorsal view; 309. Hind portion of penultimate sternite; 310. Genitalia; Female; 311. Ultimate tergite and forceps.

depressed, inner margin finely serrated. Genitalia with parameres long, narrowed apically, tip acute, membrane distinct; virga dilated at base, with double bend, accessory chitinous structures present.

Female : Agrees with male in most characters except that penultimate sternite obtuse in middle posteriorly; ultimate tergite narrowed posteriorly, laterally with a faint linear convexity and forceps simple, straight, inner margin strongly dentate.

Measurements : (in mm)

	Male	Female
Length of body	11.0-11.7	6.7-9.5
Length of forceps	1.9-2.0	2.0-2.1

Types : Brindle (1965) has not stated the repository of Holotype Male. Perhaps it may be either in MM or BMNH.

Distribution : India : Coimbatore dist., Anamalai Hills, Valparai 3500 ft and Cinchona, 3500 ft.

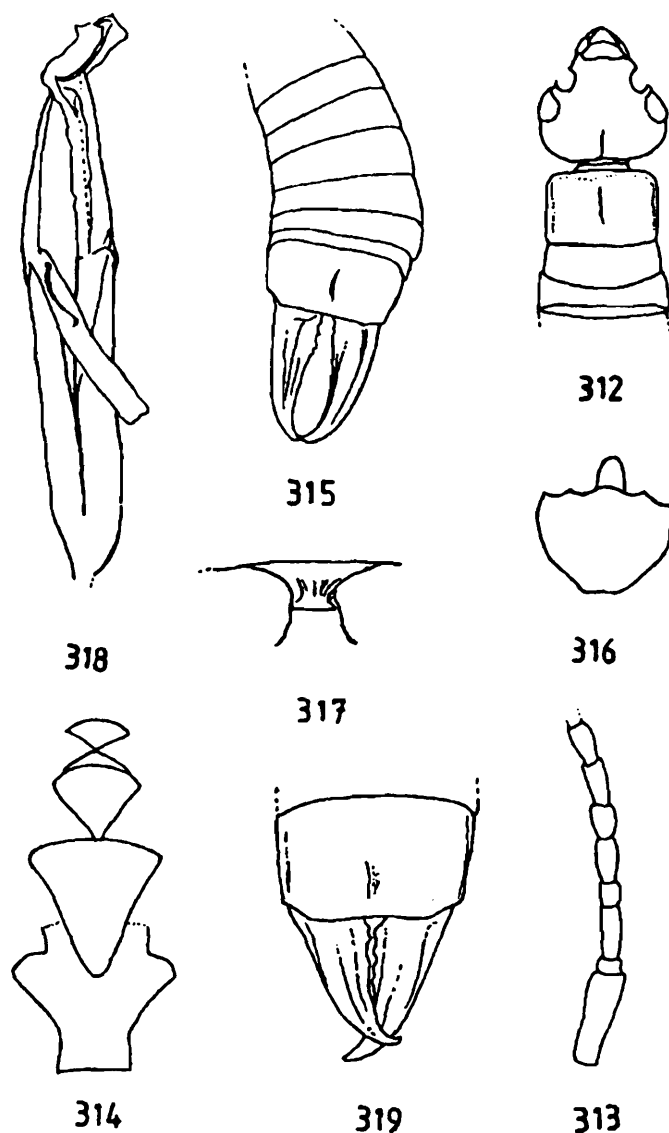
Remarks : This species agrees with *Gonolabidura minor* Burr, in most details except that it differs in being slightly larger in size, more pubescent and, in males, the ultimate tergite is comparatively heavily punctate, median sulcus distinct and with a sharp lateral carina. Although *G. minor* and *G. nathani* are considered as distinct species on the basis of available information and specimens, it would be desirable to examine the population of both the species to establish the validity of above distinguishing characters.

***Gonolabidura biswasi* Srivastava**
(Figs 312 –319)

Gonolabidura biswasi Srivastava, 1993, *Rec. zool. Surv. India*, **91**(1) (1992) : 72, figs. 21-27 (Holotype Male and Paratype 1 Female; India : Arunachal Pradesh : Tirap dist., Gandhigram, ca 35 km from Miao).

Male : General colour shining black, mouth parts, knee joints and tarsi brownish. Head slightly longer than broad, smooth, impunctate, frons convex, sutures fine, hind margin emarginate. Eyes small, about half as long as the post-ocular area. Antennae partly damaged, only 9 basal segments on the right side remaining, 1st stout, narrowed basally, slightly shorter than the distance between antennal bases; 2nd short, about as long as broad; 3rd segment three times longer than broad; 4th about as long as broad; 5th longer than broad and slightly shorter than 3rd; 6th onwards segments gradually increasing in length and comparatively less stout. Pronotum transverse, smooth, anterior margin lightly convex, sides and hind margin straight, former gently reflexed; prozona weakly raised and not well differentiated from flat metazona, median sulcus faint. Meso- and metanotum transverse, former with hind margin straight and latter with hind margin broadly emarginate. Sternal plates typical, mesosternum prolonged posteriorly into a narrow process. Legs stout, hind tarsi with 1st and 3rd segments equal in length and 2nd short. Abdomen narrowed at base, enlarged in middle, long and short pubescence present on sides, tergites weakly convex, obscurely punctulated, sides of segments convex, rugosely striate. Penultimate sternite clad with long pubescence, roughly triangular, hind margin in middle posteriorly truncate, manubrium about 1/3 as long as the sternite. Ultimate tergite transverse, gently narrowed posteriorly, hind margin in middle straight, laterally oblique and emarginate, disc weakly depressed, median sulcus faint. Forceps subcontiguous, broader at base, tapering apically, almost straight, gently incurved in apical 1/3, tip hooked and pointed, trigonal above in basal 1/3, afterwards depressed, internal margin dentate. Genitalia as seen in fig. 318.

Female : Agrees with male in most characters except that ultimate tergite weakly transverse, penultimate sternite obtusely rounded posteriorly and forceps simple and straight.



Figs. 312-319 : *Gonolabidura biswasi* Srivastava, Holotype Male; 312. Head and thorax; 313. A few basal segments of antennae; 314. Sternal plates; 315. Hind portion of body; 316. Penultimate sternite; 317. Pygidium with a portion of base of forceps; 318. Genitalia; Female; 319. Ultimate tergite and forceps.

Measurements : (in mm)

	Male	Female
Length of body	15.4	18.5
Length of forceps	4.0	4.7

Types : Holotype Male and Paratype Female in ZSI.

Distribution : India : Arunachal Pradesh : Changlong dist. (earlier Tirap dist.), Gandhigram, ca 35 km from Miao.

Remarks : The genus *Gonolabidura* is represented, in India, by three species confined to Western Ghats. This is the only species which is at present known to occur in North Eastern India.

It is quite distinct from other Indian species by its large size and other morphological details.

Subfamily NALINAE

Nalinae Steinmann, 1975, *Acta zool. hung.*, **21** : 207 (Type genus : *Nala* Zacher, 1910); Steinmann, 1975, 1975, *Folia ent. hung.*, **28** : 157; Steinmann, 1978, *Acta ent. hung.*, **24** : 206; Steinmann, 1981, *Reichenbachia*, **19** (24) : 141; Steinmann, 1989, *Das Tierreich*, **105** : 241; Steinmann, 1989, *World Catalogue of Dermaptera* : 357; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 31; Srivastava, 1988, *Fauna of India, Dermaptera*, **1** : 18.

Size small to medium, below 15 mm. Elytra with a ridge along the costal margin. Legs comparatively short, hind leg with femora or tarsi not longer than pronotum, hind tarsi with first and third segment subequal in length. Male genitalia with parameres narrowed apically and without an obvious epimerite.

Type genus : *Nala* Zacher, 1910.

Distribution : Ethiopian, Oriental, Palearctic (South Europe) and Australian Regions.

Nala Zacher

Nala Zacher, 1910, *Ent. Rdsch.*, **27** : 30 (Type species : *Forficula lividipes* Dufour, 1829); Burr, 1911, *Genera Insect.*, **122** : 35; Burr, 1915, *J.R.micr. Soc.*, **1915** : 443; Bey-Bienko, 1936, *Fauna de L'URSS*: 10; Menozzi, 1937, *Revue suisse Zool.*, **44**(30) : 448; Townes, 1945, *Ann. ent. Soc. Am.*, **38** : 352; Hincks, 1954, *South African Animal Life*, **4** : 59; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 254; Brindle, 1968, *Explor. Parc. natn. Garamba, Miss.*, **53** (2) : 23; Brindle, 1969, *Insectes Dermaptères* : In *Fauna de Madagascar*, Paris, **30** : 49; Brindle, 1973, *Ann. Mus. Roy. Afr. Centr., Tervuren; in-8° Zool.*, **205** : 118 (Key to African species); Popham and Brindle, 1968, *Entomologist*, **101** : 106; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1): 18; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 2; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 31; Sakai 1987, *Bull. Daito Bunka Univ.*, **25** : 31 (1260); Steinmann, 1975, *Acta zool. hung.*, **21** : 207; Steinmann, 1978, *Acta zool. hung.*, **24** : 207; Steinmann, 1989, *Das Tierreich*, **105** : 422; Steinmann, 1979, *World Catalogue of Dermaptera* : 358; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 41.

Paralabidura Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 184 (Type species : *Forficula lividipes* Dufour, 1829, by original designation); Burr, 1911, *Genera Insect.*, **122** : 35 (treated as synonym of *Nala* Zacher, 1910).

Size medium to small (15 mm or less). Head convex, transverse; antennae 20-segmented or more; eyes shorter than the post-ocular area. Pronotum longer than broad or transverse, hind margin briefly or strongly rounded. Elytra and wings well developed, former with a ridge laterally and latter rarely abbreviated. Legs short. Abdomen convex, dilated in middle, smooth. Forceps, in male, stout, incurved, sometimes dilated in basal half, internally armed. Genitalia with parameres narrowed apically, without an epimerite.

Type species : *Forficula lividipes* Dufour, 1829.

Distribution : African and Oriental except for *Nala lividipe* which is extensively distributed throughout the world.

In the Indian region only three species are known of which two namely, *N. basalis* Bey-Bienko and *N. nepalensis* (Burr) are distributed in the mountains of Oriental Region whereas *N. lividipes* (Dufour) has world wide distribution, more common in warmer parts.

Key to the species (on males only)

- 1(2). Forceps in basal 1/3 to 1/2 dilated internally *N. nepalensis* (Burr)
- 2(1). Forceps long and cylindrical, not dilated internally
- 3(4). Penultimate sternite with hind margin in middle rounded; forceps armed internally at middle with one or two teeth, sometimes absent, parameres acute apically *N. lividipes* (Dufour)
- 4(3). Penultimate sternite with hind margin in middle obtusely produced; forceps at base with or without a short depressed tooth internally, afterwards branches finely serrated; parameres acuminate apically
..... *N. basalis* Bey-Bienko

Nala lividipes (Dufour)

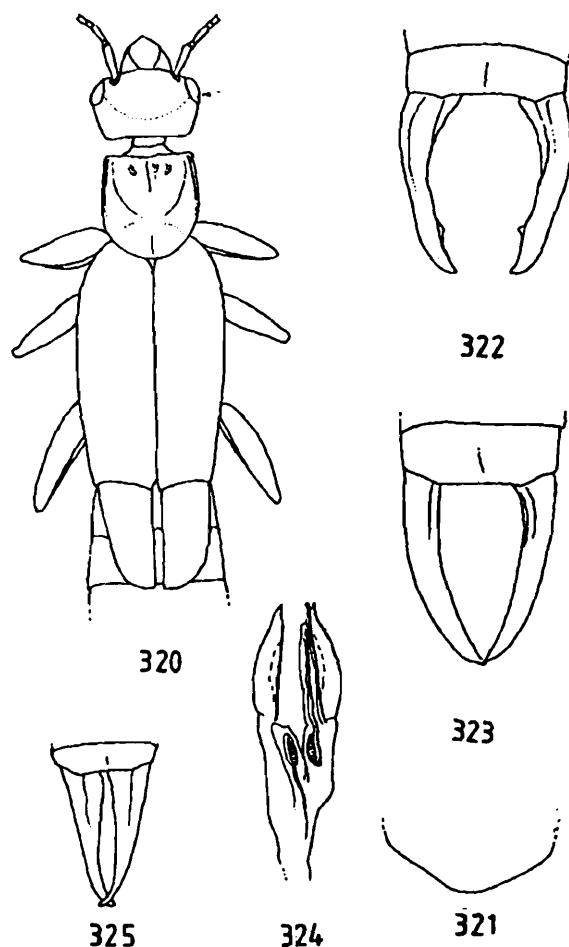
(Figs. 320-325)

Forficula pallipes Dufour, 1820, *Ann gener des Sc. Phys. de Bruxelles*, 4 : 316, pl. 116, figs. 7, 7a & 7b (Male, Female; Lower Catalonia, Spain-Location of Type unknown).

Forficula lividipes Dufour, 1829, *Annls Sci. Nat.*, 13 : 340 (new name proposed since *Forficula pallipes* Dufour, 1820 preoccupied by *Forficula pallipis* Fabricius, 1775).

Labaidura lividipes : Bormans and Krauss, 1900, *Das Tierreich*, 11 : 36; Kirby, 1903, *Ann. Mag. nat. Hist.*, (7) 11 : 66; Kirby, 1904, *Syn. Cat. Orthoptera*, 1 : 11; Burr, 1907, *Bull. Mus. Hist. Nat. Paris.*, 1907 : 510; Burr, 1910, *Fauna British India, Dermaptera* : 97, pl. 4, fig. 31, 31a.

Nala lividipes : Burr, 1911, *Genera Insect.*, 122 : 36; Burr, 1911, *Notes Leyden Mus.*, 34 : 26; Burr, 1912, *Annln Naturf. Mus. Wien*, 26 : 79; Burr, 1912, *Sber. Ges. Naturl. Freunde Berl.*, 1912 : 320; Burr, 1913, *Ent. Mitt.*, 2 : 67; Burr, 1914, *Rec. Indian Mus.*, 10 : 228; Burr, 1917, *Annls. Soc. ent. Fr.*, 86 : 69; Hebard, 1923, *Mem Dep. Agric. India ent. Ser.*, 7 : 210; Hebard, 1933, *Trans. Amer. ent. Soc.*, 43 : 142; Shiraki, 1928, *Insecta Matsum.*, 3 (1) : 9; Borelli, 1931, *Rev. suisse Zool.*, 38 : 301; Borelli, 1932, *Bull. Raffles Mus.*, 7 : 82; Günther, 1934, *Rev. suisse Zool.*, 4 (34) : 538; Hincks, 1947, *Ark. Zool.*, 39 A(1) : 17; Boeseman, 1954, *Zool. Verh., Leiden*, 21 : 46; Bey-Bienko, 1959, *Ent. Obozr.*, 38(3) : 608; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) 8 : 225; Brindle, 1967, *Ark. Zool.*, (2) 20, No. 7 : 159; Brindle, 1971, *Ent. scand. Suppl.*, 1 : 225; Brindle, 1974, *Senckenbergiana biol.*, 55 (1/3) : 149 (Nepal); Brindle, 1975, *Ent. Basiliensia*, 1 : 22 (Bhutan); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 18; Srivastava and Roychoudhury, 1975, *Newsl. zool. Surv. India*, 1 (2) : 22 (Male, Female; India : Tripura); Biswas and Srivastava, 1976, *Newsl. zool. Surv. India*, 2 (4) : 131 (Male, Female; India : U.P., Dehra Dun dist.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 41; Srivastava, 1976, *Pacif. Insects*, 17(1) : 119 (Philippine Isls : Luzon, Mindanao); Srivastava, 1978,



Figs. 320-325 : *Nala lividipes* (Dufour), Male; 320. Anterior portion of body; 321. Hind portion of penultimate sternite; 322-323. Ultimate tergite and forceps; 324. Genitalia; Female; 325. Ultimate tergite and forceps.

Eos, Madr., **52** : 282 (Philippine Isls : Manila); Srivastava, 1979, *J. zool. Soc. India*, **27** (1 & 2) (1975) : 107 (Male, Female; India : Manipur, Imphal, 2600 ft); Srivastava, 1982, *Rec. zool. Surv. India*, **79** : 645 (Pakistan : Punjab, Salt Range); Srivastava, 1982, *Bull. Inst. r. Sci. nat. Belg.*, **54** (11) : 6 (India : Tamil Nadu, Yercaud, Shevroy Hills, 4500 ft.); Srivastava, 1985, *Ent. Basiliensia*, **7** : 65 (India : Meghalaya, Garo Hills; Bhutan and Sri Lanka); Srivastava, 1983, *Rec. zool. Surv. India*, **80** : 498 (Philippine Isls : Leyte); Srivastava and Lahiri 1983, *Rec. zool. Surv. India*, **81** : 282 (India : Meghalaya, Garo Hills); Srivastava, 1984, *Bull. zool. Surv. India*, **5** (2&3) : 11 (India : Karnataka, Mudigera, 900 m and Bihar, Santhal Pargana; Thailand and Sumatra); Srivastava, 1987, *Bull. zool. Surv. India*, **8** (1-3) : 116 (Thailand); Srivastava, 1989, *Fauna of Orissa : State Fauna Series 1*; Pt. **2** : 161, figs. 26-27 (India : Orissa); Srivastava, 1990, *Rec. zool. Surv. India*, **87** (1) : 35 (India : U.P., Kitham Lake nr Agra; W.B., NE Dumka and Calcutta, Bangladesh : Comilla; Pakistan : Peshawar, Margala Pass nr Taxilla; Thailand and Philippine Isls.); Srivastava and Lal, 1993, *Rec. zool. Surv. India*, **91** (1) (1992) : 117 (India : Himachal Pradesh); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal*, Pt. **4** : 395, figs. 78-79 (India : W.B.); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. **3** : 313, figs. 55-56 (India : Meghalaya, East and W. Garo Hills dists); Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya*, Pt. **1**, Uttar Pradesh : 44 (India : Garhwal Himalaya); Srivastava, 1997, *State Fauna Series 6 : Fauna of Delhi* : 204, fig. 2 (India : Delhi); Singh and

Singh, 1977, *Newsl. zool. Surv. India*, **3** (6) : 425 (India : U.P., Corbett National Park, Dhikala), Kapoor and Malla, 1977, *J. nat. Hist. Mus.*, **1** : 165; Kapoor and Malla, 1978, *J. Inst. Sc.*, **1** : 134 (Nepal); Kapoor, Malla and Shah, 1978, *J. nat. Hist. Mus.*, **2** (2) : 58; Steinmann, 1981, *Acta zool. hung.*, **27**(1-2) : 80 (India : Pondicherry and Karaikkal); Steinmann, 1981, *Attai Soc. Ital. Sci. nat. Museo civ. Nat Milano*, **122** : 159 (India & Myanmar); Steinmann, 1981, *Reichenbachia*, **19** (24) : 141 (Philippines); Steinmann, 1963, *Zool. Zh.*, **62** : 1746 (Vietnam); Steinmann, 1983, *Revue suisse Zool.*, **90**(3) : 548 (India : Assam, Meghalaya and U.P.); Steinmann, 1989, *Das Tierreich*, **105** : 423; Steinmann, 1989, *World Catalogue of Dermaptera* : 359; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 31; Sakai, 1997, *Bull. Biogeogr. Soc. Japan*, **52** (2) : 47 (India : Assam and Manipur).

Paralabidura lividipes : Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 184.

Forficula dufouri Desmarest, 1820, *Fauna fr. Orth.*, pl. 1, fig. 7.

Forficesila castanea Serville, 1839, *Hist. Nat. Ins. Orth.*, Paris : 26.

Forficesila meridionalis Serville, 1839, *Hist. Nat. Ins. Orth.*, Paris : 26.

Forficesila vicina Lucas, 1846, *Expl. Alger*, **3** : 5, pl. 1, fig. 2, 2a.

Labidura lividipes vicina Bormans, 1900, *Das Tierreich*, **11** : 36.

Labidura inconspicua Kirby, in Distant, 1900, *Ins. Transvaal.*, **1** : 12, pl. 1, fig. 1.

Echinosoma? obscurum Kirby in Distant, 1900, *Ins. Transvaal.*, **1** : 12, pl. 1, fig. 2.

Labidura australica Mjöberg, 1913, *Ent. Tidskr.*, **1913** : 27.

Male : General colour dull blackish brown, with varying intensity; mouth parts, sides of pronotum and leg joints dirty yellow; a few pre-apical antennal segments yellow.

Head convex, smooth, hind margin emarginate in middle. Eyes shorter than post-ocular area. Antennae 20-segmented, basal segment about as long as the distance between bases of antennae; 2nd short, about as long as broad; 3rd long, slender, slightly longer than 4th to 6th; 4th slightly shorter than 5th, both stouter than preceding; 7th almost equal to 3rd in length, remaining gradually increasing in length and thinning. Pronotum longer than broad, gently widened posteriorly with margin rounded, prozona tumid and metazona depressed. Elytra and wings well developed, former with a carina at costal margin. Abdomen finely pubescent, gradually enlarging posteriorly. Penultimate sternite triangular, emarginate in middle posteriorly. Ultimate tergite transverse, tumid above the roots of forceps, depressed inbetween. Forceps with branches stout, gently incurved, tapering, apices pointed, inner margin ventrally crenulate with a distinct tooth at apical third, often obsolete. Genitalia with parameres a little over three times longer than broad, narrowed apically, tip acute, external margin convex; virga thin, tubular, basal vesicle distinct.

Female : Agrees with males in most characters except ultimate tergite strongly narrowed posteriorly; forceps simple and straight, crenulate internally in basal half.

Measurements : (in mm)

	Male	Female
Length of body	6.1-8.7	6.0-9.0
Length of forceps	1.55-2.65	1.5-1.65

Types : Type Male, Female of *Forficula pallipes* Dufour, 1820 – repository unknown; Type locality Lower Catalonia, Spain.

Type Male of *Forficula dufori* Desmarest, 1820 – repository unknown; type locality also not known.

Type Male of *Forficesila castanea* Serville, 1839 – repository unknown; Type locality – Spain.

Type Male of *Forficesila meridionalis* Serville, 1839 – repository unknown; Type locality – Andalusia.

Type Male, Female of *Forficesila vicina* Lucas, 1846 – Type Male – repository unknown; Type locality – Algeria.

Type Female of *Labidura inconspicua* Kirby : in Distant, 1900, - repository unknown; Type locality – Transvaal, Pretoria.

Type Female of *Echinosoma(?) obscurum* Kirby : in Distant, 1900 – repository unknown; Type locality – Transvaal, Pretoria.

Type Male of *Labidura australica* Mjöberg, 1913, - repository unknown; Type locality – West Kimberly, N.S.W. Australia.

Distribution : World wide, dominant in tropical parts. Occurs almost throughout India, Nepal, Bhutan and Sri Lanka.

In the collection of the Zoological Survey of India, Calcutta it is represented from India : W.B., Orissa, Rajasthan, U.P., Jammu & Kashmir, Tamil Nadu, Karnataka; Nepal and Sri Lanka.

Remarks : Body colour ranges from blackish brown to testaceous brown; inner tooth of male forceps often obsolete.

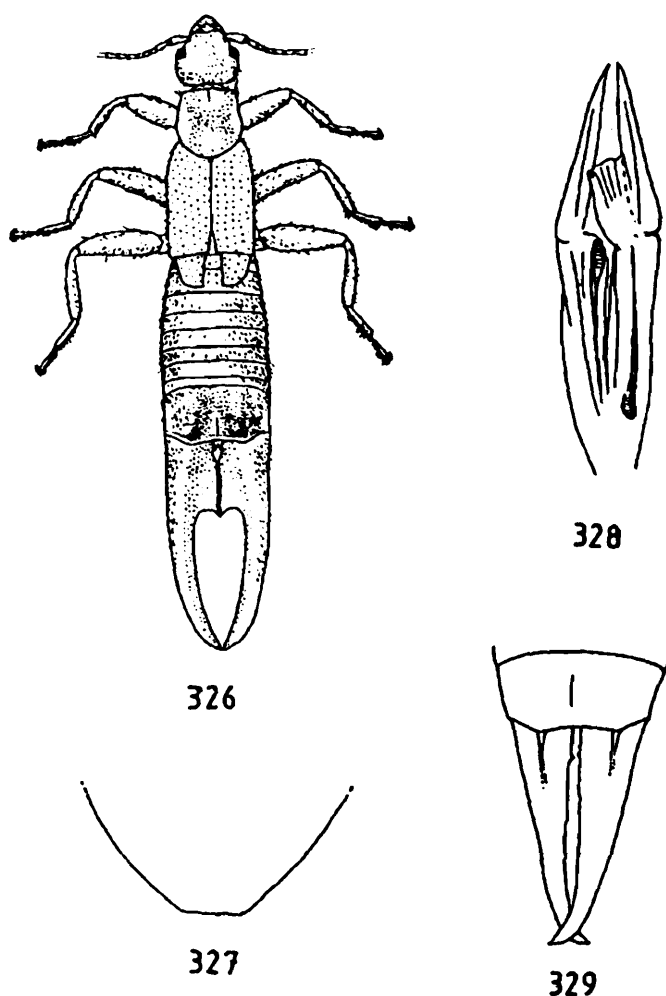
This species is quite common in Calcutta during rainy season and attracted to light in large numbers.

***Nala nepalensis* (Burr)**
(Figs. 326-329)

Labidura nepalensis Burr, 1907, *Rec. Indian Mus.*, 1 : 208 (Male, Female; Nepal Soondrijal and Pharping); Burr, 1910, *Fauna British India, Dermaptera* : 96, pl. 4, fig. 30.

Paralabidura nepalensis: Burr, 1910, *Trans. ent. Soc. Lond.*, 1910 : 185.

Nala nepalensis : Zacher, 1910, *Ent. Redsch.*, 1910 : 184; Burr, 1911, *Genera Insect.*, 122 : 36; Burr, 1917, *Ann. Soc. Ent. Fr.*, 7 : 211; Borelli, 1932, *Bull. Raffles Mus.*, 7 : 82;



Figs. 326-329 : *Nala nepalensis* (Burr), Male; 326. Dorsal view; 327. Hind portion of penultimate sternite; 328. Genitalia; Female; 329. Ultimate tergite and forceps.

Bey-Bienko, 1959, *Ent. Obozr.*, **38** : 608; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 257; Brindle, 1968, *Acta. Mus. Moraviae*, **53** : 293; Brindle, 1974, *Senckenbergiana biol.*, **55**(1/3) : 151, fig. 12 (Eastern Nepal : Khimti khola Valley, Shivalaya, 1800 m); Brindle, 1975, *Ent. Basiliensia*, **1** : 23 (Bhutan); Gangola, 1966, *Entomologist*, **101** : 59 (India : U.P., Pithoragarh and Nainital dists.); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16** (1) : 19; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 41; Srivastava, 1979, *J. zool. Soc. India*, **27** (1&2) (1975) : 107 (Males and nymphs; India : Manipur, Mao, 5700 ft.); Srivastava and Lahiri, 1983, *Rec. zool. Surv. India*, **81**: 283 (India : Arunachal Pradesh, Meghalaya, Garo & Khasi Hills); Srivastava, 1993, *Rec. zool. Surv. India*, **91**(1) (1992) : 74, figs. 28-29 (India : Arunachal Pradesh, Tirap dist., 77 mile camp on Miao-Vijainagar Road); Srivastava and Lal, 1993, *Rec. zool. Surv. India* **91**(1) (1992) : 117 (India : Himachal Pradesh); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal Pt. 4* : 395, figs. 80-81 (India : W.B., Darjeeling dist.); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya, Pt. 3* : 314, figs. 57-58 (India : Meghalaya, West Khasi Hills dist.); Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya, Pt. 1, Uttar Pradesh* : 44 (India : U.P., Kumaon and Garhwal Hills); Singh and Singh, 1977, *Newsl. zool. Surv. India*, **3**(6) : 425 (India : U.P., Corbett National Park, Gairal, Dhikala-Paterpani Road); Kapoor and Malla, 1977, *J. nat. Hist. Mus.*, **1** : 165 (India, Malaya and Nepal); Kapoor and Malla, 1978, *J. inst. Sc.*, **1** : 135

(Nepal : Godavari, Kathmandu); Kapoor, Malla and Shah, 1978, *J. nat. Hist. Mus.*, **2**(2) : 59 (Nepal); Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 31; Sakai, 1997, *Bull. Biogeog. Soc. Japan*, **52**(2): 47 (India: Assam and Manipur); Steinmann, 1989, *Das Tierreich*, **105** : 429; figs. 681-682; Steinmann, 1989, *World Catalogue of Dermaptera* : 361.

Male: General colour brownish black; antennae testaceous, legs yellow with femora and tibiae blackish in basal half; ultimate tergite, forceps reddish, shaded with black. Finely pubescent.

Head smooth, convex, about as long as broad, sutures obsolete. Eyes smaller than post ocular area. Antennae 22-segmented, basal segment stout, almost equal or slightly shorter than the distance between bases of antennae, expanded apically; 2nd short, about as long as broad; 3rd long, slender; 4th slightly longer than abroad, succeeding segments gradually increasing in length; 4th and 5th shorter than 3rd; and 6th equal to 3rd. Pronotum about as long as broad, rugose, sides straight, a little reflexed, hind margin rounded. Elytra ample, rugose, tuberculated, keeled along the costal margin, hind margin straight. Wings well developed, of same texture as elytra. Legs normal. Abdomen finely pubescent, parallel sided or gently dilated in middle, finely punctate, lateral tubercles not visible. Penultimate sternite obtuse angular posteriorly, hind margin truncate and gently emarginate in middle posteriorly. Ultimate tergite transverse, sometimes tumid above the roots of forceps, hind margin sinuate in middle. Pygidium scarcely visible from above, rounded posteriorly. Forceps with branches stout, internally dilated in basal 1/3 with its inner margin serrated and a small tooth posteriorly, afterwards branches cylindrical, gently incurved, narrowed apically, tip pointed. Genitalia with parameres about five times longer than broad, narrowed apically, tip acute; virga thin and tubular.

Female: As male but differs in having ultimate tergite narrowed posteriorly; forceps simple, straight with apices gently incurved, meeting, inner margin irregularly denticulate.

Measurements : (in mm)

	Male	Female
Length of body	7.2-8.6	6.7-12.5
Length of forceps	2.3-5.4	2.0-2.7

Types : Burr (1907a) listed altogether 4 males and 6 females from Nepal but none of them was designated as the Type. He (1910) mentions "Type in the Indian Museum" The collections belonging to Indian Museum is now present in the Zoological Survey of India, Calcutta.

Out of the above specimens 1 Male labelled as "Nepal, Sondrijal, Reg. No. 1285/15" bears a handwritten label, probably by Burr, "*Labidura nepalensis* Burr Type" may be treated as the Holotype. Besides five more specimens bearing Reg. Nos. 1245/15, 1283/15, 1284/15, 1286/15 and 1299/15 are present which may be considered as

Paratypes. The specimens with Reg. No. 1286/15 is a Male and 1299/15 is a Female. It is not possible to determine the sex of remaining three specimens since hind portion of body is missing.

Distribution: India : Arunachal Pradesh, Assam, Meghalaya, Manipur, Tripura, Mizoram, Nagaland, West Bengal (Darjeeling dist.), Sikkim, Uttar Pradesh (Hill dists.), Himachal Pradesh, Punjab and Jammu and Kashmir.

Also reported from West Pakistan, China, Nepal, Bhutan and Malaya.

Remarks : It is mainly mountain dwelling species occurring under stones on the edge of water bodies, rivers and streams.

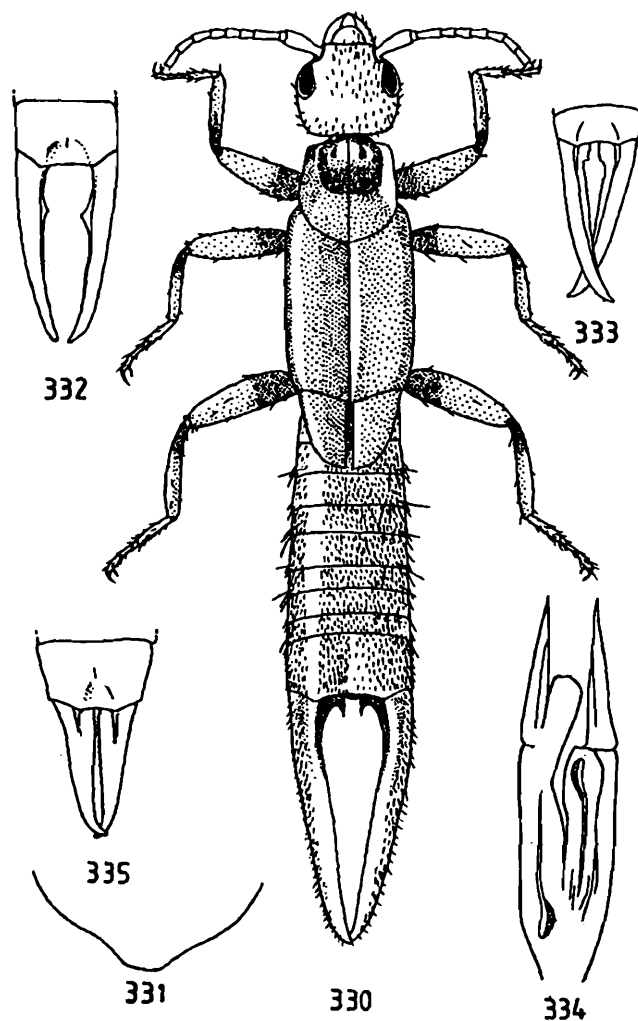
General body colour varies from dull brownish black to shining reddish.

***Nala basalis* Bey-Bienko**
(Figs. 330-335)

Nala basalis Bey-Bienko, 1970, *Zool. Zh.*, **69** : 1814, fig. 9-12 (Holotype Male, Paratypes 2 Females; West Pakistan : 25 km No Rawalpindi; Paratype 7 Females East Afghanistan, Kunnar Tal, 900m); Srivastava, 1984, *Bull. zool. Surv. India*, **5**(2&3): 11 (Thailand); Steinmann, 1975, *Folia ent. hung.*, **28** : 157, fig. 21 (Male genitalia); Steinmann, 1989, *Das Tierreich*, **105** : 433, figs. 687-688; Steinmann, 1989, *World Catalogue of Dermoptera* : 358; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 31.

Male: Head, antennae, pronotum, elytra and wings dark brownish black; mouth parts, sides of pronotum and legs yellowish, but femora and tibiae brownish black in basal half only, abdominal tergites somewhat lighter, ultimate tergites and forceps reddish brown. Antennae, head, abdomen and forceps thickly pubescent; pronotum, elytra and wings pilose except for a few small hairs on margins only.

Head slightly longer than broad, convex above, sutures obliterated, hind margin almost straight. Antennae 23-segmented or more, 1st stout, gently expanded apically, about as long as the combined length of 2nd and 3rd; 2nd small, about as long as broad; 3rd long, cylindrical, longer than all the succeeding segments upto 19th and equal in length to 20th; 4th onwards segments gradually increasing in length and each segment gently expanded apically, and becoming thinner distally. Eyes distinct but shorter than post-ocular area. Pronotum slightly longer than broad, widened posteriorly with hind margin and angles broadly rounded, median suture distinct; prozona raised and well differentiated from flat metazona. Elytra and wings well developed, shining, former with a distinct ridge along the costal margin, above faintly roughened. Legs normal. Abdomen densely punctulate, convex, parallel sided, lateral tubercles on 3rd and 4th tergites poorly marked. Penultimate sternite punctulate, triangular, sides scarcely concave, hind margin obtusely produced in middle. Ultimate tergite transverse, convex above, slightly depressed in middle, oblique laterally, hind margin posteriorly, in middle, sinuate. Pygidium scarcely visible from above, vertical, narrowed apically with margin rounded. Forceps with branches remote, gradually incurved in basal 1/3, afterwards straight and tapering to pointed and gently hooked apex, trigonal



Figs. 330-335 : *Nala basalis* Bey-Bienko, Male; 330. Dorsal view; 331. Hind portion of penultimate sternite; 332-333. Ultimate tergite and forceps; 334. Genitalia; Female; 335. Ultimate tergite and forceps.

above in basal one fifth, afterwards weakly depressed, internally at base with a depressed lobe, directed backwards with its inner margin serrated; in one male basal lobe is slightly larger but narrow; beyond basal lamellation branches internally serrated. Genitalia with parameres a little over five times longer than broad, narrowed apically, tip acuminate; virga distinct, tubular.

Female : Agrees with males in most characters except that ultimate tergite narrowed posteriorly and forceps with branches simple and straight.

Measurements : (in mm)

	Male	Female
Length of body	7.7-10.0	7.2-11.5
Length of forceps	2.8-4.5	2.5-2.6

Types : Holotype Male, Paratypes 2 Females in ZSM and Paratypes 7 Females HNAB.

Distribution : East Afghanistan, Pakistan, India (Manipur and Mizoram).

Also reported from Thailand.

Remarks : This species comes very close to *Nala nepalensis* Burr, but differs by the shape of penultimate sternite in being broadly obtuse in middle posteriorly (*vs* fanitly emarginate in middle posteriorly in *N. nepalensis*); pygidium convex only (*vs* bifid or obtuse apically); forceps at base internally with a narrow backwardly pointed lobe, often slightly larger but extending in basal one fifth (*vs* internally dilated upto basal half with its inner margin contiguous and strongly serrated); and parameres apically acuminate (*vs* tip narrowed with apex acute).

Following specimens preserved in the Z.S.I. are reported for the first time :

India : Manipur, 3 km Moreah West, alt. 2000 ft., 2 Males, under stones on river bank, 25.10.1975 (*M. S. Shishodia* Coll.); Mizoram, Chhimtuipui dist., Tapui river (bank), 1000 ft., 2 Males, 2 Females, 23.3.1979 (*P.T.Cherian* Coll.).

Subfamily LABIDURINAE

Labidurinae Burr, 1909, *Dt. ent. Z.*, **1909**; 324, 325; Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 162, 183; Burr, 1910, *Fauna British India, Dermaptera* : 67; Burr, 1911, *Genera Insect.*, **122** : 35; Zacher, 1911, *Zool. Jb.*, **30** : 306; Bey-Bienko, 1936, *Faune de L'URSS, Dermaptera* : 100; Hincks, 1957, *South African Animal Life*, **4** : 159; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9**: 239; Brindle, 1971, *Ent. scand. Suppl.*, **1**: 223; Brindle, 1972, *Insects of Micronesia*, **5** (2): 132; Brindle, 1973, *Ann. Mus. Roy. Afr. Centr. Tervuren*, in *8^e Zool.*, **225**: 71; Brindle and Popham, 1968, *Entomologist*, **101**: 106; Sakai, 1970, *Dermapterorun Cat. Prael.*, **1** : 2; Sakai, 1972, *Bull. Daito Bunka Univ.*, **20** : 31; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 41; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 2; Steinmann, 1978, *Acta zool. hung.*, **24** : 207; Steinmann, 1989, *Das Tierreich*, **105** : 434; Steinmann, 1989, *World Catalogue of Dermaptera* : 363.

Size large, generally more than 15 mm in length. Elytra along the costal margin ecarinate, occasionally a faint convexity present. Legs long, hind femora longer than the pronotum.

Type genus : *Labidura* Leach, 1815.

Distribution: Worldwide.

Key to genera

- 1(2). Sides of abdominal segments in males without spines; forceps robust, evenly curved; parameres with a short epimerite apically *Labidura* Leach
- 2(1). Sides of certain abdominal segments in normal males with spines or tubercles; forceps generally elongated, demarcated into basal curved, remote part extending up to or beyond middle, afterwards contiguous or subcontiguous and straight; parameres apically with a comparatively longer epimerite *Forcipula* Bolivar

Genus *Labidura* Leach

Labidura Leach, 1815, *Edin. Encyl.*, 9 (1) : 48 (Type species *Forficula riparia* Pallas, 1773); Bormans and Krauss, 1900, *Das Tierreich*, 11 : 31; Kirby, 1904, *Syn. Cat. Orth.*, 1 : 9; Burr, 1910, *Fauna British India, Dermaptera*: 95; Burr, 1911, *Genera Insect.*, 122 : 36; Burr, 1915, *J.R. micr. Soc.*, 1915: 423; Shiraki, 1926, *Insecta matsum.*, 3(1) : 5; Bey-Bienko, 1936, *Faune de l'URSS, Dermaptera* : 101; Townes, 1945, *Ann. ent. Soc. Am.*, 38 : 350; Zimmerman, 1948, *Insects of Hawaii*, 2 : 203; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13)9 : 257; Brindle, 1973, *Ann. Mus., Roy. Afr. Centr., Tervuren, in -8^e Zool.*, 205 : 108; Kapoor, 1968, *Agra Univ. j. Res. Sci.*, 16(1) : 19; Popham and Brindle, 1966, *Entomologist*, 101 : 106; Sakai, 1970, *Dermapterorum Cat. Prael.*, 1 : 7; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 31; Steinmann, 1975, *Acta zool. hung.*, 21 : 207; Steinmann, 1979, *Acta zool. hung.*, 25 : 415; Steinmann, 1989, *Das Tierreich*, 105 : 436; Steinmann, 1989, *World Catalogue of Dermaptera* : 374; Srivastava, 1976, *Rec. zool. Surv. India, Occ. Pap.*, 2 : 42; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, 89 : 13; Srivastava, 1993, *State Fauna Series 3, Fauna of West Bengal*, 4 : 396; Srivastava, 1995, *State Fauna Series 4, Fauna of Meghalaya*, 3 : 315.

Forficesila Serville, 1831, *Ann. Sci. nat.*, 22: 32 (Type species: *Forficula gigantea* Fabricius, 1793 = *Forficula riparia* Pallas, 1773).

Demogorgon Kirby, 1891, *J. Linn. Soc.Lond. Zool.*, 23: 513 (Type species : *Demogorgon batesi* Kirby, 1891)

Size medium to large (12.0–24.0 mm), rather depressed. Head convex, eyes prominent but always shorter than post ocular length; antennae 20-35 segmented, 1st equal to 3rd. Elytra and wings well developed, former keeled laterally and latter sometimes abbreviated. Abdomen without spines or crests on sides of segments; forceps, in male, stout, remote at base, slender, gently arcuate, variously armed internally.

Distribution : Worldwide.

Remarks : Only two species are known from the area, of which the status of *Labidura dharchulensis* Gangola, is doubtful. For this reason a key for the separation of species is not given.

Labidura riparia (Pallas)

(Figs. 336-339)

Forficula riparia Pallas, 1773, *Reise Russ, Reichs*, 2 : 727 (Sex ?; Shores of Irtysh River, Western Siberia).

Labidura riparia Dohrn, 1863, *Stettin. ent. Ztg.*, 24: 313; Scudder, 1876, *Proc. Boston Soc. nat. Hist*, 18: 323; Brünner, 1882, *Prodromus der europäischen Orthoptera*: 5; Bormans, 1888, *Annali Mus. civ. Stor. nat. Giacomo Doria*, 2(4): 234; Bormans, 1894, *Annali. Mus. civ. Stor. nat. Giacomo Doria*, 2 (14) : 378; Bormans and Krauss, 1900, *Das. Tierreich*, Lief 11, Forficulidae und Hemimeridae: 33; Burr, 1900, *Ann. Soc. ent. Belg.*, 44: 49; Burr, 1901, *J. Bombay nat. Hist. Soc.*, 1901: 316; Burr, 1905, *J.Asiat. Soc. Beng. (N.S.)*, 1 (2): 27; Burr, 1906, *J.Asiat. Soc.Beng.(N.S.)*, 2: 388; Burr, 1907, *Rec. Indian Mus.*, 1 (3) : 207; Burr, 1910, *Fauna British India, Dermaptera*: 99, figs. 33, 34; Burr, 1910, *Trans. R. ent. Soc. Lond*, 1910: 185; Burr, 1911, *Genera Insect.*, 122 : 37; Burr, 1914.

Rec. Indian Mus., 10: 228; Hebard, 1923, *Mem. Dep. Agric. India ent. Ser.*, 7: 207; Brindle, 1966, *Ann. Mag. nat. Hist.*, (9) 13 : 259; Brindle, 1971, *Ent. scand. Suppl.*, 1: 223; Brindle, 1974, *Senckenbergiana biol.*, 55(1/3): 149 (Nepal); Brindle, 1975, *Ent. Basiliensia*, 1: 22 (Bhutan); Brindle, 1983, *Ent. Basiliensia*, 63(1/2) (1982): 98 (Nepal : Kathmandu); Brindle, 1987, *Courier Forsch. Inst. Senckenberg*, 93: 338 (Nepal: Gorkha and Dhading dist.); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 19; Kapoor, 1968, *Entomologist*, 101 : 81 (India : U.P., Agra); Gangola, 1968, *Entomologis*, 101 : 58 (var. *inermis* Brünner; India : U.P., Kumaon Hills); Srivastava and Roychowdhury, 1975, *Newsl. zool. Surv. India*, 2(4) : 22 (Male, Female; India : Tripura); Srivastava, 1976, *Pacif. Insects*, 17(1) : 119 (Philippine Isls : Luzon, Mindanao and Palawan); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2: 42; Srivastava, 1978, *Eos, Madr.*, 52 : 283 (Philippine Isls : Mindanao); Srivastava, 1979, *J. zool. Soc. India*, 27 (1 & 2) (1975) : 107 (Nymph; India : Manipur); Srivastava, 1982, *Rec. zool. Surv. India*, 79 : 464 (Pakistan : NW Prov., Chitral and Punjab, Salt Ranges); Srivastava, 1982, *Bull. Inst. r. Sci. nat. Belg.*, 54 (11): 7 (India : Tamil Nadu, Yercaud, Shevroy Hills, 4500 ft; Solomon Isls and Nouvelle-Guinee); Srivastava, 1982, *Ent. Basiliensia*, 7: 65 (India: Meghalaya, Garo Hills and Saudi Arabia); Srivastava, 1983, *Rec. zool. Surv. India*, 80: 499 (India: Ahwa, Dang Dist, 1694 ft. and Pakistan: Sind, Hyderabad); Srivastava, 1983, *Ent. Basiliensia*, 8: 41 (India: U.P., Gangani, 1200 m); Srivastava, 1983, *Rec. zool. Surv. India*, 81: 283 (India: Arunachal Pradesh, Meghalaya and Assam); Srivastava, 1984, *Bull. zool. Surv. India*, 5 (2 & 3): 11 (India: Karnataka, Mudigere area, 900 m; Jersopa (Jog falls) and Burma (Myanmar)); Srivastava, 1985, *Rec. zool. Surv. India*, 82 (1-4) : 45 (India : Arunachal Pradesh : Tirap dist., Deban); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, 89 : 4 (India, Burma, Afghanistan and Philippine Isls.); Srivastava, 1987, *Bull. zool. Surv. India*, 8 (1-3) : 116 (Thailand); Srivastava, 1989: *State Fauna Seris. 1, Fauna of Orissa*, Pt. 2: 162, figs. 28-29 (India : Orissa); Srivastava, 1990, *Rec. zool. Surv. India*, 87(1) : 36 (India : W.B., NE Dumka; South Vietnam and Philippine Isls); Srivastava, 1991, *Rec. zool. Surv. India*, 89 (1-4) : 60 (Malaysia) : Srivastava, 1993, *Rec. zool. Surv. India*, 91 (1) (1992) : 74, fig. 30 (India : Arunachal Pradesh, Tirap dist., Deban, Gandhigram); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal*, Pt. 4 : 396, figs. 82-84 (India : W.B.); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. 3 : 315, figs. 59-60 (India : Meghalaya, Ri-Bhoi, East Garo Hills and West Garo Hills Dists.); Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya*, Pt. 1 , Uttar Pradesh : 44 (India : U.P., Kumaon and Garhwal Hills); Srivastava, 1997, *State Fauna Series 6 : Fauna of Delhi* : 204, figs. 3 (India : Delhi); Srivastava, 1997, *Fauna of Conservation Areas 9 : Fauna of Nanda Devi Biosphere Reserve* : 56 (India : U.P., Chamoli Dist., Gairoli Patali and around, 2600-2900 m); Srivastava and Lal, 1993, *Rec. zool. Surv. India*, 91(1) (1992) : 119 (Himachal Pradesh); Biswas and Srivastava, 1976, *Newsl. zool. Surv. India*, 2 (4) : 131 (Male, Female; India : U.P., Dehra Dun dist.); Tandon, Srivastava, and Shishodia, 1976, *Newsl. zool. Surv. India*, 2(1): 15 (Female ; India : U.P., Tons valley, Natiwar to Jermola, 1533 m); Singh and Singh, 1977, *Newsl. zool. Surv. India*, 3(6): 425 (India: U.P., Corbett National Park, Gairal, Dhikala and Mailani); Steinmann, 1981, *Folia ent hung*, 42 (3/4) : 186 (Type of *Labidura bengalensis* Dohrn-Bengalen and Galathea); Steinmann, 1981, *Atti. Soc. ital. Sci. nat. Museo civ. Nat. Milano*, 122 (3-4) : 160 (India : Calcutta); Steinmann, 1981 *Reichenbachia*, 19 (24) : 40 (China); Steinmann, 1983, *Zool. Zh.*, 62 : 1746 (Vietnam); Steinmann, 1983, *Revue suisse Zool.*, 90 (3) : 549 (India : Assam); Steinmann, 1985, *Folia ent. hung.*, 46(1) : 165; Steinmann, 1989, *Das Tierreich*, 105 : 443; Steinmann, 1989, *World Catalogue of Dermaptera* : 337; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20: 31; Sakaia, 1997, *Bull. Biogeogr. Soc. Japan*, 52(2) : 47 (India : Assam & Mizoram).

- Forficula pallipes* Fabricius, 1775, *Syst. Ent.*, : 270 (Male; Uganda).
- Forficula maxima* Villiers, 1780, *Linn. Ent.*, 1 : 427 (Type Male; Europe).
- Forficula bilineata* Herbst, 1786, *Arch. Insektengesch.*, 7 & 8 : 103 (Male).
- Forficula gigantea* Fabricius, 1787, *Mant. Ins.*, 1 : 224 (Male; Europe).
- Forficula bidens* Olivier, 1791, *Encyl. Méthod.*, 3 : 466 (Male; South America).
- Forficula crenata* Olivier, 1791, *Encyl. Méthod.*, 3 : 467 (Female; Central Africa).
- Forficula flavipes* Fabricius, 1793, *Ent. Syst.* 2 : 2 (Female; Guinea).
- Forficula erythrocephala* Fabricius, 1793, *Ent. Syst.*, 2 : 4 (Male; West Indies).
- Forficula rufescens* Beauvois, 1805, *Ins. Afr.- Amer. Orth.* : 35 (Male).
- Forficula morbida* Serville, 1831, *Ann. Sci. nat.*, 22 : 35.
- Forficula affinis* Guérin-Ménéville, in Ramon, 1836, *Hist. Cuba Ins.*, 7 : 330, pl. 12, fig. 2 (Male; Cuba).
- Forficesila gigantea* Burmeister, 1838, *Hand. Ent.*, 2 : 751 (Female; Antillen).
- Forficula bivittata* Klug, in Burmeister, 1838, *Hand. Ent.*, 2 : 751 (Male; Hispaniola).
- Forficula suturalis* Burmeister, 1838, *Hand. Ent.*, 2 : 752 (Male; Colombia).
- Forficula marginella* Costa, 1839, *Atti. Accad. Bourbon*, 4: 50 (Italy)
- Forficesila terminalis* Serville, 1839, *Hist. Nat. Orth* : 25 (Ila de France).
- Forficula icterica* Serville, 1839, *Hist. Nat. Orth.* : 25 (Male; India).
- Forficula bicolor* Motschulsky, 1846, in Fischer, 1846, *Horae ent. Ross.*, 4 : 354 (Male; Siberia).
- Forficula fischeri* Motschulsky, in Fischer, 1846, *Horae ent. Ross.*, 4 : 354 (Male; Transcaucasica).
- Forficula amurensis* Motschulsky, 1858, *Bull. Soc. nat. Moscou*, 32 : 499 (Male; Amur).
- Labidura bengalensis* Dohrn, 1863, *Stettin. ent. Ztg.*, 24 : 312 (Male; India : Bengal).
- Labidura serville* Dohrn, 1863, *Stettin. ent. Ztg.*, 24 : 316 (Male; India, Madras).
- Labidura auditor* Scudder, 1876, *Proc. Boston Soc. nat. Hist.*, 18 : 252 (Male; Brazil).
- Labidura granulosa* Kirby, 1891, *J. Linn. Soc. Zool.*, 23 : 511 (Female; Philippines).
- Labidura pulvialilis* Kirby, 1891, *J. Linn. Soc. Zool.*, 23 : 512 (Male; Raine Island).
- Labidura clarki* Kirby, 1891, *J. Lin. Soc. Zool.*, 23 : 512 (Female; Brazil).
- Labidura distincta* Rodzianko, 1897, *Wein ent. Ztg.*, 16 : 153 (Male; Europe Occ.).
- Apterygida huseinae* Rehn, 1901, *Proc. Acad. nat. Sci. Philad.*, 1901 : 273 (Male; Ethiopia).
- Labidura truncata* Kirby, 1903, *Ann. Mag. nat. Hist.*, 7 (11) : 67 (Male; Australia).
- Tomopygia sinensis* Burr, 1904, *Trans. ent. Soc. Lond.*, 1904 : 288 (Male; China).
- Labidura dubronyi* Borg, 1904, *Ark. Zool.*, 1 : 565.
- Labidura karschi* Borg, 1904, *Ark. Zool.*, 1 : 565.

- Labidura mongolica* Rehn, 1906, *Proc. U.S. natn. Mus.*, **29** ; 503, fig. 2 (Male; China : Peking).
- Labidura riparia hurculeana* Semenov, 1908, *Ent. Obozr.*, **1908** : 171 (Male; South Russia).
- Labidura leucotarsata* Mjöberg, 1913, *Ent. Tidskr.*, **34** : 27 (Male; West Australia).
- Labidura confusa* Capra, 1921, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **53**: 157 (Male; Egypt).
- Labidura cryptera* Liu, 1946, *J. West China Border Res. Soc.*, **16** : 20, fig. 6 (Male, Female; China : Chunking) – **Syn. n.**
- Labidura? elegans* Liu, 1946, *J. West China Border Res. Soc.*, **16** : 20, fig. 4 (Male; China : Mt. Omei) – **Syn. n.**
- Diplatys himalayanus* Baijal and Singh, 1954, *Agra Univ. J. Res. (Sci.)*, **3** (2) : 455, figs. 1-4 (3 nymphs not Male Holotype and Paratypes as stated); India : U.P., Nainital Dist., Jeolikote Naranikarkane, 5500 ft).
- Spongiphora nainitalensis* Baijal and Singh, 1954, *Agra Univ. J. Res. (Sci.)*, **3** (2) : 456, fig. 5-9 (Male; India : U.P., Nainital Dist., Jeolikote, Naranikarkane, 5500 ft.).
- Erotesis jeolikotensis* Baijal and Singh, 1954, *Agra Univ. J. Res. (Sci.)*, **3**(2) : 458, figs. 10-13 (Female; India, U.P., Nainital Dist., Jeolikote, Naranikarkana, 5500 ft.).
- Elaunon nainitalensis* Baijal and Singh, 1954, *Agra Univ. J. Res. (Sci.)*, **3**(2) : 460, figs. 16-19 (Male; India : U.P., Nainital Dist., Jeolikote, Naranikarkana, 5500 ft.).
- Labidura orientalis* Steinmann, 1979, *Acta zool. hung.*, **25** (3-4) : 422, figs. 12-13 (Male; Nepal, Trisuli) – **Syn. n.**

Male : General colour varies from yellowish brown to dark blackish brown with various intermediate shades. Antennae, legs and wings generally testaceous.

Head transverse, convex, sutures faint or distinct; eyes prominent but shorter than post-ocular area. Antennae 25-36 segmented, first or basal segment stout, shorter than the distance between antennal bases; 2nd about as long as broad; 3rd long, slender, a little over twice as long as broad ; 4th and 5th shorter than 3rd, afterwards segments gradually thinning and increasing in length. Pronotum slightly longer than broad, sides straight or often convex, posteriorly rounded; prozona raised and metazona depressed. Legs with femora inflated, fore leg and middle leg with basal and apical segment of tarsi equal in length but hind tarsi with basal segment longer than apical segment. Elytra well developed or reduced in length, upper surface rugose, a faint ridge along the costal margin. Wing generally present, occasionally reduced or concealed below elytra, rugose above. Abdomen weakly depressed, punctulate, gradually enlarging posteriorly. Penultimate sternite obtusely triangular, hardly emarginate in middle posteriorly. Ultimate tergite transverse, smooth, disc convex, two sharp spines at posterior margin present or sometimes obsolete, with a triangular depression in middle posteriorly, tumid above root of forceps. Forceps remote at base, trigonal above for a short distance, long, cylindrical, tapering apically, internally toothed but

their position extremely variable. Genitalia with parameres flat, three to four times longer than broad, sides straight, sometimes slightly narrowed basally, apically a membranous epimerite present; virga basally with a vesicle, and inner sinuous tube.

Female : Agrees with male in most characters but slightly smaller in size; abdomen dilated in middle; ultimate tergite narrowed posteriorly; forceps simple, straight and contiguous throughout.

Measurements : (in mm)

	Male	Female
Length of body	14.0-24.0	12.0-19.0
Length of forceps	4.0-10.0	3.0-5.0

Types : Type Male *Forficula riparia* Pallas, 1773 in UMZC.

Type Male of *Forficula pallipes* Fabricius, 1775 in BMNH.

Type Male of *Forficula maxima* Villiers, 1780 in MNHP.

Type Male and Type locality of *Forficula bilineata* Herbst, 1786 – not known.

Type Male of *Forficula gigantea* Fabricius, 1786 in UZMC.

Type Male of *Forficula bidens* Olivier, 1791 in SMTD.

Type Female of *Forficula crenata* Olivier, 1791 in SMTD.

Type Female of *Forficula flavipes* Fabricius, 1793 in UZMC.

Type Male of *Forficula erythrocephala* Fabricius, 1793 in UZMC.

Type Male of *Forficula rufescens* Beauvois, 1805 in MNHP; Type locality not known.

Type Male and Type locality of *Forficula morbida* Serville, 1831 not known.

Type Male of *Forficula affinis* Guérin Méneville, 1836 - repository not known.

Type Female of *Forficula gigantea* Burmeister, 1838 - repository unknown.

Type Male of *Forficula bivittata* Klug, 1838 – repository not known.

Type Male of *Forficula suturalis* Burmeister, 1838 – repository not known.

Type of *Forficula marginella* Costa, 1839 – unknown.

Type of *Forficula terminalis* Serville, 1839 – unknown.

Type Male of *Forficula icterica* Serville, 1839 – in MNHP.

Type Male of *Forficula bicolor* Motschulsky, 1846 – repository not known.

Type Male of *Forficula fisheri* Motschulsky, 1846 – repository not known.

Type Male of *Forficula amurensis* Motschulsky, 1858 – repository not known.

Type Male of *Labidura bengalensis* Dohrn, 1863 in IZAP.

Type Male of *Labidurda serville* Dohrn, 1863 in IZAP.

Type Male of *Labidura auditor* Scudder, 1876 in USNM.

Type Male of *Labidura granulosa* Kirby, 1891 in BMNH.

Type Male of *Labidurra pulvialis* Kirby, 1891 in BMNH.

Type Female of *Labidura clarki* Kirby, 1891 in BMNH.

Type Male of *Labidura distincta* Rodzianko, 1897 in NMWA.

Type Male of *Apterygida huseinae* Rehn, 1901 in USNM.

Type Male of *Labidura truncata* Kirby, 1903 in BMNH.

Type Male of *Tomopyga sinensis* Burr, 1904 in MNHP.

Type and type locality of *Labidura dubronyi* Börg, 1904 – unknown.

Type and type locality of *Labidura karschi* Börg, 1904 – unknown.

Type Male of *Labidura mongolica* Rehn, 1906 in USNM.

Type Male of *Labidura riparia harculeana* Semenov, 1908 – repository not known.

Type Male of *Labidura leucotarsata* Mjöberg, 1913 in NRSS.

Type Male of *Labidura coufusa* Capra, 1929 in MSNG.

Type Male, Female (actually nymphs) of *Labidura cryptera* Liu, 1946 – repository not known; in the original description number of specimens not mentioned – in MZSC.

Type Male (actually nymph) of *Labidura elegans* Liu, 1946 – repository not known; in the original description only male is mentioned – in MZSC.

Type nymphs of *Diplatys himalayanus* Baijal and Singh, 1954 – in ZSI.

Type Male of *Spongiphora nainitalensis* Baijal and Singh, 1954 – in ZSI.

Type Female of *Erotesis jeolikotensis* Baijal and Singh, 1954 – in ZSI.

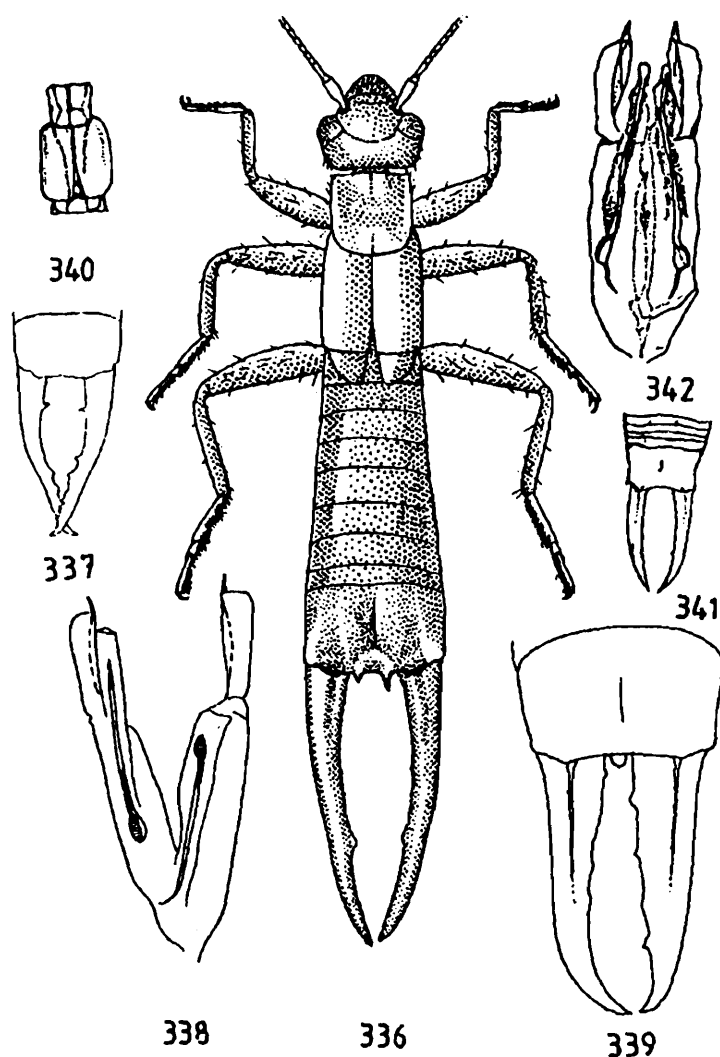
Type Male of *Elaunon nainitalensis* Baijal and Singh, 1954 – in ZSI.

Holotype Male of *Labidura orientalis* Steinmann, 1979 – in HANB.

Distribution : Worldwide.

In the Indian subcontinent this species has been recorded from sea shore to mountains under diverse habitats but is more common in tropical parts.

Remarks : This is an extremely variable species in general body colouration, size, shape of pronotum, texture and extent of elytra and wings, ultimate tergite and forceps, especially inner armature.



Figs. 336-342 : *Labidura riparia* (Pallas), Male; 336. Dorsal view; 337. Ultimate tergite and forceps; 338. Genitalia; Female; 339. Ultimate tergite and forceps; *Labidura dharchulensis* Gangola, Male; 340. Pronotum, elytra and wings. 341. Hind portion of body; 342. Genitalia (figs. 340-342 after Gangola, 1968).

All these variations have been described in detail by Burr (1910) and Habard (1923).

Srivastava (1986) has rightly treated four species viz., *Diplatys himalayanus*; *Spongiphora nainitalensis*; *Erotesis joelikotensis* and *Elaunon nainitalensis* described by Baijal and Singh (1954) as synonyms since these are based on individual variants of this species.

Labidura cryptera and *Labidura ? elegans* Liu (1946) are based on nymphs which is confirmed by the figures. There appears to be no difference in morphological details and are treated as synonyms.

Steinmann (1979b) described *Labidura orientalis* from Nepal on a male. It was mainly differentiated by the absence of two spines on the hind margin of ultimate tergite. This character is variable in the samples of a large population. For this reason this species is considered as a synonym.

Uncertain species

***Labidura dharchulensis* Gangola**

(Figs. 340-342)

Labidura dharchulensis Gangola, 1968, *Entomologist*, **101**: 59, figs. 6-11 (Male, Female; India: U.P., Pithoragarh, Dharchula, 915 m); Steinmann, 1989, *Das Tierreich*, **105** : 440; Steinmann, 1989, *World Catalogue of Dermaptera* : 375; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20**: 31; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89**: 7, figs. 3-4; Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya*, Pt. 1, Uttar Pradesh : 44 (India : U.P., Kumaon Hills).

Male : General colour brown to dark chestnut; head light brown; pronotum laterally yellow, prozona with two black spots posteriorly; elytra and wings blackish chestnut; legs yellowish, abdomen dorsally brown chestnut, darker laterally, ventrally in anterior half creamy white; forceps yellow.

Head triangular, slightly longer than broad, moderately convex above. Eyes prominent but shorter than post-ocular length. Pronotum quadrat, slightly narrowed posteriorly, all margins straight, median sulcus distinct, prozona raised and metazona weakly depressed. Elytra well developed, granulated, costal margin with raised carina, meeting along the inner margin. Wings short, of same texture as the elytra. Legs normal. Abdomen spindle shaped. Ultimate tergite transverse, rectangular, gently narrowed posteriorly, hind margin trisinate, laterally above the branches of forceps oblique. Pygidium vertical, not visible from above. Forceps remote at base, gently incurved, tapering apically, internal margin with one or two teeth in apical half and crenulated in basal half. Genitalia as seen in fig. 342.

Female : Agrees with male in most characters except that the ultimate tergite more strongly narrowed posteriorly and forceps simple and almost straight.

Measurements: (in mm)

	Male	Female
Length of body	11.5	10.5
Length of forceps	4.5	3.5

Types: Holotype Male and Allotype Female – repository not known.

Distribution : India : U.P., Phithoragarh Dist., Dharchula, 915m. Known from the type locality only.

Remarks : According to the original description (Gangola, 1968) the types should be available in the Zoological Museum of Th. D.S.B. Government College, Nainital. On personal enquiry there it is now confirmed they are not present there.

On the basis of original description and figures this species agrees with smaller forms of *L. riparia* (Pallas). The figure of male genitalia shows that the distal lobes are flexed forward which perhaps represents the exerted condition of this part. It is not clear wheather the apical portion of preputial sacs is clubbed or that of virga.

According to the description it is the former but diagram shows the latter. In any case, if former is taken as correct it may not be of much taxonomic importance since during mounting muscles of preputial sacs often get arranged in various shapes.

However, the species is retained as valid for the present pending examination of types.

Genus *Forcipula* Bolivar

Forcipula Bolivar, 1897, *Annls. Soc. ent. Fr.*, **66**: 328 (Type species: *Labidura quadrispinosa* Dohrn, 1863 – designated by Kirby, 1904); Bormans and Krauss, 1900, *Das Tierreich*, **11**: 29; Burr, 1910, *Fauna of British India, Dermaptera* : 91; Burr, 1910, *Trans. ent. Soc. Lond.*, **1910** : 186; Burr, 1911, *Genera Insect.*, **122** : 37; Townes, 1945, *Ann. ent. Soc. Am.*, **38**: 48; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9**: 260; Popham and Brindle, 1968, *Entomologist*, **101** : 106; Kapoor, 1968, *Agra Univ. J. Res. Sci.*, **16**(1) : 20; Sakai, 1970, *Dermapterorum Cat. Prael.*, **1** : 21; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20**: 31; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 42; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 8; Steinmann, 1980, *Acta.zool.hung.*, **24** : 208; Steinmann, 1989, *Das Tierreich*, **105** : 447; Steinmann, 1989, *World Catalogue of Dermaptera*: 364.

Genitalata Kapoor, 1974, *Zool. J. Linn. Soc.*, **55**: 83, figs. 1-4 (Type *Genitalata mahajani* Kapoor, 1974); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 8 (treated as synonym).

Size medium to large (12.0 – 26.0 mm). Body elongated with a fine pubescence. Head convex; eyes shorter or longer than the area behind eyes; antennae 20-40 segmented; third long and cylindrical, slightly shorter than 1st and longer than the remaining segments; distal segments long and thin. Elytra well developed, often with a faint linear convexity along the costal margin. Wings well developed, sometimes absent. Abdomen long, cylindrical, sides of certain segments in males with spines or crests, sometimes poorly developed or absent, hind margin of tergites milled. Forceps, in male, long and slender, remote, curved or straight in basal half to two thirds afterwards bent inwards and straight, contiguous, remote basal part armed with a sharp tooth in middle or simply crenulate; parameres with a small epimerite apically. Female forceps simple, straight, armed near apex, internally with a sharp preapical tooth.

Type species: Labidura quadrispinosa Dohrn, 1863 (Designated by Kirby, 1904).

Distribution : Oriental Region and tropical parts of Africa and South America.

Key to the species (on males only)

Following key does not include *F. leonardi* Steinmann, since it is based on a female and its taxonomic position is doubtful.

- 1(6). Elytra with a weak ridge (represented by a convexity) along the costal margin and tuberculated
- 2(5). General colouration yellowish brown; eyes about as long or longer than post ocular area; sides of abdominal segments with an oblique, triangular crest

- 3(4). Forceps with a single tooth internally at the point of bend
..... *F. lurida* Boliver
- 4(3). Forceps with a pair of teeth internally at the point of bend
..... *F. tuberculata* Srivastava
- 5(2). General colouration blackish brown; eyes shorter than post ocular area in length; sides of abdominal segments with a sharp spine
..... *F. quadrispinosa* (Dohrn)
- 6(1). Elytra without a ridge along the costal margin, smooth or punctulate
- 7(10). Body covered with dense, long and short pubescence
- 8(9). Forceps with a sharp internal spine in the middle of basal remote portion in normal forms (in minor specimens tooth may be weakly developed or marked only by a faint protuberance); parameres apically acute
..... *F. trispinosa* (Dohrn)
- 9(8). Forceps with minute distantly placed teeth in basal remote part; parameres more or less of uniform width with apex rounded *F. despinosa* (Hebard)
- 10(7). Body covered with fine, comparatively sparse pubescence
- 11(16). Sides of certain abdominal segments with a single spine on each side
- 12(13). Forceps internally with a distinct spine, directed posteriorly, followed by a faint tubercle, at the middle of basal remote part *F. borellii* Chopard
- 13(12). Forceps crenulate internally in basal remote part, without any sharp spine
- 14(15). Sides of abdominal segments 3rd to 5th with a sharp spine; forceps in basal remote part crenulate, terminating into a sharp point; parameres apically blunt *aborensis* Brindle
- 15(14). Sides of abdominal segments 3rd to 6th with a sharp spine; forceps in basal remote part only crenulate; parameres with apex acute *F. indica* Brindle
- 16(11). Sides of certain abdominal segments with a pair of spines, of unequal size; often poorly developed
- 17(18). Parameres comparatively narrower, of uniform width throughout, apex slightly obliquely truncate, apical epimerite curved *F. elongata* Srivastava
- 18(17). Parameres comparatively broader, in apical one fourth a little narrower or broader, apical epimerite straight
- 19(20). Head behind eyes parallel sided; pronotum longer than broad, elytra and wings well developed; parameres, a little narrowed in apical one fourth with tip obtusely pointed *F. clavata* Liu
- 20(19). Head behind eyes gently expanded; pronotum generally about as long as broad, rarely a trifle longer; parameres gently expanded in apical one fourth with tip broadly rounded *F. abbreviata* Srivastava

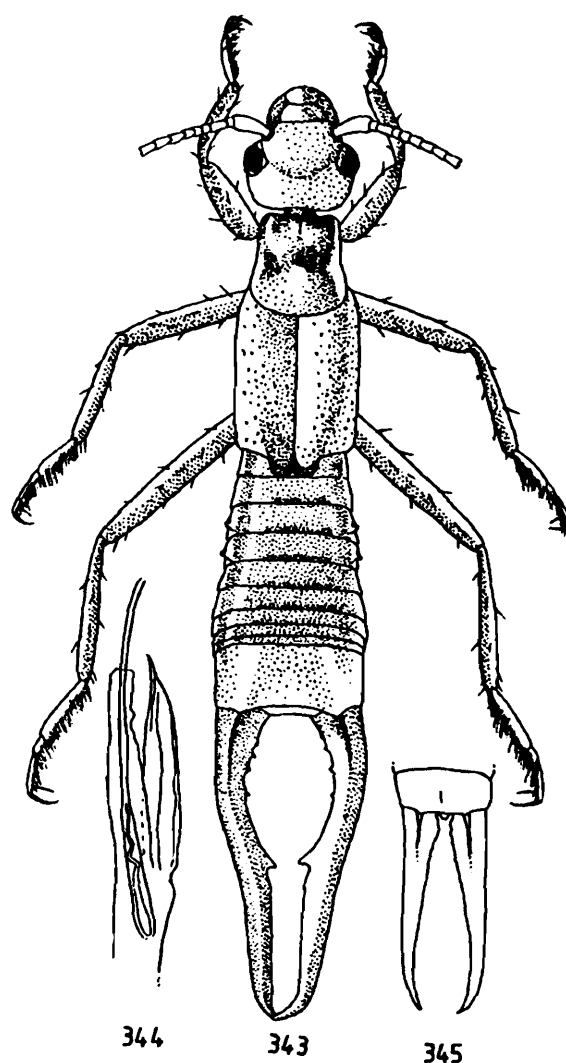
***Forcipula lurida* Bolivar**
(Figs. 343-345)

Forcipula quadrispinosa var *lurida* Bolivar, 1897, *Annls. Soc. ent. Fr.*, **66**: 283 (Male; Madras Presidency (India); Bormans and Krauss, 1900, *Das Tierreich*, Lief **11** : 31.

Forcipula lurida : Kirby, 1904, *Syn. Cat. Orth.*, **1** : 9; Burr, 1910, *Fauna British India, Dermaptera* : 94, pl.4, Figs. 29, 29a (Madras); Burr, 1910, *Trans. R. ent. Soc. Lond.*, **1910** : 168; Burr, 1911, *Genera Insect.*, **122** : 38; Hebard, 1923, *Mem. Dep. Agric. India ent. Ser.*, **7** : 212 (India: Female, Bihar; Female, Bengal and Male, Assam); Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 266 (India and Ceylon); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 43; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 30, figs. 31-32 (India : U.P.); Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya*, Part 1 : Uttar Pradesh : 44 (India : U.P., Garhwal Hills); Steinmann, 1980, *Acta. zool. hung.*, **26** (1-3) : 237 (South India, Assam); Steinmann, 1989, *Das Tierreich*, **105** : 458, figs. 718-719; Steinmann, 1989, *World Catalogue of Dermaptera* : 386; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20**: 32.

Male : General colour yellowish brown, legs yellow, abdomen laterally and forceps along the internal margin reddish brown. Finely pubescent on head and abdominal tergites. Head triangular, longer than broad, sutures distinct, frons and occiput raised, hind margin slightly emarginate in middle. Antennae 30-segmented or more, 1st stout, shorter than the distance between the bases of antennae, remaining typical of the genus. Eyes prominent, about as long as the post-ocular area. Pronotum longer than broad, widened posteriorly, sides slightly emarginate in middle, hind margin rounded, median suture distinct; prozona raised and metazona depressed. Elytra and wing well developed, rugose, former tuberculated and with faintly raised costal margin. Legs normal, hind tarsi with first segment slightly longer than the combined length of second and third, clad with thick pubescence on under side. Abdomen convex, punctulate, sides of abdominal segments 3rd to 5th with an oblique triangular tooth. Penultimate sternite triangular, rounded posteriorly with slight emargination in middle. Ultimate tergite transverse, faintly depressed in middle posteriorly, hind margin straight in middle and laterally above the bases of forceps concave and oblique. Forceps elongated, incurved in a little beyond basal half, afterwards contiguous and straight, tapering apically with tip pointed and hooked, internal margin ventrally dentate in incurved part and provided with a strong, posteriorly directed spine at the junction of basal incurved and apical straight part. Genitalia as seen in fig. 344; parameres long, slightly narrowed apically; apical epimerite short; virga distinct, basal vesicle large.

Female : Agrees with male in most characters except that penultimate sternite posteriorly obtuse in middle; sides of abdominal segments without spine; ultimate tergite weakly transverse and forceps simple and straight, internally crenulated but preapical tooth absent.



Figs. 343-345 : *Forcipula lurida* Bolivar, Male; 343. Dorsal view; 344. A portion of genitalia showing paramere and distal lobe; Female; 345. Ultimate tergite and forceps.

Measurements : (in mm)

	Male	Female
Length of body	13.5-23.0	14.0-17.0
Length of forceps	6.0-22.0	4.0-4.5

Type : Type Male according to steinmann (1989a) in MNHP.

Distribution : India (Tamil Nadu, Uttar Pradesh, Bihar and Assam) and Sri Lanka.

Following specimens hitherto not reported are preserved in Z.S.I. : India : Assam, Goalpara, 4 Males, 4 Females, April, 1966 (*R.C.Basu* coll.).

Remarks : The present observations are based on Males and Females from North India (Rishikesh) and Assam (Goalpara) whereas the species was originally described from South India. In one male specimen forceps are almost straight showing the minor form of development and inner margin with small serrations only. It appears to be almost identical with *F. tuberculata* Srivastava, but the latter differs in having

pair of spines internally at the junction of basal remote and apical subcontiguous part of forceps. Should there be any intraspecific variation in this character, the latter will be placed as a synonym. For the present *F. tuberculata* is treated as valid since the inner armature in normal males is generally observed as constant.

***Forcipula tuberculata* Srivastava**

(Figs. 346-349)

Forcipula tuberculata Srivastava, 1977, *Dt. ent. Z.*, **24**: 289 (Male; India : Arunachal Pradesh, Siang Dist., Kambang 200 m); Srivastava, 1984, *Bull. zool. Surv. India*, **5** (2-3) : 13 (Female; India : W.B., Hugli); Srivastava 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 32, figs. 33-36 (India : Arunachal Pradesh); Steinmann, 1980, *Acta. zool. hung.*, **26** 238, fig. 18; Steinmann, 1989, *Das Tierreich*, **105** : 460; Steinmann, 1989, *World Catalogue of Dermaptera* : 372; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Sakai, 1997, *Bull. Biogeogr. Soc. Japan*, **52**: 48 (Male, Female; India : Assam).

Male : General colour shining yellowish brown, head, antennae and pronotum darker; legs light yellow. Head slightly longer than broad, finely pubescent, sutures distinct, frons and occiput weakly convex, gently depressed in middle at the junction of median and transverse sutures. Eyes large, prominent, about twice as long as the post-ocular area. Antennae 35-segmented; 2nd small, equal to 4th; 3rd long, cylindrical, equal to 4th and 5th together, remaining long and thin, gradually increasing in length. Pronotum longer than broad, lateral margins gently emarginate in middle, hind margin broadly rounded, median sulcus distinct; prozona tumid, well differentiated from flat metazona. Elytra twice as long as pronotum, translucent, tuberculated, hind margin truncate. Wings slightly longer than the pronotum, opaque, of same texture as elytra. Abdomen finely punctulated, gently expanded posteriorly, sides of segments 3rd to 5th with an oblique, triangular, serrated ridge. Penultimate sternite ample, triangular, posteriorly obtuse in middle with a slight emargination in middle. Forceps remote, with an oblique ridge above at base, incurved up to a little beyond middle, thence almost straight, subcontiguous, tapering with apices hooked and pointed, internally dentate below in basal one third, provided with a sharp tooth at the point of bend followed by another similar one but slightly smaller. Genitalia as seen in fig. 348-349.

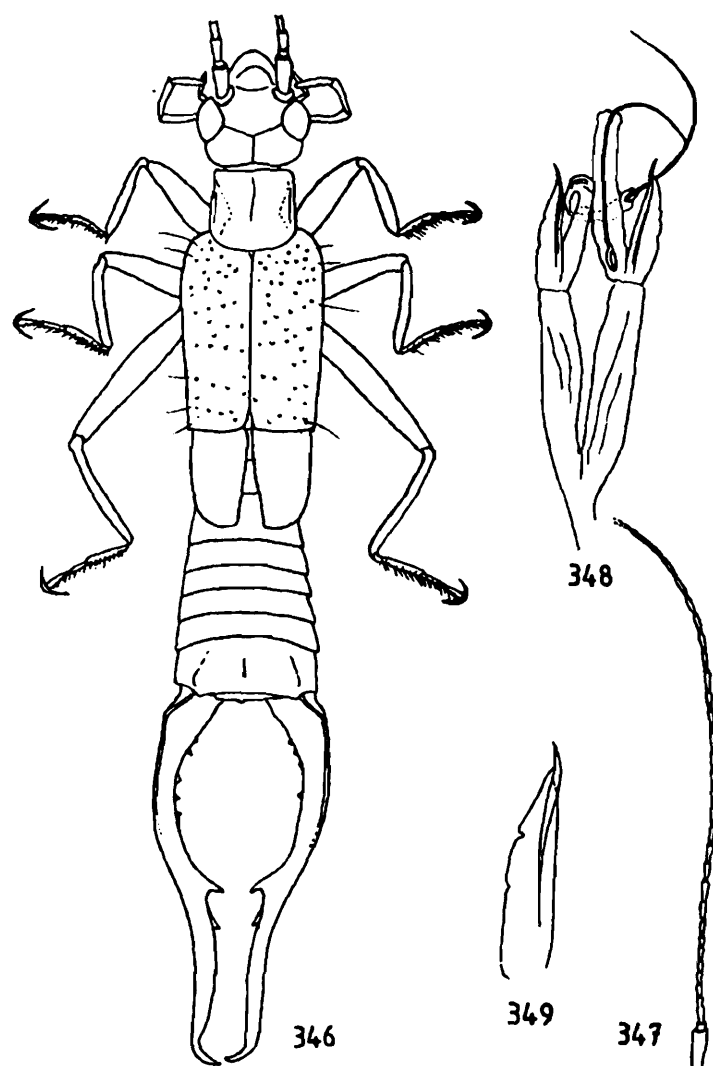
Female: Agrees with males in most character except penultimate sternite and ultimate tergite more narrowed posteriorly and forceps simple and straight, internally crenulate with a distinct preapical tooth.

Measurements : (in mm)

	Male	Female
Length of body	15.4-18.5	15.2
Length of forceps	9.0-12.5	7.2

Types : Holotype Male in ZSI.

Distribution : India (Arunachal Pradesh, Assam, West Bengal and Orissa).



Figs. 346-349 : *Forcipula tuberculata* Srivastava, Holotype Male; 346. Dorsal view; 347. Antennae; 348. Genitalia; 349. Paramere, enlarged.

Following specimen present in ZSI collection was not reported earlier : India : Orissa, Cuttack, 1 Male (genitalia mounted between two coverslips and attached to the pin of specimen), 23.12.1970, at light (S.Khera coll).

Remarks : This species has a close resemblance with *F. lurida* Bolivar, known from Madras, in general body colour and the shape of lateral abdominal spines but it can be easily separated by the presence of large eyes, about twice as long as the post ocular area; translucent and tuberculated elytra and forceps with a pair of sharp spines internally, of which the posterior one is smaller and situated a little beyond middle. The parameres of the type have deep constrictions on external margin which may be due to shrinkage during mounting since the above specimen from Orissa has the external margin entire. The tuberculate elytra in this species recalls *F. banksi* Borelli, described from Philippines.

It may be mentioned here that Brindle (1966) has placed *F. lurida* Boliver in *qudrispinosa* group because of the rugose elytra.

***Forcipula quadrispinosa* (Dohrn)**

(Figs. 350-354)

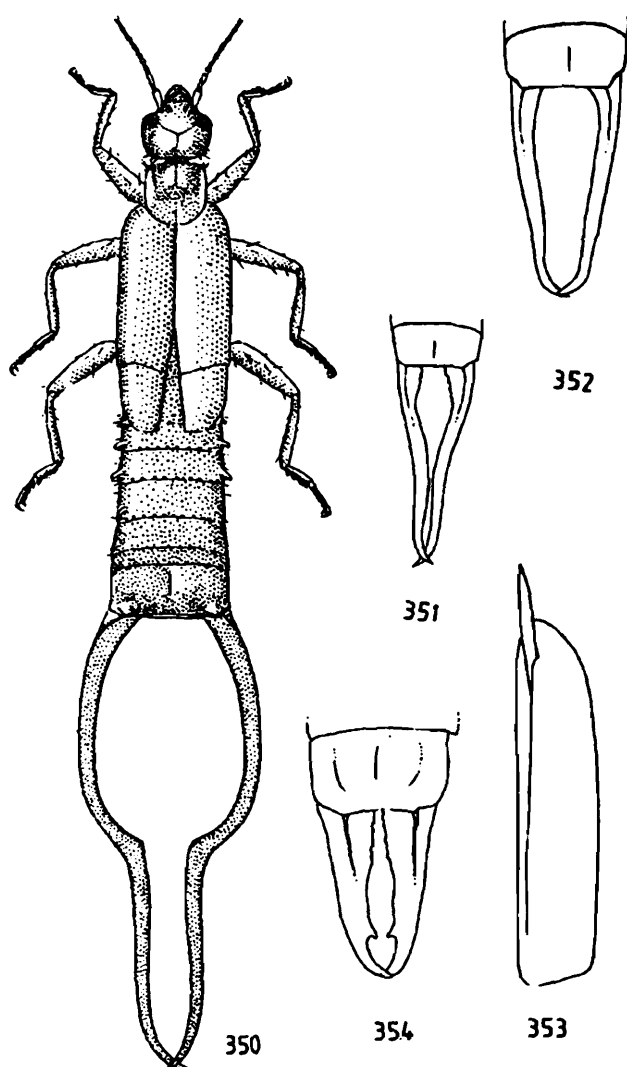
Labidura quadrispinosa Dohrn, 1863, *Stettin. ent. Ztg.*, **24** : 311 (Male; Tranquabar, India and Ceylon); Bormans, 1888, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **18** : 343; Bormans, 1894, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **14** (2) : 377.

Forcipula quadrispinosa: Bolivar, 1897, *Annls. Soc. ent. Fr.*, **66**: 283; Bormans and Krauss, 1900, *Das Tierreich*, Lief **11** : 30; Burr, 1902, *J. Bombay nat. Hist. Soc.*, **14** : 323; Burr, 1904, *Trans. R. ent. Soc. Lond.*, **1904** : 289; Burr, 1905, *J. Asiat Soc. Beng. (N.S.)*, **1** : 27; Burr, 1907, *Bull. Mus. Hist. nat. Paris*, **1907** : 510; Burr, 1910, *Fauna British India, Dermaptera* : 94, pl. 3, fig. 28; Burr, 1910, *Trans. R. ent. Soc. Lond.*, **1910** : 187; Burr, 1911, *Genera Insect.*, **122** : 38; Burr, 1912, *Annln. naturh. Mus. Wien*, **26** : 79; ?; Burr, 1917, *Annls. Soc. ent. Fr.*, **86** : 59; Borelli, 1926, *Treubia*, **8** : 257; Borelli, 1931, *Rev. suisse Zool.*, **38** : 302; Hincks, 1947, *Ann. Mag. nat. Hist.*, (11) **14** : 527, fig. 4; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 266; Brindle, 1968, *Acta Mus. Moraviae*, **53** : 292; Brindle, 1971, *Ent. scand., Suppl.*, **1** : 224 (Sri Lanka); Brindle, 1975, *Ent. Basiliensia*, **1** : 23 (Bhutan); Gangola, 1968, *Entomologist*, **101** : 57 (India : U.P., Pithoragarh and Nainital Dists.); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16** (1) : 21; Srivastava, 1970, *Eos Madr.*, **45** : 330; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 43; Srivastava, 1976, *Pacif. Insects*, **17** (1) : 119 (Philippine Isls : Luzon); Srivastava, 1983, *Rec. zool. Surv. India*, **80** : 499 (India : Ahwa, Dang dist., 1694 ft.); Srivastava, 1984, *Bull. zool. Surv. India*, **5** (243) : 11 (India : Karnataka : Mudigera area, ca 900 m, Jersopa (Jogfalls); Burma and Java); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 27, figs. 27-30 (India : Assam, Uttar Pradesh, Bihar and Tamil Nadu); Srivastava, 1989, *State Fauna Series 1: Fauna of Orissa* : Pt. **2** : 163, figs. 30-31 (India : Orissa); Srivastava and Lal, 1992, *Rec. zool. Surv. India*, **91** (1) (1992) : 120 (India : Himachal Pradesh); Srivastava, 1993, *State Fauna Series 3 Fauna of West Bengal*, Pt. **4** : 399, figs. 89-91 (India : W.B., Darjeeling dist.); Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya*, Pt. **1**, Uttar Pradesh : 44 (India : U.P., Kumaon and Garhwal Hills); Biswas and Srivastava, 1976, *Newsl. zool. Surv. India*, **2**(4) : 132 (Male, Female; India : U.P., Dehra Dun Dist.); Singh and Singh, 1977, *Newsl. zool. Surv. India*, **3**(6) : 425 (India : U.P., Corbett National Park, Dhikala); Kapoor, Malla and Shah, 1978, *J. nat. Hist. Mus.*, **2** (2) : 58 (Nepal : Kathmandu); Sakai, 1970, *Dermapterorum Cat. Prael*, **1**(1) : 22; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 31; Sakai, 1990, *Dermapterorum Cat.*, **21-22** : 2710; Sakai, 1997, *Bull. Biogeogr. Soc. Japan*, **52**(2) : 48 (India : Himalaya); Steinmann, 1980, *Acta zool. hung.*, **26** : 239, figs. 20-21; Steinmann, 1981, *Folia ent. hung.*, **42** (3-4) : 186 ('Type' Tranquebar "Qudarispinosa Dohrn", Mus. Westrn.); Steinmann, 1989, *Das Tierreich*, **105** : 462; Steinmann, 1989, *World Catalogue of Dermaptera* : 369.

Labidura morosa Kirby, 1891, *J. Linn. Soc.*, **23** : 513 (Female, Locl.?); Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 266.

Forcipula jacobsoni Burr, 1908, *Ann. Mag. nat. Hist.*, (8) **1** : 47 (Male; N. Java, Samarang); Burr, 1910, *Trans. R. ent. Soc. Lond.*, **1910** : 87; Burr, 1911, *Genera Insect.*, **122** : 38; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 266.

Forcipula simplex Bey-Bienkjo, 1970, *Zool. Zh.*, **49** : 1815 (Male; North India); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.* **89** : 28 (Treated as a synonym).



Figs. 350-354 : *Forcipula quadrispinosa* (Dohrn), Male; 350. Dorsal view; 351-352. Ultimate tergite and forceps of minor form; 353. Paramere, enlarged; Female; 354. Ultimate tergite and forceps.

Genitalata mahajani Kapoor, 1974, *Zool. J. Linn. Soc.*, **155** : 83, figs. 1-4 (Male; India : Himachal Pradesh); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 28 (treated as a synonym).

Male : General colour dark blackish brown, antennae, legs and sides of pronotum blackish brown; finely pubescent.

Head slightly longer than broad, sutures faint. Eyes about half as long as the post-ocular area. Antennae 35-segmented; 1st segment, stout expanded apically, slightly shorter than the distance between antennal bases; 2nd about as long as broad; 3rd long, slender, about twice as long as broad; 4th & 5th subequal but shorter than 3rd, after that segments thinning and gradually increasing in length. Pronotum quadrate, a little longer than broad, anterior margin straight, sides gently convex, hind margin rounded, median sulcus faint; prozona tumid and metazona flat. Elytra well developed, rugose, costal margin with a linear convexity, humeral angles prominent; wings about as long as the pronotum, of the same texture as the elytra. Abdomen finely

tuberculated, gently dilated posteriorly, tergites milled along the hind margin, sides of segments 3rd to 5th with a sharp gently incurved spine, of which anterior and posterior pair reduced. Penultimate sternite rounded posteriorly. Ultimate tergite smooth, transverse, depressed in middle posteriorly, above base of forceps with a weak tumid elevation, median sulcus distinct, hind margin in middle straight, above base of forceps emarginate and oblique. Forceps in basal half strongly arcuate, in minor forms weakly so. Genitalia (figs. 353) with parameres about five times longer than broad, almost of uniform width, apex rounded and epimerite short.

Female: Agrees with male but sides of segments without spines; ultimate tergite narrowed posteriorly; forceps simple and straight, internally serrated near base, preapical tooth distinct.

Measurements : (in mm)

	Male	Female
Length of body	18.0-24.0	18.5-23.6
Length of forceps	7.5-17.5	6.0-8.0

Types : Type Male of *Labidura quadrispinosa* Dohrn, 1863 in UZMC according to Steinmann (1989a).

Type of Male of *Forcipula jacobsoni* Burr, 1908 in UZMC according to Steinmann (1989a).

Type female of *Labidura morosa* Kirby, 1891 in BMNH.

Holotype Male (nymph) of *Genitalata mahajani* Kapoor, 1974- repository not known; Paratype 1 nymph (not Male) in ZSI.

Distribution : India (extensively distributed all over India except beyond 3000 ft in Himalayas), Bhutan, Nepal, Myanmar, South China, Thailand, Indo-China, and Philippine Isls.

Also reported from Reunion and Mauritius.

Remarks : Specimens without tubercles on the sides of abdominal segments and weaker form of forceps are occasionally found in a large population.

Forcipula simplex Bey-Bienko (1970) was considered as a synonym by Srivastava (1986) since it represents the form with minor development of forceps and agrees with this species in almost all other characters.

Genitalata majahajani Kapoor 1974 is described on nymphs only. One Paratype labelled as "Rajgarh Road, Gaura, coll. H.P. Agrawal, 5.viii.1971" was examined by Srivastava (1986) which possesses somewhat rugose metanotal pads with a lateral rugose stripe. In all probabilities it represents nymphal stage of this species and was rightly treated as a synonym.

***Forcipula trispinosa* (Dohrn)**

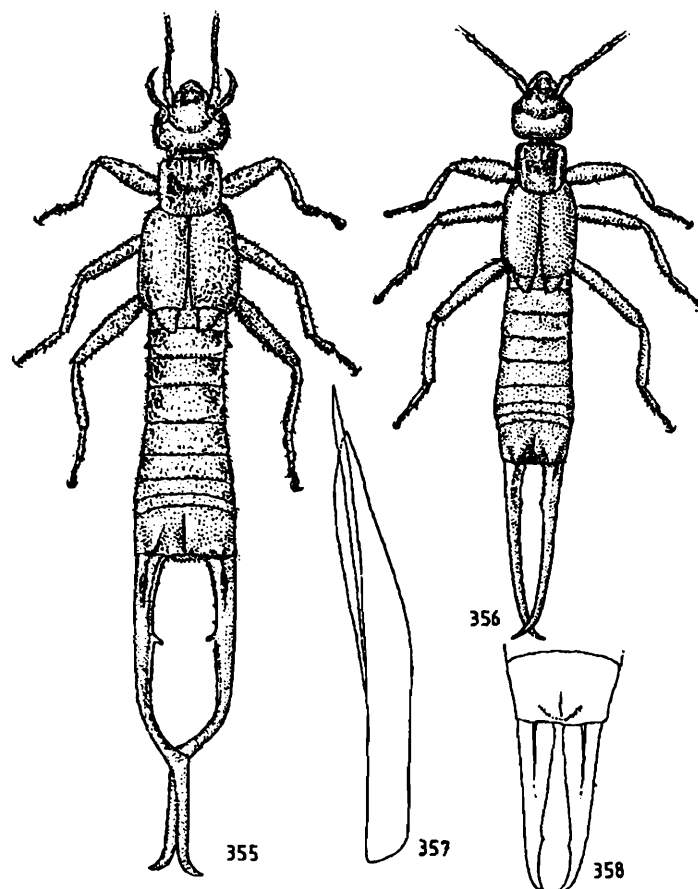
(Figs. 355-358)

Labidura trispinosa Dohrn, 1863, *Stettin. ent. Ztg.*, **24** : 310 (Male; India Orientali).

Forcipula trispinosa Bormans and Krauss, 1900, *Das Tierreich*, Lief **11** : 30; Kirby, 1904, *Syn. Cat., Orth.*, **1** : 9; Burr, 1904, *Trans. R. ent. Soc. Lond.*, **1904** : 289; Burr, 1905, *Asiat. Soc. Beng. (N.S.)*, **1** : 27; Burr, 1907, *Bull. Mus. Hist. nat. Paris*, **1907** : 207; Burr, 1910, *Fauna British India, Dermaptera* : 92, pl. 3, fig. 26 (India : U.P. (Kumaon Hills) and Sikkim); Burr, 1910, *Trans. R. ent. Soc. Lond.*, **1910** : 186; Burr, 1911, *Genera Insect.*, **122** : 38; Burr, 1914, *Rec. Indian Mus.*, **10** : 289; Chopard, 1924, *Rec. Indian Mus.*, **26** (1) : 89 (India : Assam, Siju Cave; Garo Hills); Bharadwaj and Bhatnagar, 1961, *Zool. Anz.*, **167** (7-8) : 283 (India : U.P., Kumaon Hills); Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) **9** : 268; Brindle, 1967, *Acta Mus. Moraviae*, **52** : 209; Brindle, 1974, *Senckenbergiana biol.*, **55** (1/3) : 152 (East Nepal – ascent from Barabise to Ting Sangla, 800-1500 m); Brindle, 1975, *Ent. Basiliensia*, **1** : 23 (Bhutan); Brindle, 1983, *Ent. Basiliensia*, **63** (1/2) (1982) : 98, fig. 6 (Nepal : Tanhu Dist.); Gangola, 1968, *Entomologist*, **101** : 57 (India : U.P., Nainital dist.); Kapoor, 1968, *Agra Univ. J. Res.(Sci)*, **16**(1) : 20; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 44; Srivastava, 1979, *Proc. Symp. zool. Surv. India*, No. 1 : 59, figs. 2, A-B; Srivastava, 1980, *Insect Integrated Taxonomy, 16 Internat. Congress Entomology* : 90, fig. 2 A-D; Srivastava, 1982, *Rec. zool. Surv. India*, **79** : 464 (Female; Pakistan : NWF Prov., Chitral); Srivastava and Lahiri, 1983, *Rec. zool. Surv. India*, **81** : 284 (India : Meghalaya, Garo Hills); Srivastava, 1984, *Bull. zool. Surv. India*, **5**(2&3) : 11 (India : U.P., Dehra Dun Valley, ca 700 m); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 19, figs. 17-19 (India : Arunachal Pradesh, Meghalaya, West Bengal, Punjab, and U.P.); Srivastava and Lal, 1993, *Rec. zool. Surv. India*, **91** (1) (1992) : 119 (India : Himachal Pradesh); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal*, Pt. 4 : 399, figs. 92-94 (India : W.B., Darjeeling Dist.); Srivastava, 1995, *State Fauna Series 4, Fauna of Meghalaya*, Pt. 3 : 316, figs. 61-62 (India : Meghalaya, West Garo Hills); Srivastava, 1995, *Himalayan Ecosystem Series: Fauna of Western Himalaya*, Pt. 1, Uttar Pradesh : 44 (India : U.P., Kumaon and Garhwal Hills); Biswas and Srivastava, 1976, *Newsl. zool. Surv. India*, **2**(4) : 132 (Male, Female; India : Dehra Dun Dist.); Singh and Singh, 1977, *Newsl. zool. Surv. India*, **3**(6) : 425 (India : U.P., Corbett National Park, Bijrani, Dhikala, Dhulwa, Gairal, Paterpani and Sultan); Kapoor and Malla, 1978, *J. Inst. Sc.*, **1** : 134 (Nepal : Sundrijal); Kapoor, Malla and Shah, 1978, *J. nat. Hist. Mus.*, **2**(2) : 58 (Nepal : Trishuli River and Naubise); Steinmann, 1980, *Acta zool. hung.*, **26** : 242, fig. 26 (Paratype Male, ultimate tergite and forcep); Steinmann, 1981, *Atti Soc. Ital. Sci. nat. Museo civ. Nat. Milano*, **122** (3-4) : 160 (Male; India : Calcutta; Female; Andaman Island, Port Blair); Steinmann, 1981, *Reichenbachia*, **19** (24) : 141 (Male, Female; Philippine : Luzon); Steinmann, 1989, *Das Tierreich*, **105** : 466; Steinmann, 1989, *World Catalogue of Dermaptera* : 371; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Sakai, 1997, *Bull. Biogeog. Soc. Japan*, **52**(2) : 48 (India : Assam and Meghalaya).

Labidura (?) *pugnax* Kirby, 1891, *J. Linn. Soc. (Zool.)*, **25** : 510, pl. 12, fig. 1 (Male, Female; North India).

Forcipula trispinosa var. *minor* Burr, 1910, *Fauna British India Dermaptera* : 93, pl. 3, fig. 260 (Male, Nepal); Burr, 1910, *Trans. R. ent. Soc. Lond.*, **1910** : 186; Burr, 1911, *Genera Insect.*, **122** : 38; Bharadwaj and Bhatnagar, 1961, *Zool. Anz.*, **167** (7-8) : 284 (1 Female; India : U.P., Kumaon Hills, Jeolikote).



Figs. 355 - 358 : *Forcipula trispinosa* (Dohrn), Male; 355-356. Dorsal view with normal and minor form of forceps; 357. Paramere enlarged; Female; 358. Ultimate tergite and forceps.

Forcipula trispinosa sub.sp. *minor*; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) 9 : 268.

Forcipula pugnax var *parallela* Borelli, 1912, *Bull. Mus. Hist. nat. Paris*, 1912 : 14 (Male; Bhutan).

Forcipula walkeri (néc Kirby); Kapoor and Malla, 1978, *J. inst. Sc.*, 1: (2 Males; Nepal : Kathmandu).

Forcipula afghana Steinmann, 1980, *Acta zool. hung.*, 26(1-3) : 243 (Male; Afghanistan : Hindukush and Nuristan); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, 89 : 19 (treated as synonym).

Male : General colour blackish brown, shining; antennae, sides of pronotum, inner wing tips yellowish. Fine pubescence all over body including elytra and wings

Head weakly convex, sutures faint, hind margin straight. Eyes shorter than post-ocular area. Antennae 30-segmented or more. Pronotum as broad as long, sides straight reflexed hind margin rounded, median sulcus distinct. Elytra finely punctulated, pubescent, ample, humeral angles prominent, smooth; wings lacking pubescence, otherwise same as elytra, about as long as pronotum. Legs typical of the genus, hind tarsi with basal segment slightly longer than apical two together. Abdomen finely punctulated, gradually expanding from base to apex, sides of segments 3rd to 5th with a sharp triangular spine, of which spine on the segment 5th shorter than

other segments, hind margin of tergites weakly milled. Penultimate sternite with hind margin obtuse in middle posteriorly. Ultimate tergite transverse, smooth, median sulcus represented by a distinct impression, feebly depressed in middle posteriorly, hind margin in middle straight or scarcely concave, laterally above base of forceps oblique. Forceps in basal 2/3 remote, straight, afterwards gently bend inwards and straight, tip gently hooked, internal margin in basal remote part crenulated with a sharp posteriorly directed tooth in middle. Genitalia with parameres long, narrowed apically with tip acute, apical epimerite short; distal lobes with virga distinct and basal vesicle large (fig. 357).

Female : Agrees with male but body more densely pubescent; ultimate tergite narrowed posteriorly; forceps with branches simple and straight, apices pointed, gently hooked, inner margin crenulate with a weak internal tooth at apical one third.

Measurements : (in mm)

	Male	Female
Length of body	15.5-22.5	14.0-28.0
Length of forceps	6.0-15.0	5.7-9.0

Types : Type Male of *Labidura trispinosa* Dohrn – unknown. Paratype 1 Male according to Steinmann (1980a) at HNAB.

Type Male, Female of *Labidura ? pugnax* Kirby (1981) in BMNH; he has not mentioned the number of specimens in the original description of the species.

Holotype Male and Paratype 1 Male of *Forcipula afghana* Steinmann in HNAB.

Distribution : All along the Himalayas in India, Pakistan, Bhutan and Nepal.

In India it is known from Meghalaya (Khasi and Garo Hills) also. Also reported from Afghanistan.

Remarks : Occasionally in a large population a few male specimens lack or possess poorly developed spines on the sides of abdominal segments and forceps are almost straight or gently undulated with inner tooth poorly marked or wanting. Such specimens have been referred by Burr (1910) as var. *minor* of this species.

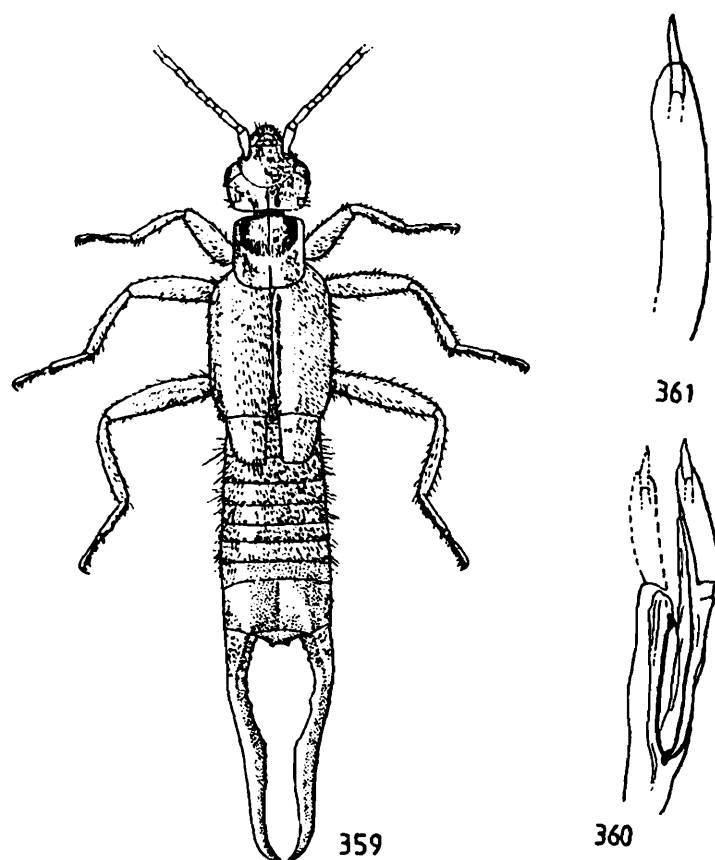
***Forcipula despinosa* Hebard**

(Figs. 359-361)

Forcipula despinosa Hebard, 1917, *Proc. Acad. Nat. Sci. Philad.*, **69** : 234, pl. 16, fig. 1, (Male; North India); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 25, figs. 24-25 (India); Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32.

Male : General colour dark brown, forceps slightly reddish, antennae and legs yellowish; strongly pubescent.

Head slightly longer than broad, frons and occiput weakly raised, sutures faint, hind margin straight. Eyes about half as long as the post ocular area. Antennae



Figs. 359-361 : *Forcipula despinosa* Hebard, Holotype Male; 359. Dorsal view; 360. Genitalia; 361. Paramere, enlarged.

(partly broken; 18 segments remaining on the left side) with 1st segment stout, clavate; 2nd small, about as long as broad; 3rd long and slender, only slightly shorter than 1st; 4th and 5th subequal and subclavate, remaining gradually increasing in length and becoming more slender distally. Pronotum slightly longer than broad, anterior margin convex, sides depressed and straight, hind margin briefly rounded; prozona weakly tumid, not well differentiated from weakly depressed metazona. Legs long and slender. Elytra and wings normal, former without any ridge on costal margin. Abdomen long and slender, feebly expanded posteriorly, surface with micro-reticulations, strongly pubescent above, pubescence longer on sides, hind margin of each tergite with a row of small compressed tubercles (like milling on the edge of a coin) which extend on sides as well, laterally without any large teeth but on segments 4th and 5th a small tubercle present, rather larger than usual row of compressed tubercles, reminiscent of a tooth. Penultimate sternite transverse, narrowed posteriorly with hind margin rounded. Ultimate tergite strongly transverse, surface with micro-reticulations, median longitudinal furrow deep and distinct. Pygidium vertical, narrowed apically with two minute points. Forceps long and slender, trigonal for a short distance at base above, internal margin concave in a little more than half of the length, afterwards straight, internally armed in basal half with sharp teeth, widely spaced, apices gently hooked which meet. Genitalia as seen in figs. 360-361.

Female : Unknown.

Measurements : (in mm)

	Holotype
	Male
Length of body	16.2
Length of forceps	8.0

Types : Holotype Male at ANSP.

Distribution : Known from the type locality only.

Remarks : This species resembles strongly with *F. trispinosa* var. *minor* Burr, due to the presence of dense long and short pubescence on the body and lacking tooth on the sides of abdominal segments but differs by the shape of parameres which are rounded at apex.

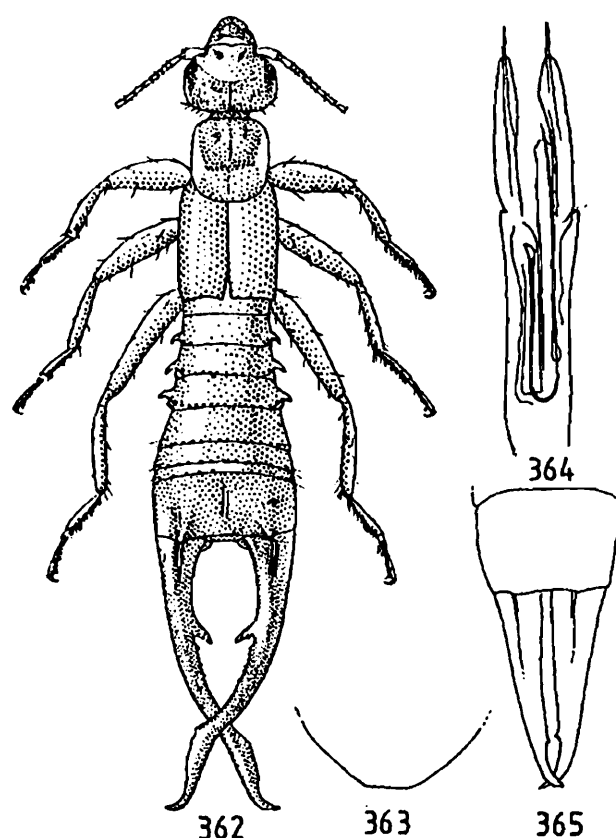
In the latter apical portion of parameres are somewhat narrowed.

***Forcipula borellii* Chopard**
(Figs. 362-365)

Forcipula borellii Chopard, 1924, *Rec. Indian Mus.*, **26** (1) : 90, pl. 5, figs. 35-41 (Male, Female; Siju Cave, Garo Hills) – Brindle, 1976, *Ann. Mag. nat. Hist.*, (13) **9** : 263; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, **16**(1) : 21; Srivastava, 1966, *Rec. zool. Surv. India, Occ. pap.*, **2** : 43; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 18, figs. 15-16 (India : Meghalaya); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. 3 : 317, figs. 63-64 (India : Meghalaya, West Garo Hills dist., Balphakram National Park); Steinmann, 1980, *Acta zool. hung.*, **26** : 236, figs. 13; Steinmann, 1989, *World Catalogue of Dermaptera* : 36; Steinmann, 1989, *Das Tierreich*, **105** : 475; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Sakai, 1997, *Bull. Biogeogr. Soc. Japan*, **52**(2) : 48 (India : Assam and Sikkim); Brindle, 1983, *Ent. Basiliensia*, **63** (1/2) (1982) : 98, fig. 8 (Nepal : Lamjung dist.).

Male : General colour dark blackish brown; sides of pronotum pale; antennae and legs light brown or yellowish brown, finely pubescent, longer pubescence present on the sides of abdominal segments.

Head somewhat depressed, longer than broad, sutures weakly marked, hind margin lightly emarginate in middle. Eyes prominent, only slightly shorter than post ocular area. Antennae 31-segmented, basal segment stout, expanded apically, shorter than the distance between antennal bases; 2 short, transverse; 3rd long, slender, three times as long as broad, longer than remaining segments; 4th and 5th stout, subequal, remaining gradually increasing in length distally and thinning. Pronotum longer than broad, lateral margin straight, reflexed, almost of uniform width, hind angles and margin rounded; prozona tumid, metazona depressed. Elytra well developed, finely punctulate, truncate posteriorly; a small scutellum visible; wings abbreviated, concealed. Abdomen gradually expanded posteriorly, sides of segments 3rd to 5th with a sharp and hooked spine, on 6th segment a small tubercle present (absent in Cotype).



Figs. 362-365 : *Forcipula borellii* Chopard; Holotype Male; 362. Dorsal view, 363. Hind portion of penultimate sternite; 364. Genitalia; Female; 365. Ultimate tergite and forceps.

Penultimate sternite narrowed posteriorly, hind margin subtruncate in middle, punctulate. Ultimate tergite transverse, smooth, disc weakly convex, along the median sulcus and in middle posteriorly depressed, above the base of forceps with a small conical tubercle, hind margin in middle straight, laterally above base of forceps oblique. Pygidium vertical, narrowed posteriorly with hind margin briefly rounded. Forceps with branches in basal two third remote, elongately curved, near base above trigonal, afterwards depressed, internally armed at middle with a sharp, posteriorly directed triangular tooth, followed by a tubercle, and finely serrated, afterwards, after a weak bend at apical third branches subcontiguous, apices hooked. Genitalia with parameres six times longer than broad, narrowed apically with tip obtuse, epimerite, short, virga distinct with a basal vesicle (Fig. 364).

Female : Agrees with male in most characters except that sides of abdominal segments without spines; ultimate tergite narrowed posteriorly; forceps simple, contiguous and straight, inner margin crenulate in basal half, afterwards unarmed except for a blunt tooth near apical one third.

Measurements : (in mm)

	Male	Female
Length of body	12.8-15.1	14.9-16.7
Length of forceps	7.0-8.5	4.2-4.8

Types : Types Male, Female; Cotypes 1 Male, 2 Females and 9 nymphs from India : Meghalaya, 2.1922 (S.W. Kemp and B.N. Chopra coll.) in Z.S.I.

Distribution : India : Assam, Meghalaya and Sikkim

***Forcipula aborensis* Brindle**
(Figs. 366-367)

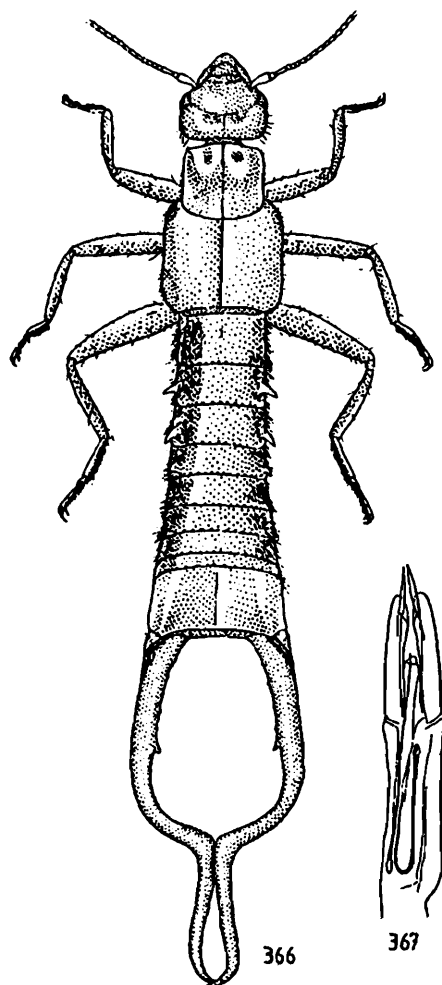
Forcipula pugnax (néc Kirby) Burr, 1913 *Rec. Indian Mus.*, 8(2) : 139.

Forcipula aborensis Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) 9 : 262 (Male, near Dosing, 1400 ft., Shimang R) ; Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 21; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 42; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, 89 : 24, figs. 22-23 (India : Arunachal Pradesh and Assam); Srivastava, 1993, *Rec. zool. Surv. India*, 91(1) : 76, figs. 31-32 (India : Arunachal Pradesh, Siang Dist.); Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 32.

Male : General colour dark brownish black, antennae, sides of pronotum and legs yellowish brown, finely pubescent.

Head slightly longer than broad, weakly convex, sutures distinct, hind margin straight. Eyes prominent, about half as long as post-ocular area. Antennae 35-segmented, first segment stout, shorter than the distance between antennal bases; 2nd short, transverse; 3rd long, slender, a little over twice as long as broad, longer than most of the segments except a few apical ones; 4th and 5th globular and subequal, afterwards segments gradually increasing in length and thinning, a few apical ones thin and rod shaped. Pronotum longer than broad, sides straight, gently reflexed, hind margin rounded, median sulcus distinct in apical half; prozona tumid and well differentiated from flat metazona. Elytra obscurely punctulated, pubescent, meeting along the suture, hind margin truncate; wings concealed. Legs typical of the genus, and hind tarsi with 1st segment, slightly longer than the combined length of 2nd and 3rd; 2nd longer than broad. Abdomen obscurely punctulated, gradually dilated posteriorly, sides of segments 3rd to 5th with a single hooked spine, spine on 5th segment very much reduced. Ultimate tergite smooth, transverse, depressed along the median suture and in middle posteriorly, above base of forceps with a faintly tumid elevation, hind margin in middle, straight, above base of forceps oblique. Pygidium vertical, narrowed posteriorly with hind margin rounded. Forceps with branches remote in basal two thirds or more bent inwards, afterwards subcontiguous with tip hooked, internal margin with small rounded tubercles, in normal males, in the basal remote part with a sharp spine in apical half. Parameres long, tip obtuse; virga distinct with basal vesicle (fig. 367).

Female : Agrees with male most characters but slightly shorter in size; ultimate tergite narrowed backwards; forceps with branches straight, apices gently incurved and crossing, internally finely crenulate with a distinct tooth near apex.



Figs. 366-367 : *Forcipula aborensis* Brindle, Male; 366. Dorsal view; 367. Genitalia.

Measurements : (in mm)

	Male	Female
Length of body	21.0-26.0	18.0-21.5
Length of forceps	12.6-15.5	6.5-7.0

Types : Holotype Male in BMNH.

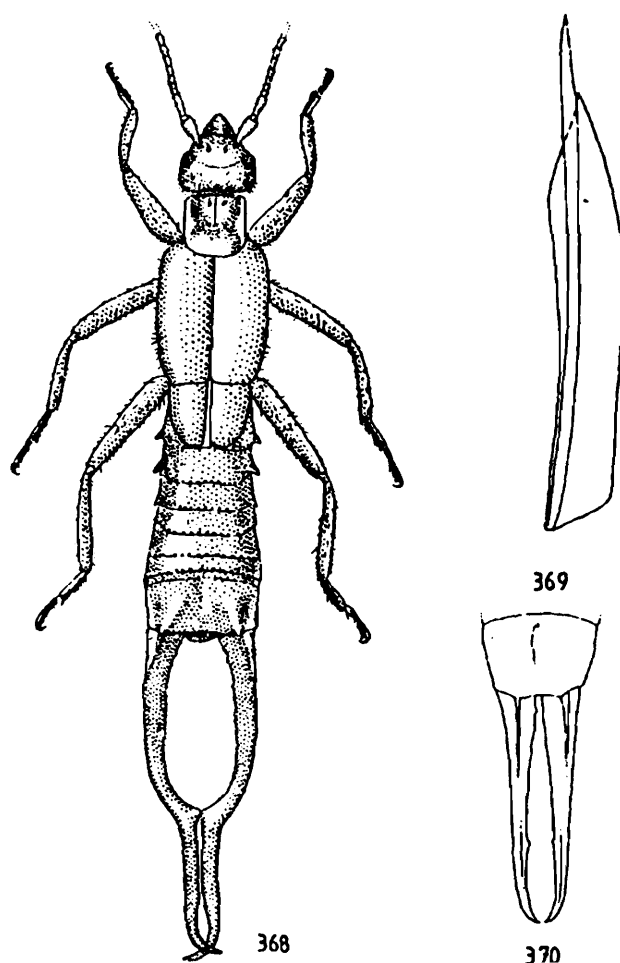
Distribution : India : Arunachal Pradesh, Siang and Tirap dists.

Remarks : This species is apparently closely related to *F. abbreviata* Srivastava and *F. clavata* Liu, but differs in having a single thorn like spine on the sides of abdominal segments 3rd to 5th besides the characteristic parameres.

***Forcipula indica* Brindle**
(Figs. 368-370)

Forcipula pugnax Burr (néc Kirby), 1910, *Fauna British India, Dermaptera* : 93, pl. 3, fig. 27; Burr, 1910, *Trans. R. ent. Soc. Lond.*, 1910 : 186; Burr, 1911, *Genera Insect.*, 122 : 38.

Forcipula indica Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) 9 : 265 (Males; Bhutan and India – Holotype in British Museum (Natural History), London); Brindle, 1975, *Ent. Basiliensia*, 1 : 24 (Bhutan); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 21; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 43; Sakai, 1970, *Dermapterorum Cat. Prael*, 1 : 26;



Figs. 368-370 : *Forcipula indica* Brindle, Male; 368. Dorsal view; 369. Paramere, enlarged; Female; 370. Ultimate tergite and forceps.

Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Sakai, 1990, *Dermapterorum Cat.*, **21-22** : 2757; Biswas and Srivastava, 1976, *Newsl. zool. Surv. India*, **2(4)** : 132 (India : U.P., Dehra Dun Dist.). Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 43; Srivastava, 1976, *Newsl. zool. Surv. India*, **2(6)** : 272 (India : U.P., Garhwal Hills); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 22, figs. 20-21 (India : Arunachal Pradesh, Meghalaya, West Bengal (Darjeeling Dist.) and Sikkim); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal, Pt. 4* : 398, figs. 85-86; (India : W.B., Darjeeling Dist.); Srivastava, 1995, *Himalayan Ecosystem Series : Fauna of Western Himalaya, Pt.1 : Uttar Pradesh* : 44 (India : U.P., Garhwal Hills); Singh and Singh, 1977, *Newsl. zool. Surv. India*, **3(6)** : 425 (India : U.P., Corbett National Park, Gairal); Kapoor and Malla, 1978, *J. Inst. Sc.*, **1** : 134 (Nepal : Sundrijal); Steinmann, 1980, *Acta zool. hung.*, **26** : 250, figs. 45-48; Steinmann, 1983, *Revue suisse Zool.*, **90** (3) : 550 (India : Assam); Steinmann, 1989, *Das Tierreich*, **105** : 475; Steinmann, 1989, *World Catalogue of Dermaptera* : 386.

Male : General colour shining blackish brown, antennae, legs, sides of pronotum and inner margin of wings yellow. Finely and densely pubescent except wings, ultimate tergite and forceps.

Head slightly longer than broad, sutures faint or distinct, hind margin faintly emarginate in middle. Eyes much shorter than post-ocular area. Antennae 35-40-

segmented ; basal segment stout, expanded apically, shorter than the distance between antennal bases; 2nd short, transverse; 3rd long, slender, a little over twice as long as broad; 4th and 5th subequal but shorter than 3rd; 6th onwards gradually increasing in length and thinning. Pronotum longer than broad, sides straight and gently reflexed, hind margin briefly rounded, median sulcus distinct; prozona tumid, metazona depressed. Elytra three times longer than the pronotum, obscurely punctulate, humeral angles prominent, hind margin very slightly truncate, oblique; wings about as long as the pronotum, smooth. Legs typical of the genus, hind tarsi with first segment slightly longer than the combined length of second and third segments. Abdomen punctulate, gradually expanded posteriorly, tergites milled along the posterior margin, sides of segments 3rd to 6th with a sharp spine, of which on the segment 6th often very much reduced in the form of a tubercle. Penultimate sternite triangular with posterior margin scarcely emarginate in middle. Ultimate tergite, smooth, transverse, disc convex, depressed in middle posteriorly, median sulcus distinct, above the base of forceps feebly tumid, hind margin in middle straight, laterally above base of forceps oblique. Forceps in basal two third remote, almost straight, near base above with a short ridge, otherwise depressed, internal margin, in basal one third with fine tubercles and a blunt tooth at the point of bend, in apical one third branches subcontiguous, straight, apices hooked. Genitalia with parameres acute apically (fig. 369).

Female : Agrees with male in most characters but pubescence more thick; sides of abdominal segments lack spines; ultimate tergite gently narrowed posteriorly; forceps simple, straight, tapering to pointed and gently incurved apices which meet, inner margin with a weak tooth at apical one third.

Measurements : (in mm)

	Male	Female
Length of body	22.0-26.0	21.05-27.0
Length of forceps	11.0-17.0	7.5-8.5

Types : Holotype Male, Paratype Male in BMNH.

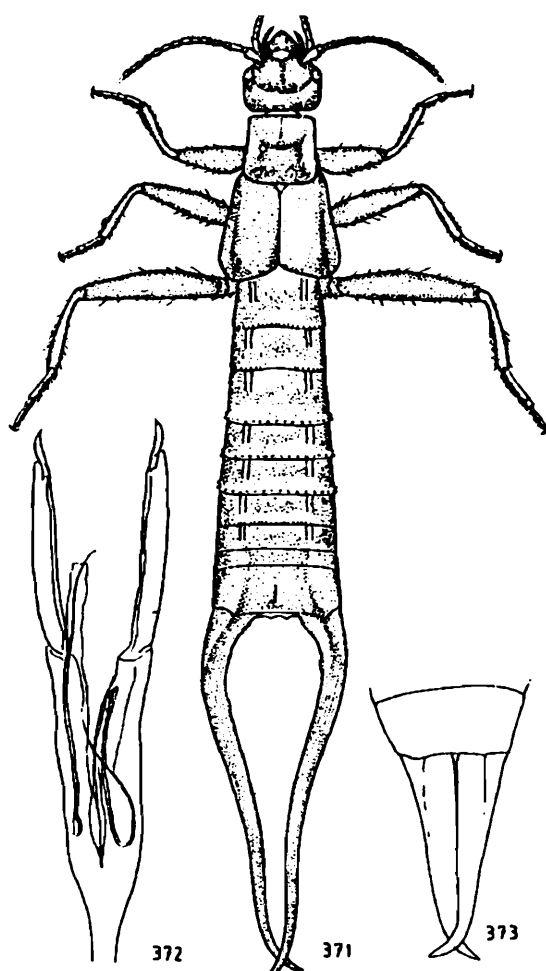
Distribution : India (Arunachal Pradesh, Assam, Meghalaya and Sikkim) and Bhutan.

Remarks : Often in some males the forceps are straight and provided internally at about middle with a weak tubercle.

Occasionally individuals with minor development are met with which are smaller in size and are normally devoid of spines on the sides of abdominal segments. Forceps are almost straight, sometimes only a little undulate at about middle.

***Forcipula elongata* Srivastava**
(Figs. 371-373)

Forcipula decolyi (néc Bormans), Srivastava, 1970, *Eos, Madr.*, **44** : 329 (2 Males, India : Tamil Nadu, Coimbatore Dist., Annamalai Hills, Cinchona, 3500 ft.); Srivastava, 1986, *Rec.*



Figs. 371-373 : *Forcipula elongata* Srivastava, Holotype Male; 371. Dorsal view; 372. Genitalia; Female; 373. Ultimate tergite and forceps.

zool. Surv. India, Occ. pap., **89** : 13, figs. 9-10 (India : Tamil Nadu and Kerala); Srivastava, 1987, *Boll. Mus. Reg. Sci. nat. Torino*, **5**(2) : 318, figs. 1-2 (Male; India : Tamil Nadu, Madura dist., Shembaganur); Steinmann, 1989, *World Catalogue of Dermaptera* : 367.

Male : General colour dark brownish black with slight variation to dark brown on certain body parts. Antennae blackish brown with 3rd segment in basal two thirds and legs yellowish brown, knee joints and femora very feebly shaded with a fuscous patch. Pubescence short and fine, covered all over the body, on ultimate tergite and forceps sparse.

Head slightly longer than broad, weakly convex, at the junction of sutures with a feeble depression, region behind eyes parallel sided, sutures fine, hind margin hardly sinuate in middle. Eyes shorter than the post-ocular length. Antennae multi-segmented (apical portion broken); 1st stout, narrowed basally, shorter than the distance between antennal bases; 2nd transverse; 3rd slender, slightly longer than combined length of 4th and 5th; 5th slightly longer than preceding, remaining gradually increasing in length, apical ones very thin, almost rod shaped. Pronotum punctulate, slightly longer than broad, a trifle broader posteriorly, sides feebly emarginate in middle, anterior and posterior margins straight, postero-lateral angles well rounded,

prozona tumid with a small depression on either side of median line, metazona depressed, well differentiated from prozona by a faint depression, median suture represented by a smooth line. Elytra well developed, punctulate, humeral angle weak, meeting along the inner margin, hind margin feebly oblique. Wings wanting. Legs normal. Abdomen convex, gently dilated posteriorly, tergites with fine micro-reticulations and a pair of elongated smooth patches sublaterally, milled along the hind margin, milling (like that of coin on its edge) weaker or almost obsolete on last one or two tergites, sides of segments 4th to 6th with a pair of tubercles, of which ventral one very small and dorsal one larger and lobular. Penultimate sternite obtuse posteriorly, in middle with a slight emargination, along the median line in apical half a raised stripe present. Ultimate tergite smooth, strongly transverse, faintly depressed in middle posteriorly, median suture distinct, hind margin between branches of forceps straight and laterally concave and oblique. Forceps elongated, strongly bowed inwards in basal half, afterwards more or less straight or gently undulate but subremote, strongly tapering posteriorly with apices gently hooked, at base above with an oblique ridge, internally in basal half with a few crenulations, otherwise smooth. Parameres (fig. 372) long and narrow, tip obliquely truncate and apical epimerite curved.

Female : Agrees with male in most characters except that size smaller, penultimate sternite strongly triangular, ultimate tergite strongly narrowed posteriorly, forceps simple and straight, internal margin crenate and with a preapical tooth.

Measurements : (in mm)

	Male	Female
Length of body	22.0 – 25.5	14.0 – 15.0
Length of forceps	14.0 – 16.5	5.0 – 5.1

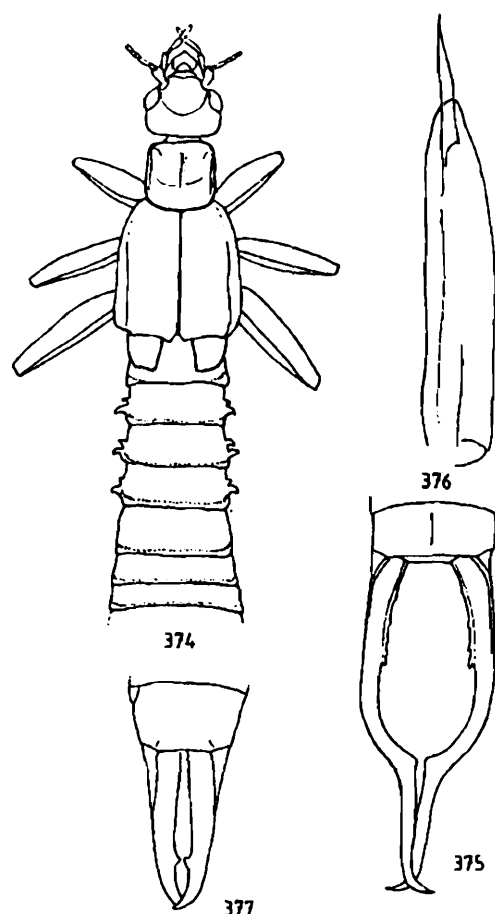
Types : Holotype Male, Paratype 1 Male in ZSI.

Distribution : India : Tamil Nadu (Coimbatore Dist., Anamalai Hills, Cinchona, 3500 ft.; Madura Dist, Shembaganur) and Kerala (Kottayam Dist., Kuttikkanum).

Remarks : This species has a close resemblance with *F. abbreviata* Srivastava, in having a pair of spines on the sides of certain abdominal segments but differs by the shape of spines in being lobular especially the dorsal one and ventral one very much reduced; parameres comparatively narrower with apical epimerite curved.

***Forcipula clavata* Liu**
(Figs. 374-377)

Forcipula clavata Liu, 1946. *J.W.China Border Res. Soc.*, **16** : 22, pl. 2, fig. 8 (Male, Female; China : Pan-Chi, Peh-Chi in Chungking); Bey-Bienko, 1959, *Ent. Obozr.*, **38** : 609; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 43 (treated a synonym of *Forcipula decolyi* Bormans); Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 15, figs. 14-15 (India : Arunachal Pradesh and Meghalaya); Srivastava, 1993, *Rec. zool. Surv.*



Figs. 374-377 : *Forcipula clavata* Liu, Male; 374. Anterior portion of body; 375. Ultimate tergite and forceps; 376. Paramere, enlarged; Female; 377. Ultimate tergite and forceps.

India, 91(1) (1992) : 76 (India : Arunachal Pradesh, Tirap Dist., Vijaynagar and 77 mile camp, Miao-Vijaynagar camp); Srivastava, 1995, *State Fauna Series 4 : Fauna of Meghalaya*, Pt. 3 : 317, figs. 65-66 (India : Meghalaya, East Khasi Hills); Steinmann, 1980, *Acta zool. hung.*, 26 : 247, figs. 39-40; Steinmann, 1989, *Das Tierreich*, 105 : 471; Steinmann, 1989, *World Catalogue of Dermaptera* :356; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 32.

Forcipula decolyi var. *longipennis* Borelli, 1912, *Bull. Mus. Hist. nat. Paris*, 18 (4) : 224 (Male; Tonkin; Boa-Lac).

Forcipula clavata var. *unica* Liu 1946, *J.W.China Border Res. Soc.*, 16 : 23, pl. 2, fig. 10 (Male, China; Pana-Chi, Peh-Chi in Chunking); Bey-Bienko, 1959, *Ent. Obozr.*, 38 : 609.

Forcipula obscura Steinmann, 1980, *Acat. zool. hung.*, 21(1-3) : 250, figs. 47-48 (Male; Vietnam); Srivastava, 1986, *Rec. zool. Surv. India, Occ.pap.*, 89 : 16 (treated as synonym of this species).

Male : General colour dark brown to blackish brown; sides of pronotum, legs and wings along the internal margin in apical half testaceous yellow. Elytra and forceps somewhat reddish. Body finely pubescent.

Male : Head longer than broad, sutures distinct, smooth, frons and occiput moderately convex, post-ocular margin parallel, hind margin straight, with a faint

emargination in middle. Eyes shorter than the post-ocular length of head. Antennae typical of the genus. Elytra and wings well developed, former feebly punctate. Legs normal. Abdomen gradually dilated posteriorly, each tergite milled along the hind margin, sides of segments 3rd to 5th with a pair of spines of which dorsal one larger and hooked. Penultimate sternite transverse, hind margin rounded with a faint emargination in middle. Ultimate tergite transverse, median sulcus distinct. Pygidium vertical, triangular. Forceps curved or broadly so in basal half and contiguous, tapering and straight in apical half; internally crenulate below in basal half of curved part, ending into a sharp teeth. Genitalia Paramere as seen in fig. 376.

Female : Agrees with male in most characters except that the penultimate sternite and ultimate tergite more narrowed posteriorly; forceps simple and straight, trigonal in basal one third, internally crenulate with a triangular teeth at apical one third.

Measurements : (in mm)

	Male	Female
Length of body	20.0-25.0	23.0-25.5
Length of forceps	12.0-17.0	5.5-7.1

Types : Type Male, Female of *Forcipula clavata* Liu in MZSC.

Holotype Male of *Forcipula obscura* Steinmann in HANB.

Distribution : India : Arunachal Pradesh and Meghalaya.

Also reported from China (Chinking) and Vietnam.

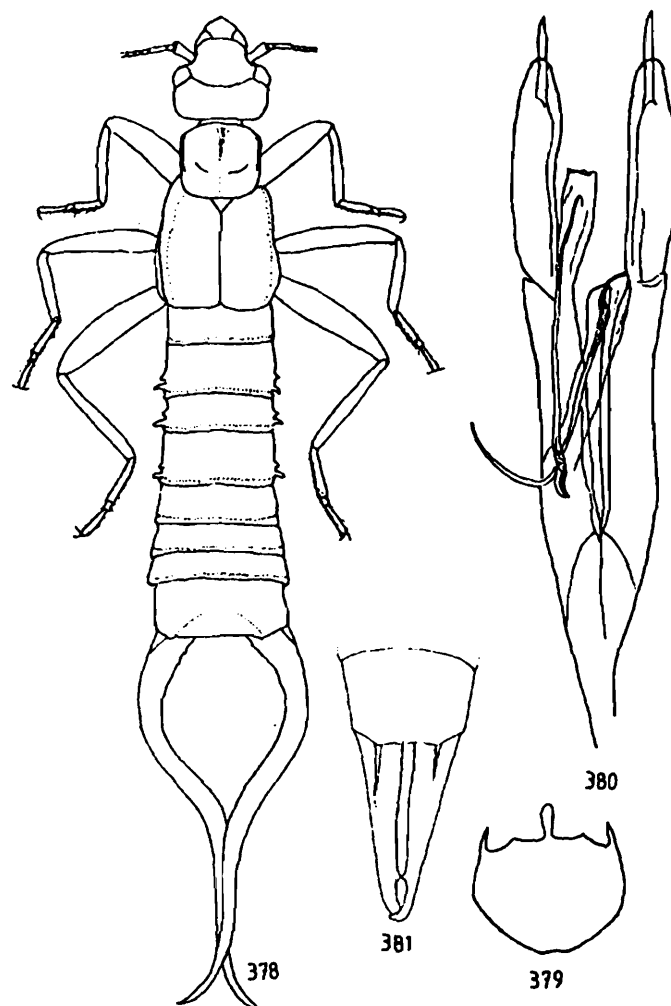
Remarks : In some specimens, spines on the sides of abdominal segments 4th and 5th are very much reduced or totally absent on 3rd and the branches of forceps are almost straight, only slightly undulated in middle. Liu (1946) records wings as yellow but in the present series before me wings are brownish with inner margin in apical half and tip yellowish.

This species was considered as synonym of *F. decolyi* Bormans by Bey-Bienko (1959) but it is now resolved that latter is endemic to New Guinea and the material referred under this name from India and adjacent countries consists of two distinct species, viz. *Forcipula abbreviata* Srivastava from India and adjacent countries and *F. clavata* Liu, described from China.

It can be easily separated from *F. decolyi* Bormans and *F. abbreviata* Srivastava by the shape of pronotum being longer than broad; presence of well developed wings and distinctive parameres which are narrowed apically with tip obtusely pointed.

***Forcipula abbreviata* Srivastava**
(Figs. 378-381)

Forcipula decolyi (néc Bormans) Burr, 1904, *Trans R. ent. Soc. Lond.*, 1904 : 289; Burr, 1905, *J. Asiat. Soc. Beng. (N.S.)* 1 : 27; Burr, 1906, *J. Asiat. Soc. Beng. (N.S.)*, 2 : 207; Burr, 1910, *Fauna British India, Dermaptera* : 91, pl. 3, figs. 25, 25a; Burr, 1910, *Trans. R.*



Figs. 378-381 : *Forcipula abbreviata* Srivastava, Holotype Male; 378. Dorsal view; 379. Penultimate sternite; 380. Genitalia; Female; 381. Ultimate tergite and forceps

ent. Soc. Lond., 1910 : 186; Burr, 1911, *Genera Insect.*, 122 : 36; Burr, 1911, *J. Asiat. Soc. Beng. (N.S.)*, 7 : 780; Kirby, 1904, *Syn. Cat. Orth.*, 1 : 9; Hebard, 1923, *Mem. Dep. Agric. India ent. Ser.*, 7 : 211; Borelli, 1931, *Rev. suisse Zool.*, 38 : 301; Boeseman, 1954, *Zool. Verh., Leiden*, 21 : 54; Bey-Bienko, 1959, *Ent. Obozr.*, 38 : 609; Ramamuarthi, 1963, *Ann. Mag. nat. Hist.*, (13) 6 : 675; Brindle, 1966, *Ann. Mag. nat. Hist.*, (13) 9 : 264; Brindle, 1974, *Senckenbergiana biol.*, 55(1/3) : 151, figs. 7-9 (Southern and Eastern Nepal); Brindle, 1983, *Ent. Basiliensia*, 63 (1/2) (1982) : 98 (Nepal : Lamjung dist.); Kapoor, 1968, *Agra Univ. J. Res. (Sci.)*, 16(1) : 20; Srivastava and Saha, 1975, *Ceylon J. Sci. (Bio. Sci.)*, 11 (2) : 64 (India : W.B., Darjeeling Dist.); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2 : 43; Srivastava, 1983, *Rec. zool. Surv. India*, 81 : 283 (India : Arunachal Pradesh and Assam); Kapoor and Malla, 1977, *J. nat. Hist. Mus.*, 1 : 134 (Nepal : Sunderijal); Kapoor, Malla and Shah, 1978, *J. nat. Hist. Mus.*, 2(2) : 57 (Nepal : Naubise, 25 km W of Kathmandu); Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 32; Sakai, 1997, *Bull. Biogeogr. Soc. Japan*, 52(2) : 47 (India : Assam, Manipur, Sikkim and Arunachal Pradesh).

Forcipula abbreviata, Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, 89 : 10, figs. 5-8 (Male, Female; India : Arunachal Pradesh, W. Bengal (Darjeeling Dist.) and Sikkim); Srivastava, 1991, *Rec. zool. Surv. India*, 89 (1-4) : 60 (Malaysia : Sabah); Srivastava, 1993, *State Fauna Series 3 : Fauna of West Bengal, Pt. 4*, 398, figs. 87-88 (India : W.B., Darjeeling Dist. only).

General colour dark brownish black, sides of pronotum lighter in colour, often elytra in middle close to sutural margin and branches of forceps reddish; mouth parts, antennae and legs yellow or yellowish brown. Body finely pubescent.

Male : Head slightly longer than broad, sutures faintly marked, frons and occiput feebly raised, head gently widened behind eyes, hind margin convex with a faint emargination in middle. Antennae 30-segmented or more, basal segment widened apically and shorter than the distance between antennal bases; 2nd small, transverse; 3rd long and slender, only slightly shorter than 1st; 4th about as long as broad; 5th and 6th stout, cylindrical; 7th onwards segments narrowed at base and expanded apically and gradually increasing in length, certain preapical segments long and thin. Eyes prominent, slightly shorter than the post-ocular length. Pronotum about as long as broad or a trifle longer, smooth, sides straight, feebly concave in middle, hind margin and angles rounded, median sulcus distinct; prozona raised and metazona depressed. Legs typical of the genus. Elytra normal, feebly punctate, meeting along the sutural margin; small scutellum visible. Wings abbreviated, concealed. Abdomen convex, enlarging posteriorly, hind margin of each tergite milled but milling weaker on anterior and posterior tergites, sides of segment 3rd to 5th provided with a pair of spines, of which dorsal one larger, triangular and directed laterally, ventral one smaller and stumpy. Penultimate sternite transverse, hind margin narrowed posteriorly and rounded; manubrium short, about 1/5 as long as the sternite, about three times longer than broad. Pygidium vertical, triangular. Ultimate tergite transverse, smooth, hind margin straight in middle, oblique and concave laterally, median sulcus distinct. Forceps remote at base, with an oblique ridge at base above, afterwards branches depressed, curved in basal half enclosing an oblonge space, internal margin below tuberculated; afterwards straight, contiguous, tapering with apices gently hooked and pointed. Genitalia as seen in fig. 380.

Female : Agrees with male in most characters except that the penultimate sternite and ultimate tergite more narrowed posteriorly and forceps simple and straight, contiguous, internally crenulated with a large tooth at apical 1/3.

Measurements : (in mm)

	Male	Female
Length of body	17.0-25.0	24.0-25.5
Length of forceps	12.4-17.1	5.0-7.0

Types : Holotype Male and Paratypes 7 Males and 17 Females in ZSI.

Distribution : India : Arunachal Pradesh, West Bengal (Darjeeling Dist.) and Sikkim.

It occurs all along the Himalaya in India, Nepal and Bhutan.

Remarks : This species was confused with *Forcipula decolyi* Bormans, known from New Guinea, but differs by the shape of forceps which lack on internal margin below a large sharp pointed, posteriorly directed tooth and the parameres somewhat more

distinctly enlarged apically with tip rounded. In the latter (paratype 1 Male examined) shows that parameres are comparatively narrower apically with inner apical margin oblique and tip obtusely pointed.

All records of *F. decolyi* Bormans, from India, Myanmar, Nepal and Bhutan are referable to the this species barring those that are based on fully winged forms which belong to another species, *F. clavata* Liu, from China.

The body size varies greatly and in the smaller males lateral abdominal spines are poorly developed, occasionally represented by a small single spine on 4th and 5th tergites and the curvature of forceps in basal half is more elongated.

It occurs commonly along the banks of rivers and streams under stones, right from the foot hills to higher elevations in Himalaya.

Uncertain species

Forcipula leonardi Steinmann

Forcipula leonardi Steinmann, 1981, *Atti Soc. Ital. nat. Museo. civ. Stor. nat. Milano*, **122** (3-4) : 160 (Female; India : Andaman Is., Port Blair); Steinmann, 1989, *Das Tierreich*, **105** : 461; Steinman, 1989, *World Catalogue of Dermaptera* : 386; Sakai, 1982, *Bull. Daito Bunka Univ.*, **20** : 32; Srivastava, 1986, *Rec. zool. Surv. India, Occ. pap.*, **89** : 34 (Female; India : Andaman Isl., Port Blair).

Female : General colour reddish brown, head red, antennae dark brown, pronotum black, yellow laterally, tegmina and abdomen reddish brown, former along the inner margin with light reddish stripe, wings yellow with tip light brown, legs dark brown.

Head broader than pronotum, sutures distinct. Antennae 27-segmented, 1st longer than the distance between antennal bases; 2nd short; 3rd twice as long as 4th. Pronotum almost square, sides parallel, hind margin rounded. Elytra and wings well developed, rugose. Legs normal. Abdomen elongated, punctate. Ultimate tergite transverse, narrowed posteriorly. Forceps almost straight, tapering with apices gently hooked, at base above trigonal, inner margin dentate in basal $\frac{3}{4}$ only.

Measurements : (in mm)

	Holotype
	Female
Length of body (including forceps)	27.0

Types : Holotype Female at MSNG.

Distribution : Andaman. Known from the Type locality only.

Remarks: Since this species is described on a Female, its taxonomic status remains doubtful. It comes close to *F. quadrispinosa* but differs by the colouration of elytra and wings and forceps lacking preapical internal tooth in females.

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ADDENDA TO PART - I

Cranopygia similis (Zacher)

(Figs 1-6)

Kalocrania similis Zacher, 1911, *Zool. Jb.*, **30** : 387, fig. D (genitalia), 338 (Male; Malay Archipelago); Burr, 1911, *Genera Insect*, **122** : 18; Burr, 1915, *J.R. micr. Soc.*, **1915** : 435, pl. 6, fig. 10 (genitalia after Zacher); Borelli, 1926, *Treubia*, **8** : 250 (Java); Boeseman, 1954, *Zool. Verh., Leiden*, **21** : 10, fig. 31 (Java).

Pygidicrana siamensis (néc Dohrn); Burr, 1910, *Fauna British India, Dermaptera*: 59 (Partim).

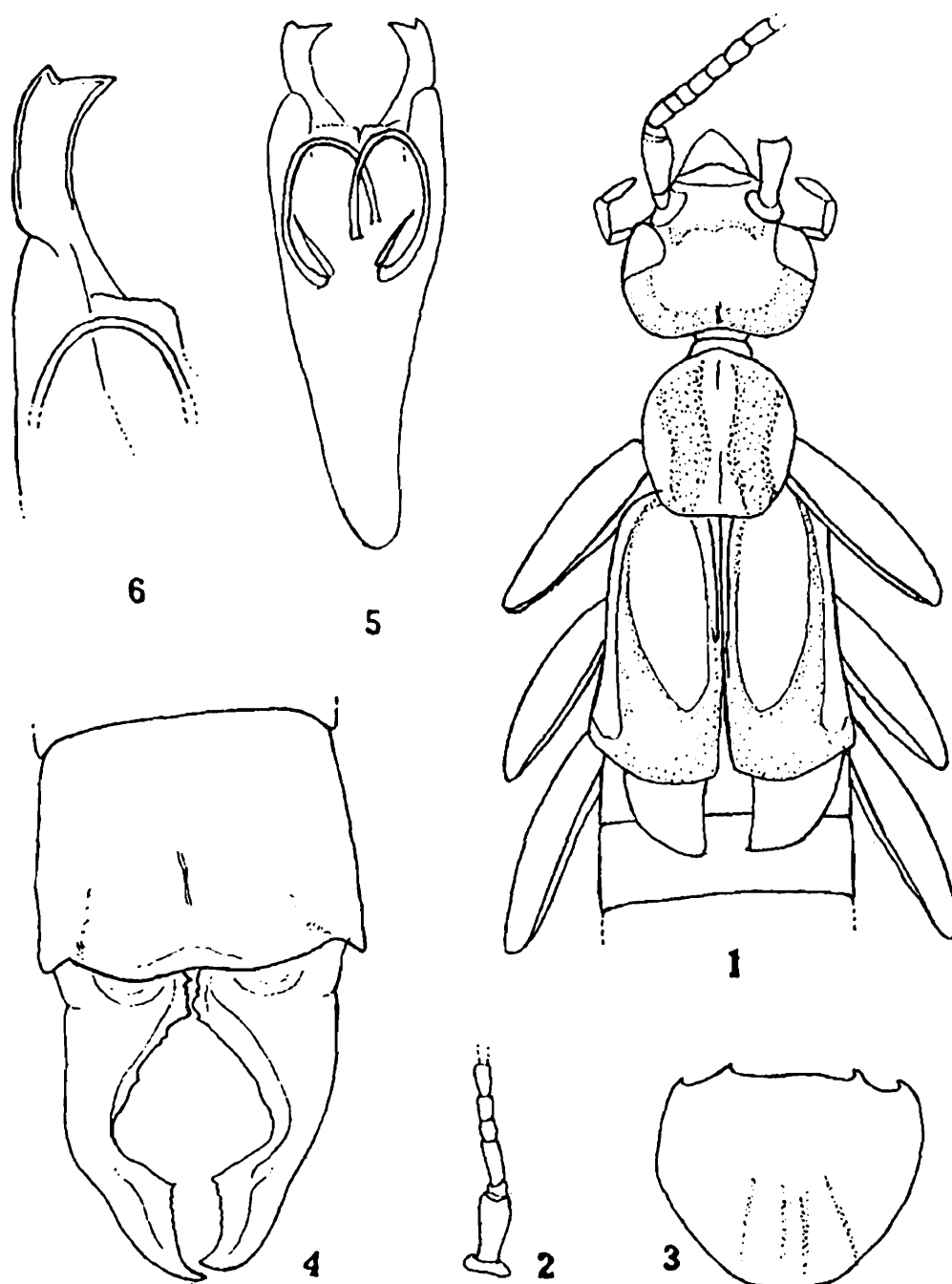
Cranopygia similis; Hincks, 1959, *Syst. mono Dermaptera of the world*, Pt. II : 83, fig. 67 (male genitalia); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2** : 4; Srivastava, 1993, *Rec. zool. Surv. India*, **92**(1-4) (1992) : 44; Srivastava, 2001, *Rec. zool. Surv. India*, **99** (1-4) : 49, figs. 1-2 (Male; Andaman Isl, South Andaman, Wandoor).

Paracranopygia similis; Steinmann, 1986, *Das Tierreich*, **102** : 293, figs. 446-442; Steinmann, 1989, *World Catalogue Dermaptera* : 155.

Male : General colour chocolate brown; forceps lighter; head with a broad yellow patch on frons and occiput partially; pronotum yellow with dark leniar stripe close to median line, elytra with an oblong yellow stripe from shoulder to apical 1/3 and another narrower one laterally; antennae and wing yellowish; legs yellowish brown.

Head longer than broad, smooth, sutures fine, frons depressed, hind margin emarginate in middle. Eyes prominent, about as long as the post-ocular area. Antennae (partly broken) 20-segmented or more, basal segment stout, a trifle shorter than the distance between antennal bases; 2nd short, transverse; 3rd slightly longer than broad; 4th to 6th transverse, afterwards gradually thinning and increasing in length; occasionally antennae of other side from 4th to 6th not transverse, more elongated. Pronotum slightly longer than broad, sides rounded, hind margin subtruncate, median sulcus obsolete; prozona tumid, well differentiated from flat metazona. Tegmina and wings well developed. Legs typical of the genus. Abdomen cylindrical, gradually expanding posteriorly, tergites convex, obscurely punctulated, finely pubescent. Penultimate sternite finely pubescent, narrowed posteriorly with hind margin in middle subtruncate, in posterior half with three depressed stripes in middle. Ultimate tergite weakly transverse, finely pubescent, rugosely striate, expanded posteriorly, median sulcus faint, disc convex sloping on sides, hind margin incrassate, in middle subtruncate, above base of forceps faintly oblique and sinuate, postero-lateral angles projecting, in the middle above close to hind margin with raised triangular, smooth area. Forceps with branches short, stout, flat, feebly bent in middle, narrowed posteriorly with tip hooked, at base externally with a constriction, internally enclosing a pear shaped area in basal 2/3 and in apical 1/3 elongated area, internal margin at base with two or three blunt tooth, afterwards with fine serrations, at apical 2/3 a sharp tooth present.

Female : Agrees with male except abdomen parallel on sides; penultimate sternite subtriangular with hind margin obtuse in middle; ultimate tergite quadrate, rugose



Figs. 1-6 : *Cranopygia similis* (Zacher), Male; 1. Anterior portion of body; 2. A few basal antennal segments; 3. Penultimate sternite; 4. Ultimate tergite and forceps; 5. Genitalia; 6. Paramere and basal portion of proparamere, enlarged.

especially posteriorly with a triangular smooth area and forceps subcontiguous, trigonal, tapering, straight except at extreme apex, inner margin crenulated.

Measurements : (in mm)

	Male	Female
Length of body	25.0	23.00
Length of forceps	5.5	(including forceps)

Distribution : Malay Peninsula, Sumatra, Java and India (Andaman Islands).

Types : Type Male in ZMHB.

Remarks : This species is very close to *Pygidicrana siamensis* (Dohrn, 1863) from Thailand but differs by the slight differences in the shape of parameres.

ADDENDA TO PART - II

Mongolabis affinis Ramamurthi (Figs.1-6)

Mongolabis affinis Ramamurthi, 1973, *Steenstrupia*, 3(2): 12, figs.4-6 (Male, Female, nymphs; Thailand : Doi Suthep & Phu Kradung); Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2; Srivastava, 1999, *Rec. zool. Surv. India*, 97 (1) : 85.

Euborellia (Mongolabis) affinis; Sakai, 1982, *Bull. Daito Bunka Univ.*, 20 : 25; Sakai, 1987, *Dermapterorum Cat.*, 20 : 1685.

Euborellia affinis; Steinmann, 1989, *World Catalogue of Dermaptera* : 261.

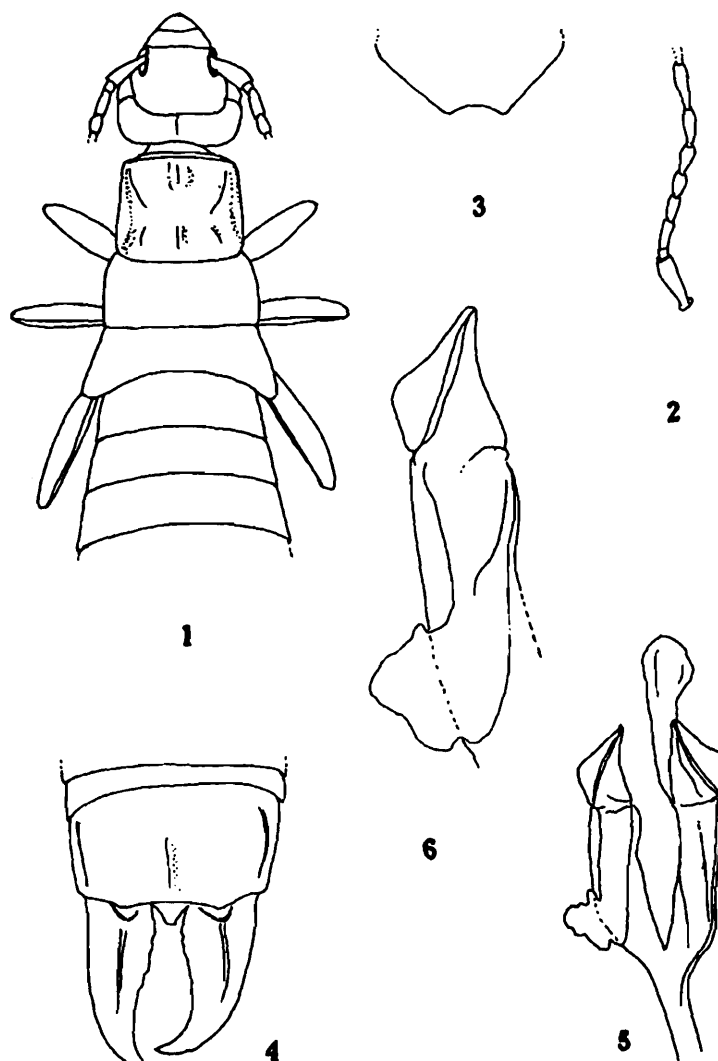
General colour black; mouth parts reddish black; antennae slightly lighter; femora yellowish brown with dark band, tibiae and tarsi uniformly yellowish brown.

Head about as long as broad, smooth, sutures finely marked or obsolete, hind margin feebly emarginate in middle. Eyes shorter than post-ocular area. Antennae multisegmented, 1st stout, narrowed at base, about as long as the antennal bases; 2nd short; 3rd long, slender; 4th a little shorter than 3rd but stouter; 5th almost equal to preceding; 6th onwards segments gradually thinning; basal antennal segments diamorphic. Pronotum quadrate, gently transverse, lateral margin straight, gently reflexed and widened posteriorly with lateral angles rounded and margin subtruncate, prozona and metazona weakly raised, median sulcus short. Meso- and metanotum transverse, former with hind margin truncate and latter broadly emarginate. Legs typical of the genus. Abdomen gradually enlarging posteriorly, tergites convex, smooth, finely pubescent, sides of segments 7-9 acute angled, rugose. Penultimate sternite transverse, narrowed posteriorly with hind margin deeply sinuate. Ultimate tergite transverse, disc weakly raised with sparse punctation, laterally rugose. Forceps trigonal and broad at base, narrowing towards apex, asymmetrical, right branch more strongly incurved than the left; inner margin crenulate. Genitalia as seen in figs. 5-6.

Female : Agrees with males in most characters except that ultimate tergite uniformly smooth, narrowed posteriorly; penultimate sternite triangular and forceps simple, straight.

Measurements : (in mm)

	Males	Females
Length of body	17.0-21.0	16.0-18.0
Length of forceps	4.5	4.5-5.0



Figs. 1-6 : *Mongolabis affinis* Ramamurthi, Male, 1. Anterior portion of body; 2. A few basal segments of right antennae; 3. Hind portion of penultimate sternite; 4. Ninth, ultimate tergite and forceps; 5. Genitalia; 6. Left half of genitalia, enlarged.

Distribution : Thailand (Doi Suthep and Phu Kradung, NE Thailand) and India (Arunachal Pradesh).

The above record from India is based upon the following specimens present in the National Zoological Collection at the Zoological Survey of India, Calcutta :

India : Arunachal Pradesh; Upper Subansiri Dist., Around Don, 2 Males (genitalia mounted between two coverslips and attached to the specimens), 2 Females, ca 1500 ft., ex decaying log, 14.ii.1985, Coll. & determined by G.K.Srivastava.

Types : Holotype Male, Allotype Female; Paratypes 2 Males, 6 Females, 6 Nymphs in UZMC.

Remarks : This species can be easily separated from the only known species of the genus from India, namely *Mongolabis vallakadaiensis* (Ramamurthi and David) in having pronotum slightly transverse (vs longer than broad in *M. vallakadaiensis*);

apterous (*vs* Mesosternum with abbreviated elytra, narrowed at base, exposing a transverse scutellum and posteriorly lobed, overlapping along the middle line); sides of abdominal segments acute angled posteriorly and rugose (*vs* convex posteriorly & ecarinate) and penultimate sternite with hind margin deeply emarginate (*vs* convex).

***Apolabis thushargiriensis* sp.n.**

(Figs. 7-12)

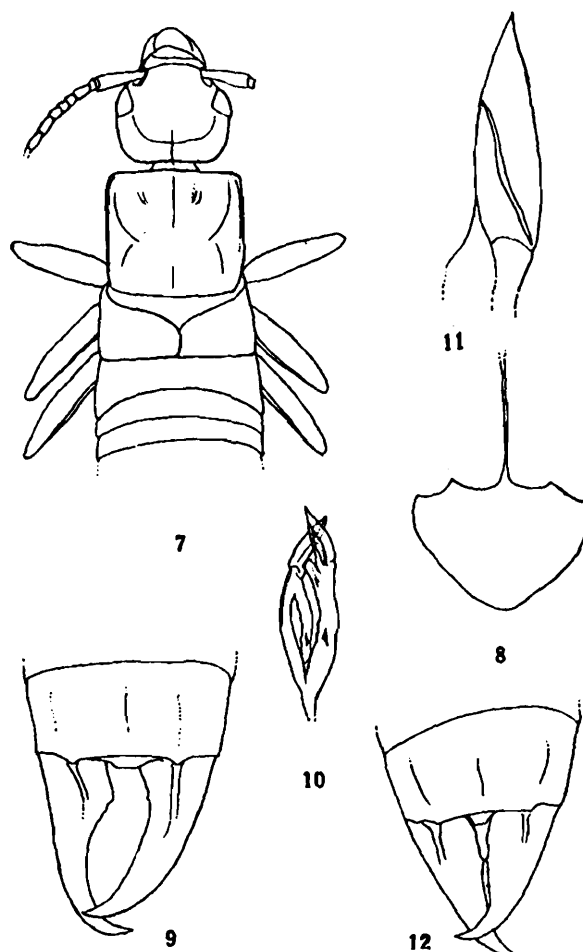
General dark brownish black, mouth parts and legs yellowish brown; three basal antennal segments blackish brown.

Head longer than broad; frons and occiput raised, latter micro-reticulated, sutures fine, median one marked by a deep furrow, hind margin emarginate in middle. Eyes shorter than the post-ocular area. Antennae 19-segmented, basal segment stout, expanded apically, about as long as the distance between antennal bases; 2nd short, about as long as broad; 3rd long, slender twice as long as broad; 4th a trifle longer than broad, globular; 5th almost equal to preceding; 6th onwards gradually increasing in length, 11th onwards thinning, a few apical ones rod shaped. Pronotum longer than broad, smooth, lateral margin straight, parallel, gently reflexed, hind margin subrotundate, prozona and metazona weakly raised, median sulcus faint. Elytra narrowed at base exposing a transverse, triangular scutellum, smooth, broad apically, internal margin overlapping. Metanotum transverse, obscurely punctulate, hind margin broadly emarginate. Legs typical of the genus, hind tarsi with 1st segment slightly longer than the combined length of remaining two segments. Abdomen elongated, gently widened in middle, tergites convex, punctulate, laterally above with a pair of rounded, smooth patches in basal half, sides of abdominal segments 6-9 obtuse angled, strongly punctulate, with carina on 7th-8th only. Penultimate sternite triangular, hind margin in middle obtuse. Ultimate tergite obscurely punctulate, transverse, sloping backwards, depressed in middle close to hind margin, hind margin in middle subtruncate, laterally straight, very slightly converging posteriorly, median sulcus short. Pygidium vertical, triangular. Forceps with branches subremote at base, gradually curving and tapering apically with apices hooked, right branch more strongly incurved in apical 1/3, trigonal in basal 1/4, afterwards depressed, internal margin of left branch deplanate and convex near base and that of right sinuate with one or two teeth, otherwise unarmed. Genitalia as seen in figs 10-11.

Female : Agrees with males in most characters except that ultimate tergite strongly narrowed posteriorly and forceps simple and straight, internally armed with a small tooth at basal 1/3.

Measurements : (in mm)

	Holotype	Paratypes	
	Male	Male	Females
Length of body	22.0	17.5-21.0	18.5-19.5
Length of forceps	5.5	4.0-5.0	4.0-4.5



Figs. 7-12 : *Apolabis thushargiriensis* sp.n., Holotype Male, 7. Anterior portion of body; 8. Penultimate sternite with basal portion of manubrium; 9. Ultimate tergite and forceps; 10. Genitalia; 11. Left paramere, enlarged; Paratype Female, 12. Ultimate tergite and forceps.

Material examined : India : Kerala, Calicut dist., Thushargiri, ca 1500 ft., Holotype Male (genitalia mounted between two coverslips and pinned with the specimen), Paratypes : 2 Males, 2 Females and 1 nymph, 3.iii.2001 (G.K.Srivastava Coll.).

Distribution : India (Kerala).

Types : Holotype Male, Paratypes 2 Males, 2 Females and 1 nymph in Z.S.I.

Remarks : Some variations have been noted in the development of longitudinal carina on the sides of abdominal segments. It is present on 7-9 segments in one Paratype whereas it is absent in another male. Perhaps the other male may not be fully developed.

This species comes close to *Apolabis genitalis* (Kapoor) and *A. ramachandrai* (Ramamuarthi and David) in having the sides of certain abdominal segments carinate and penultimate sternites obtuse in middle posteriorly but differs from both in having the pronotum slightly broader than long. It however, can be, further differentiated from the latter by the shape of sides of abdominal segments 6-9 obtuse angled and the lateral margin of parameres convex.

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