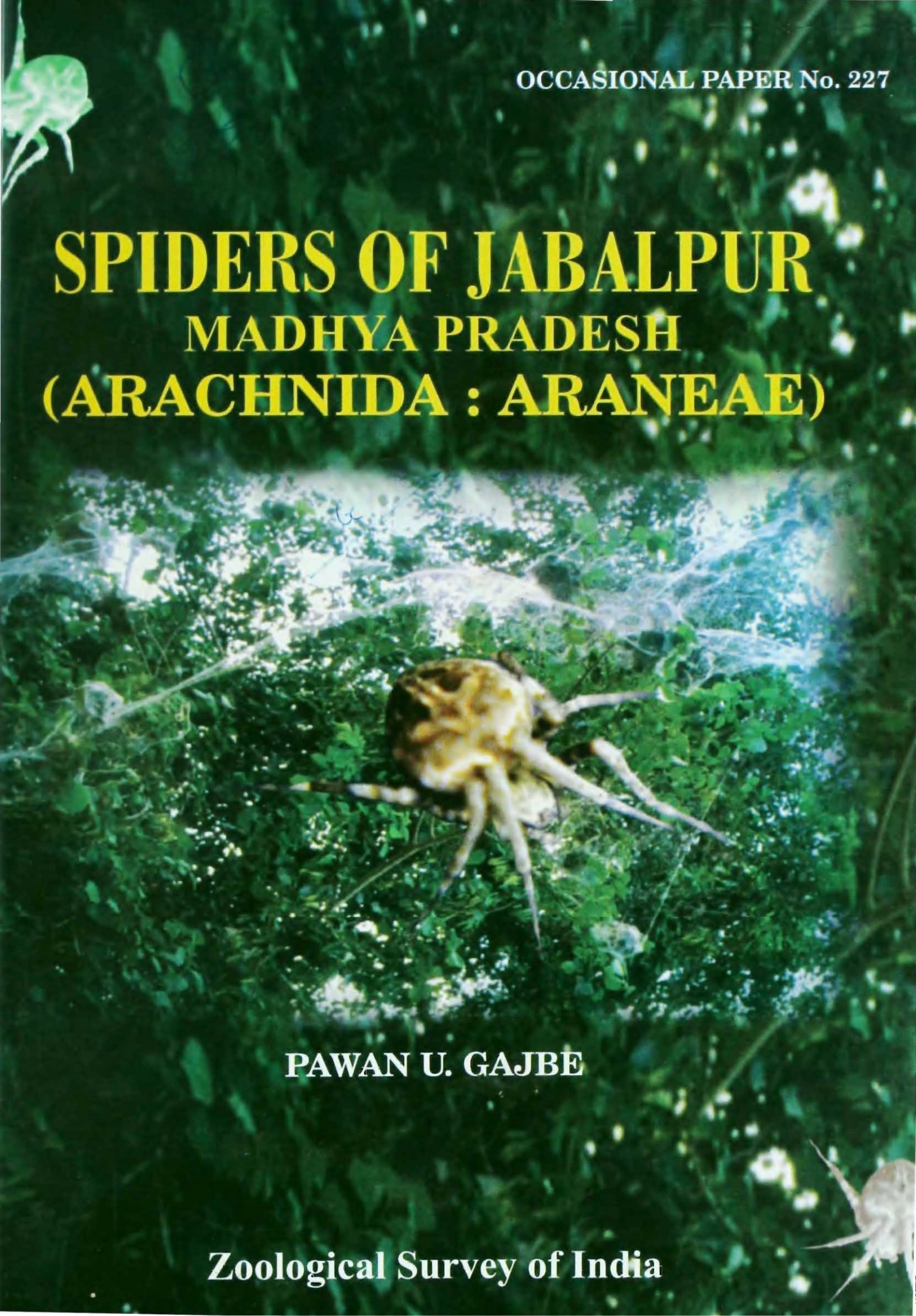




OCCASIONAL PAPER No. 227

SPIDERS OF JABALPUR

MADHYA PRADESH

(ARACHNIDA : ARANEAE)

PAWAN U. GAJBE

Zoological Survey of India

OCCASIONAL PAPER NO. 227

**RECORDS
OF THE
ZOOLOGICAL SURVEY OF INDIA**

**Spiders of Jabalpur, Madhya Pradesh
(Arachnida : Araneae)**

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सत्यमेव जयते

**Zoological Survey of India
Kolkata**

CITATION

GAJBE, PAWAN U. 2004. Spiders of Jabalpur, Madhya Pradesh (Arachnida : Araneae), *Rec. zool. Surv. India, Occ. Paper No. 227* : 1–154 (Published by the Director, Zool. Surv. India, Kolkata)

Published : June, 2004

ISBN 81-8171-041-X

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PRICE

India : Rs. 400.00

Foreign : \$ (U.S.) 30 £ 25

Published at the Publication Division by the Director, Zoological Survey of India, 234/4, A. J. C. Bose Road, 2nd MSO Building (13th Floor) Nizam Palace, Kolkata-700 020 and printed at East India Photo Composing Centre, 69 Sisir Bhaduri Sarani, Kolkata-700 006.

RECORDS OF THE ZOOLOGICAL SURVEY OF INDIA

227

2004

Pages 1–154

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INTRODUCTION

Spiders

Order Araneae is a large group of animals, which are commonly known as spiders. Among the wonders of nature, there are few things more remarkable than these agile eight-legged creatures, often beautiful in structure, with striking habits and complex life histories. Spiders make up a considerable portion of the biodiversity of this vast and diversified nation. They are widespread and are found in all types of habitats and occupy all but a few niches. They have attracted the attention of naturalists from early times (Linnaeus, 1758; Fabricius, 1793), and later in India (Stoliczka, 1869; Karsch, 1873; Simon, 1887; Pocock, 1900; Sherriffs, 1919; Gravely, 1921a, b; Dyal, 1935), and enormous amount of literature has been accumulated. Compared to various other animal groups in India, not much work has been published on them, though in recent years, they have attracted attention of some workers including Tikader (1963), Patel (1973), Gajbe (1979) and Biswas (1984a, b). These works include the description of species and their habits, behaviour and ecology.

Spiders are a separate group from insects, placed under Class Arachnida, which also includes Scorpions, Whip scorpions, Pseudoscorpions, Solpugids, Ticks, Mites and Daddy-long-legs. Spiders are often confused with Daddy-long-legs (Harvestmen), which belong to order Opiliones. However, they can be readily separated from the later by the fact that Harvestmen have their abdomen segmented and also lack spinnerets, one of the characteristic features of spiders.

Sometimes ant-like spiders or beetle-like spiders are also confused with insects. These spiders can be readily distinguished from insects by the following characters (Kaston, 1978):

CHARACTER	SPIDER	INSECT
Body regions	Two	Three
Antennae	Absent	One pair
Legs	Four pairs	Three pairs
Pedipalps	One pair	Absent
Poison apparatus	Opening on fangs of chelicerae	If present, usually opening at posterior end of abdomen
Wings	Absent	One or two pairs in pterygotes
Eyes	Simple ocelli, generally 6 or 8	Generally, 1 pair of compound eyes with 2 or 3 ocelli

Spider Diversity

Spiders are one of the most diverse animal groups in the world. Many types of spiders can easily be found even in a small area. They come in different sizes, sport myriad colours and are found in strikingly different habitats. Generally, spiders are of two types, web builders and hunting spiders. A few species like those belonging to the genus *Dolomedes* can even remain underwater for some time (Kumar *et al.*, 1999).

According to Platnick (2002), 37766 species of spiders belonging to 3496 genera under 109 families are known from the world. From the Indian subcontinent, so far, 1035 species of spiders belonging to 240 genera under 46 families are known, and these are believed to be about one tenth of the total number of spider species actually present (Sanyal & Tandon, 1998).

Habits and Habitats

Spiders are carnivorous creatures, feeding mainly on insects and small arachnids. Diving spiders like *Dolomedes* can even catch little fishes (Kumar *et al.*, 1999). The wandering spiders are alerted to the presence of a prey by its movement. In case of web making species, the prey is trapped in the snare.

The wandering and trap-door spiders do not ensnare the prey with silk. They just catch the prey and readily feed on it. Web builders generally ensnare the insects caught in their snares with silk, then bite it, and later drag it to the hub or to the retreat, to be eaten.

There are two ways in which spiders ingest food. Spiders having weak jaws puncture the body of the insect with their fangs and then slowly alternate between injecting digestive fluid through the hole and sucking back the liquefied tissues, until there remains but an empty shell. The tarantulas, wolf spiders, large orb weavers, and others, which possess strong jaws, mash the insect to pulp between the jaws, as the digestive fluid is regurgitated over it (Kaston, 1978).

Most spiders are cannibalistic in nature. They often feed upon other spiders. As a result of this, social life is hardly expected from them. Still, there are exceptions. Among the Indian spiders, the species *Stegodyphus sarasinorum* is known to construct very large webs in which hundreds of individuals live together (Tikader & Biswas, 1981). Small spiders of the genus *Conopistha* usually inhabit the snares of larger spiders and consume small insects, which are neglected by the web's owner (Kaston, 1978).

Spiders inhabit diverse habitats. They may be found almost everywhere, on or near water, in or on the ground, from underground caves to the top of mountains. Some species live inside human habitations, others frequent the woods. Tall and low plants have spiders living on

them, as do the drying leaves on forest floor, and the curled, dried leaves on trees in winter. Many species can easily be found under bark, stones, logs, which are just a few of their diverse habitats.

Trap door spiders dig holes in the ground. The wolf spiders and tarantulas may make use of shallow holes in which to hide. Many of the gnaphosids, lycosids and some clubionids run about over the ground and are found under stones in meadows and in woods. A large number of spiders are found among and under loose rock formations. Many spiders prefer dark and shaded locations, where the humidity is high. Some spiders such as *Pirata* and *Dolomedes* are found along the edges of streams and ponds, over the surface of which they run, and beneath the surface of which they can dive. Some species like *Pachygnatha* and *Tetragnatha* species also prefer watercourses, but are usually found on the shrubbery, which overhangs the ponds of streams (Kaston, 1978).

Other species are found in tall grass, on bushes and trees, some over the branches and trunks and hide under loose bark and crevices. Snares may be built among twigs and many linyphiids, theridiids and orb-weavers construct their webs in tall grass, bushes and foliage.

Protective Colouration and Mimicry

Many spiders are not only coloured like their surroundings but also possess a body form, which resembles inanimate objects. Some species such as *Cyclosa* and *Thomisus* resemble bird droppings. Some look like the buds of the plants on which the web is built, e.g., *Hyptiotes*. Many spiders such as *Tetragnatha* and *Eucta* with an elongated body and legs resemble pieces of straw and grass (Tikader, 1980).

Some spiders resemble other animals and of these mimics the ant-like species are most common. Some ant-like jumping spiders belonging to the genus *Myrmarachne* have been described from India by Tikader (1973a). Examples of such spiders are known in many families and often the mimicry extends not only to the body form but also to the behaviour, the spiders moving about with anterior legs elevated like a pair of antennae.

Uses of Silk

All spiders possess spinnerets and produce silk, which mainly contains a protein called fibroin. Spiders use the silk in many ways. The hunting spiders do not build any web, yet they have specific use of silk produced by them. Generally, when a spider moves about, it will pay out a continuous line of silk behind called the drag-line. This drag-line is fixed to the walking surface with a number of looped threads at frequent intervals. This is called an attachment disc. Now if the spider should lose its footing, the fall is supported by the drag-line.

Often, a web spider uses its silk to ensnare the trapped prey. Many spiders build a nest or retreat, which may be a tube open at ends, a silk-lined excavation, or an inverted cup near the web. The same or similar nests may be constructed for molting, mating or hibernating. The females make 'egg sacs', and the males 'sperm webs'. The snares may be irregular meshes, as in the Theridiidae, sheet webs, as in the Linyphiidae, funnel webs, as in the Agelenidae, orb webs, as in Araneidae and Tetragnathidae, or else combinations of these (Kaston, 1978).

Spiders use an interesting device of their own making called 'balloon' for dispersal. The spider climbs up a high object such as a reed, a blade of grass or a pole and then tilts its abdomen upwards. From its spinnerets, the spider emits strands of silk, which are paid out as the air currents pull, until the buoyancy of the parachute is enough to support the spider, which releases its hold and is carried away in the breeze (Levi & Levi, 1968; Kaston, 1978).

Spiders generally lay their eggs within a cocoon of silk, though in some like *Pholcus* and *Scytodes*, both of which are house spiders, this may be quite scanty. The eggs of running spiders are laid upon a sheet of silk, which is then wrapped around the egg mass or another sheet is made over the eggs (Levi & Levi, 1968).

Spider venom

Poison glands are found in all spiders except the members of two small families. These glands open by a pore near the tip of each cheliceral fang. The gland itself is more or less cylindrical and covered by a layer of spirally arranged muscles, which contract to expel the venom.

Spiders use their venom to kill or subdue the prey and as a means of defence. Most spiders are not dangerous to human beings. Most of them are so timid that they do not attempt to bite even when handled roughly (Kaston, 1978). Nevertheless, there are some spiders that have been troublesome to man and produce symptoms of what in the medical literature has been called arachnidism.

Black widow spiders, genus *Latrodectus* (Family Theridiidae) are well known to cause illness. One subspecies of this genus, *Latrodectus hasseltii indicus* Simon is known from India (Patel & Vyas, 2001; Siliwal & Kumar, 2001). Other examples of harmful spiders found in North and South America are *Loxosceles reclusa*, *L. deserta*, *L. arizonica*, and *L. laeta* (Levi & Levi, 1968). Although, highly poisonous species of spiders have not been reported from India so far, in general, the presence of spiders is a major irritant in households.

Importance of Spiders in Nature

Spiders are a group of animals that are often neglected due to ignorance, fear and general dislike towards them. The widespread conception that spiders are highly poisonous and harmful

is pure prejudice, as scientists have proved that although, almost all spiders have poison glands, just a few rare spiders are dangerous to man. The poison glands, in most cases are meant to capture and stun the prey.

Spiders are ubiquitous and diverse predators in terrestrial ecosystems (Halaj *et al.*, 1997), and are frequently the dominant predators found in arthropod communities (Turnbull, 1973; Gertsch, 1979). Spiders are exclusively carnivorous and prey mainly on insects. They are one of the most important biological agents in nature, which help in keeping the insect populations in check. A large number of spiders feed on insects like houseflies and mosquitoes, which are carriers of pathogens causing serious diseases in human beings. The house spider *Heteropoda* actively preys on cockroaches, the most persistent pests. A large number of spiders are found in cultivated fields and this suggests that they must be preying on a large number of insect pests of cultivated crops. A comprehensive account of spiders, which are potential biocontrol agents, has not been available so far in India. However, in the Integrated Pest Management (IPM) strategies, spiders are included as important biocontrol agents.

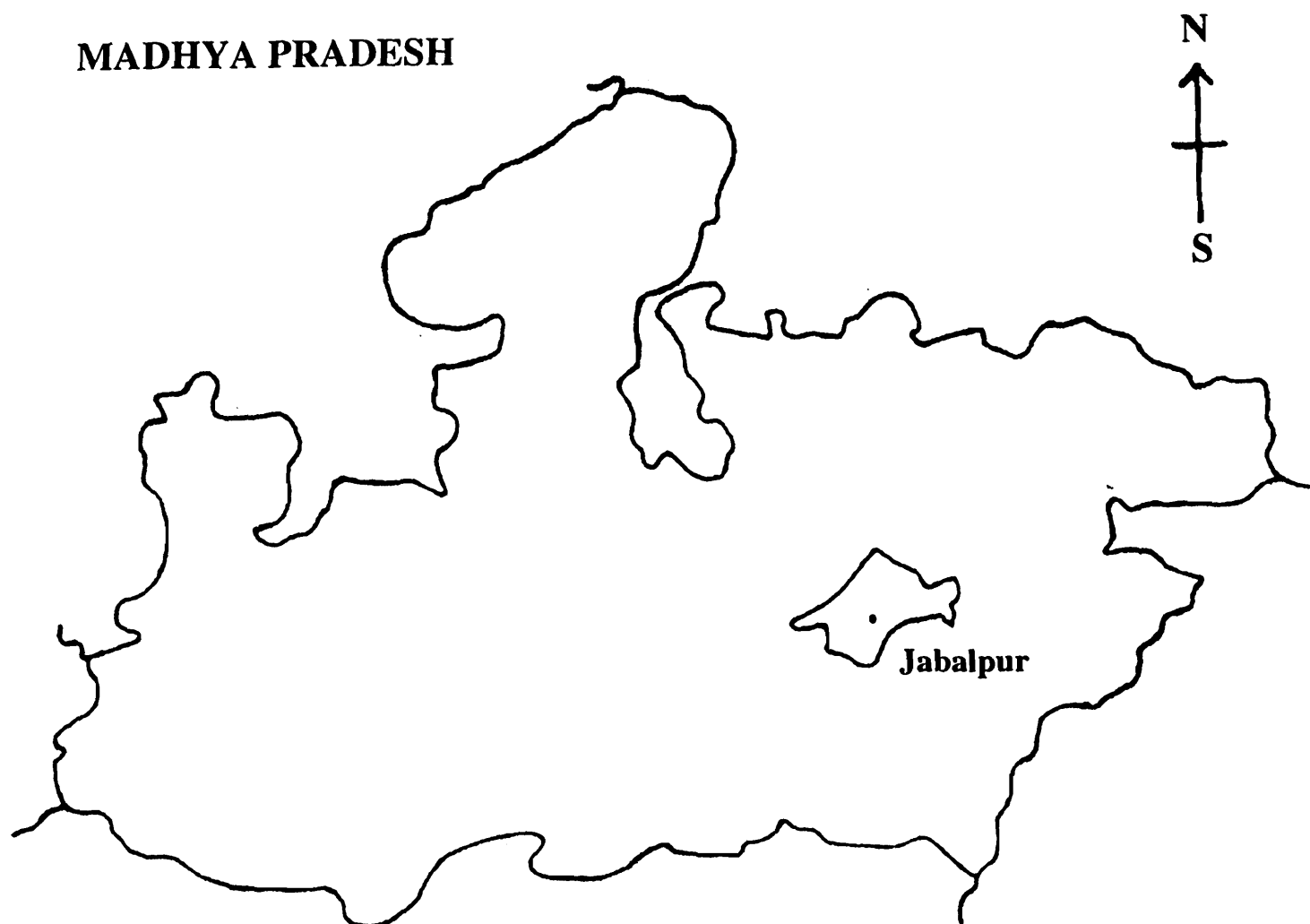
Spiders may be a significant enemy of forest insect pests (Mason 1992). For example, spiders are known to prey on all stages of the western spruce budworm, *Choristoneura occidentalis* Freeman in U.S.A. (Mason *et al.*, 1997). There is also evidence that the density, behaviour, and population dynamics of spiders act to stabilize terrestrial arthropod populations (Breymer, 1966; Turnbull 1973).

CONTRIBUTIONS ON INDIAN SPIDERS

Although spiders are extremely abundant throughout the country, our knowledge of the Indian spider fauna is extremely fragmentary. Two of the earliest contributions on Indian spiders were by Stoliczka (1869) and Karsch (1873). Simon (1887-1906) recorded many species from the Himalayas, and Andaman & Nicobar Islands. Thorell (1895) published a descriptive catalogue of about 200 species of Burmese spiders. Pocock (1900) recorded 200 species from India, Burma (Myanmar) and Sri Lanka. Sheriffs (1919-1929) and Reimoser (1934) described many interesting species of spiders from southern India. Gravely (1921-1935) added considerably to the knowledge of Indian spiders. A number of species from Lahore were described by Dyal (1935). Narayan (1925) gave interesting accounts of many ant-like spiders of the family Salticidae. Contributions made by Sinha (1951-52) on Lycosidae and Araneidae may also be mentioned as important. Tikader (1963) and Tikader and Malhotra (1974) described spiders from Maharashtra. Tikader (1980, 82), Tikader and Malhotra (1980), Tikader and Biswas (1981), Biswas and Biswas (1992), Saha *et al.* (1994, 95) and Biswas *et al.* (1997) have described spiders from Bengal. Spider fauna of Gujarat has been studied

by Patel (1973, 75), Patel and Patel (1972, 73) and Patel and Vyas (2001), while Patel and Reddy (1988-93), and Reddy and Patel (1991-93) have described spiders from Andhra Pradesh.

The spiders of many families were practically unknown from Madhya Pradesh before Tikader (1980, 82) who described many species of the families Thomisidae, Philodromidae, Lycosidae, Araneidae and Gnaphosidae from all over India. Gajbe (1983-99) has described many new species of spiders from Madhya Pradesh and Chhattisgarh region including some species from Jabalpur district. Spiders from Kanha Tiger Reserve, Madhya Pradesh and Indravati Tiger Reserve, Chhattisgarh have also been recorded by Gajbe (1995). In recent times, Gajbe & Gajbe (1999, 2000, 2004) described 24 new species, Bhandari & Gajbe (2001) described 10 new species and Gajbe (2002) recorded 102 species of spiders from Jabalpur district, Madhya Pradesh.



Map 1. Outline map of Madhya Pradesh showing location of Jabalpur district.

STUDY AREA

(Map. 1)

Jabalpur district (c. 23°10' N, 79°57' E) lies in the eastern half of Madhya Pradesh in the central region of India. It is situated on the Deccan Plateau with a height of 402 m. above msl and surrounded on all sides by ancient basalt rocks and forests. Jabalpur district consists of a long narrow plain running from South-West to North-East flanked by the Bhanrer and Kaimur ranges of the Vindhyan system on the West and the various hills of the Mahadeo range and Maikal range. The Bhitrigarh range and a few subsidiary hills intrude upon in the middle of the district and practically join the Vindhyan and the Satpura systems, which together form the Great Central Watershed of India. Jabalpur lies in the catchment of the longest river of Central India, Narmada, along with its tributaries Hiran, Gour, Ken and Sone. Jabalpur city is surrounded by low, rocky and barren hillocks, which include Kariapathar hillock to the northeast, Sita Pahad and Kandhari hills to the east and Madan Mahal hills to the southwest. Khandari and Pariyat, the two main water reservoirs are located in the northeast direction of Jabalpur.

MATERIALS AND METHODS

Collection of Spiders

The author did the collection of spiders in Jabalpur district from July 1997 to December 1998. Spiders were looked for in a variety of habitats in and around Jabalpur. These habitats included residential houses, gardens, cultivated fields, ponds, roadside vegetation, rocky areas and forest fringes. One of the easiest ways to get spiders in large numbers was to use a sweeping net through tall grass, bushes and foliage, and then pick out the spiders from among the insects, leaves and debris that were gathered along with them. Stones were often unturned to reveal spiders hiding under them.

Bushes were beaten and small trees shaken, after first putting down an inverted umbrella to make visible the specimens that dropped. This was found to be the most effective method to collect spiders. Spiders of many large families like Araneidae, Salticidae, Thomisidae and Oxyopidae were easily collected by this method. Camouflaging species like the bark-mimicking spider *Hersilia*, bird dropping mimics like *Thomisus* and ant-like species were difficult to detect and carefully looked for. Specimens were picked up with forceps, or with the fingers, and for tiny species like *Oecobius*, a hairbrush moistened with the preserving fluid was satisfactory.

Preservation

After collection, a spider was transferred to the jar of preserving fluid. It was also convenient to collect spiders in a dry vial of the proper size. This method had the advantage that it was

least likely to injure the specimen. Since web spiders usually displayed a tendency to drop when disturbed, the open vial was held below, ready to receive the specimen on its way down.

For the permanent preservation, 70% ethyl alcohol was used as preserving fluid. A sufficient quantity of alcohol was needed according to the size of the specimen, since the body fluids dilute the preserving fluid. In the jar of preserving fluid was placed, a paper label bearing the name of the place and the date of collection, as well as the collector's name.

Identification

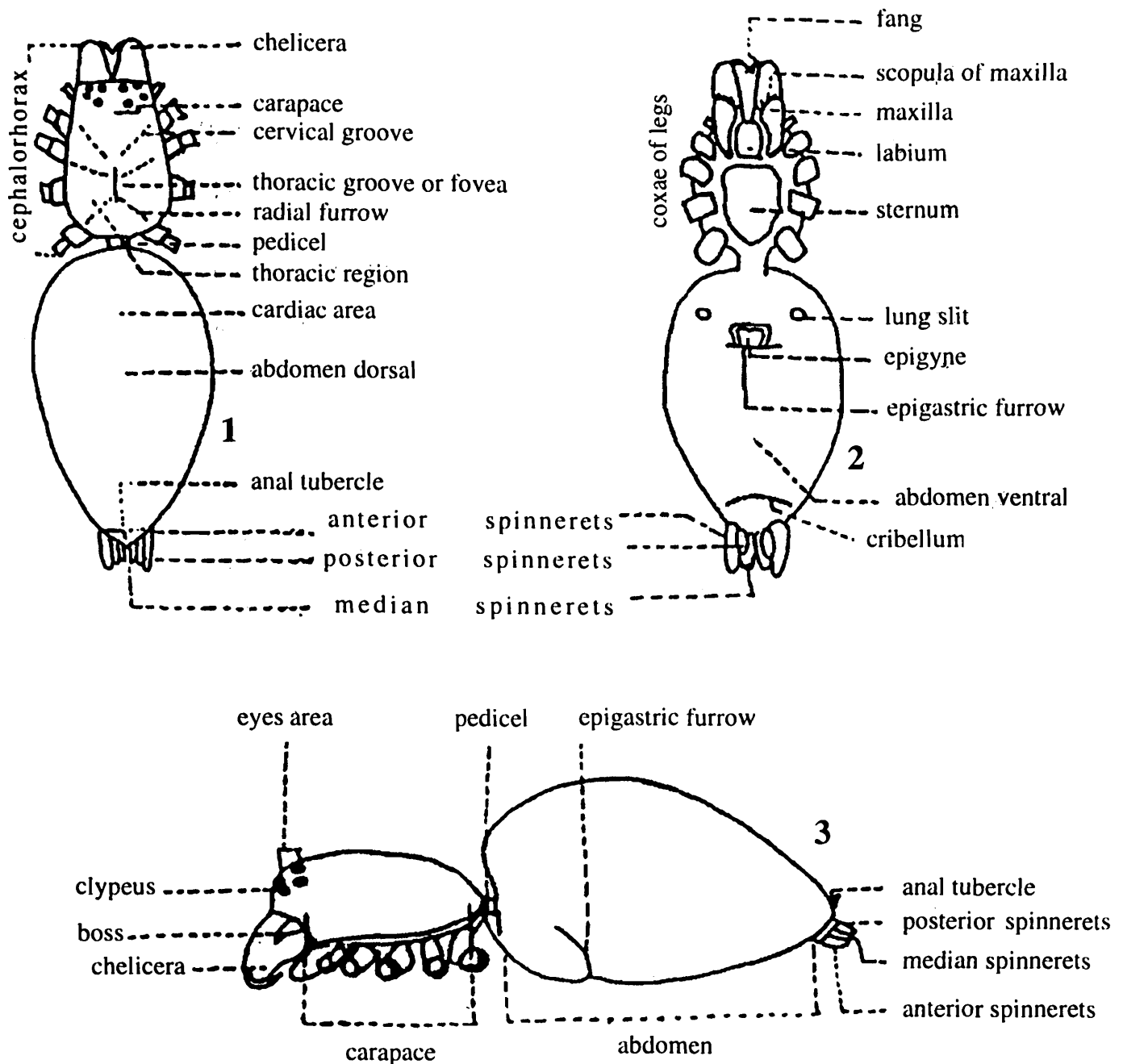
As most spiders were very small in size, it was necessary to examine them under a stereo zoom binocular microscope, which highlighted their morphological features, thus helping in proper identification. The identification of species was achieved with the help of literature by the comparison of morphological features. Figures of the newly identified species were drawn with the help of a camera lucida. Diagrams of the male palp and female's epigyne and internal genitalia were also made. Internal genitalia of the female holotypes were dissected out and preserved in 70% ethyl alcohol along with the specimens.

All spiders were identified to be belonging to families under suborder Labidognatha. Most type specimens have already been deposited in the National Zoological Collection, Zoological Survey of India, Kolkata and the rest will be deposited in due course.

MORPHOLOGY AND GENERAL TAXONOMIC CHARACTERS OF SPIDERS

(Figs. 1-10)

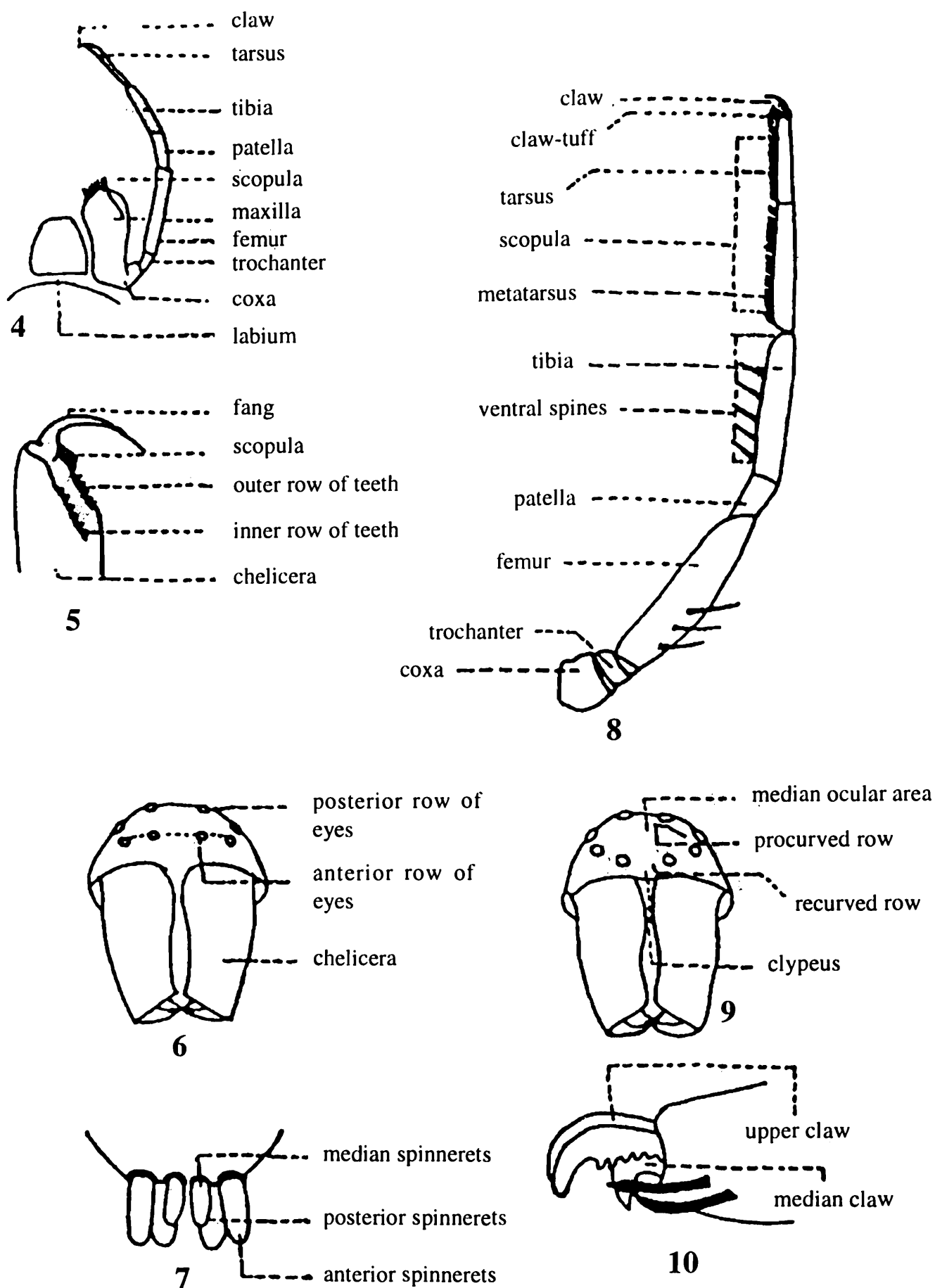
The following description is according to Tikader (1982). The body of the spider is divisible into two distinctive parts, *cephalothorax* and *abdomen* joined together by a narrow *pedicel*. The cephalothorax is covered by a hard sclerotic shield, the *carapace* and ventrally by *sternum*, as in figs. 1 and 2. The anterior margin of sternum articulates movably with *labium*. With few exceptions, there is a deep *transverse groove*, forming a kind of hinge, between the sternum and the labium, as in fig. 2. The legs are articulated in the pleural membrane between the lateral edges of the carapace and sternum. On the *cephalic region* are present *six to eight* simple eyes, as in fig. 1. The eyes are generally of two types, viz., *black* or *diurnal* and *white* or *nocturnal* eyes. When only one type is present, the condition is described as *homogeneous*, in contrast to the *heterogeneous* condition, when both the types are present. The eyes are usually arranged in two rows, viz., the *anterior row* and the *posterior row*. Each row usually contains four eyes, as in fig. 6. The eye row is described as *recurved*, when the concavity of the curve is directed backward, and as *procurved* when the concavity is turned forward, as in fig. 9.



Figs. 1-3. Typical Spider : 1. Dorsal view. 2. Ventral view. 3. Lateral view.

According to their position, the eyes are described as *anterior medians*, *posterior medians*, *anterior laterals* and *posterior laterals*. The cephalic area occupied by the eyes is known as *ocular area*. The area between the anterior row of eyes and the base of chelicerae is the *clypeus*, as in fig. 9. The space between the anterior median eyes and the margin of clypeus represents the width of clypeus. There is often a depression in the middle of the thorax called the *thoracic groove*, as in fig. 1.

The *chelicerae* are the first pair of appendages of the cephalothorax, each chelicera bearing a curved *fang* as its apex, as in figs. 1 and 2. The inner surface of chelicera may be finely denticulate and may have a *fang groove* into which the fang can be closed when not



Figs. 4-10. Typical Spider : 4. Labium, maxilla and pedipalp of female. 5. Inner view of chelicera. 6. Face, front view. 7. Spinnerets, lateral view. 8. Leg, lateral view. 9. Front view of face showing arrangement of eyes. 10. Distal end of tarsus showing claws.

in use. This groove may also be armed with *teeth* on each side, the outer row of these teeth is described as *promargin* and the inner row as *retromargin*. There are sometimes long stout hairs on the promargin to constitute the so-called *fang-scopulae*, as in fig. 5.

The *pedipalps* are the second pair of appendages. The palp proper is composed of six segments, viz., *coxa*, *trochanter*, *femur*, *patella*, *tibia* and *tarsus*, as in fig. 4. The female tarsus is simple and may or may not have a single claw. In mature males, the tarsus of palp is modified to carry a more or less complicated copulatory organ. Generally, the tibia, sometimes also the patella carries *apophyses* (which may be a variety of shapes in different species), which is of important taxonomic value. In many spiders, the tarsus has a bowl-shaped concavity on its ventral surface and is called *cymbium*. In many groups, mature males are provided with an appendage, the *paracymbium*. The structure of mature male palp is very important for generic or specific identification of spiders. There are four pairs of legs designated I, II III and IV, respectively. Each leg is composed of seven segments, viz., *coxa*, *trochanter*, *femur*, *patella*, *tibia*, *metatarsus* and *tarsus*, as in fig. 8. The legs are variously clothed with spines, spinules, bristles and hairs of various types. The tarsus end is provided with two or three *claws*, as in fig. 10. A characteristic tuft of hairs called *claw-tuft* is sometimes found just above the claw. In the Gnaphosidae, there are dense row of hairs called *leg-scopulae* below the metatarsi and tarsi, as in fig. 8. Spines on the dorsal side of legs are distinguished as *dorsal spines* and those on the ventral side as *ventral spines*, as in fig. 8. The tarsi of spider are often armed with hairs of a type known as *tenent hairs*, which are hairs dilated at their tips, and as in insects, secrete an adhesive fluid. Araneidae and Gnaphosidae have fine hairs called as *pubescence*. Sometimes the hairs are modified as *spiny hairs* or *mousy hairs*.

The abdomen is produced posteriorly into a conical anal tubercle and bears three pairs of *spinnerets* ventrally, viz., the first or the *anterior pair*, the second or the *median pair* and the third or the *posterior pair*, as in fig. 7. In a number of families, there is present in front of the anterior spinnerets, a sieve-like plate called the *cribellum*, as in fig. 2. A conical appendage called the *colulus* lies between the base of the anterior spinnerets. The ventral surface of abdomen is provided with slits for one or two pairs of *lung-books*, followed by one or two paired *spiracles*. The female genital opening is the *vulva* or *epigyne*, with a transverse fold known as *epigastric furrow*, as in fig. 2. The female genital opening is neither the epigyne nor the vulva. The opening is simply a pair of orifices. The epigyne is a sclerotised structure lying over or around the opening and internal genitalia, receptacles and ducts. It is a very important character in identification.

LIST OF SPECIES RECORDED FROM JABALPUR**I. Family SCYTODIDAE**Genus 1. *Scytodes* Latreille

- 1.
- Scytodes alfredi*
- sp. nov.

II. Family PHOLCIDAEGenus 2. *Artema* Walckenaer

- 2.
- Artema atlanta*
- Walckenaer

Genus 3. *Pholcus* Walckenaer

- 3.
- Pholcus*
- sp.

III. Family OONOPIDAEGenus 4. *Triaeris* Simon

- 4.
- Triaeris barela*
- sp. nov.

IV Family ERESIDAEGenus 5. *Stegodyphus* Simon

- 5.
- Stegodyphus sarasinorum*
- Karsch

V Family OECOBIIDAEGenus 6. *Oecobius* Lucas

- 6.
- Oecobius putus*
- O. P. Cambridge

VI. Family UROCTEIDAEGenus 7. *Uroctea* Dufour

- 7.
- Uroctea indica*
- Pocock

VII. Family HERSILIIDAEGenus 8. *Hersilia* Audouin

- 8.
- Hersilia savignyi*
- Lucas

VIII. Family ULOBORIDAEGenus 9. *Uloborus* Latreille

- 9.
- Uloborus danolius*
- Tikader

- 10.
- Uloborus jabalpurensis*
- Bhandari & Gajbe

IX. Family TETRAGNATHIDAEGenus 10. *Eucta* Simon

- 11.
- Eucta chamberlini*
- sp. nov.

Genus 11. *Tetragnatha* Latreille

- 12.
- Tetragnatha*
- sp.

X. Family ARANEIDAE

Genus 12. *Araneus* Clerck

13. *Araneus mitifica* (Simon)

Genus 13. *Argiope* Audouin

14. *Argiope aemula* (Walckenaer)

Genus 14. *Chorizopes* O. P. Cambridge

15. *Chorizopes kastoni* Gajbe & Gajbe

16. *Chorizopes tikaderi* Bhandari & Gajbe

Genus 15. *Cyclosa* Menge

17. *Cyclosa confragra* (Thorell)

18. *Cyclosa moonduensis* Tikader

19. *Cyclosa spirifera* Simon

Genus 16. *Cyrtophora* Simon

20. *Cyrtophora cicatrosa* (Stoliczka)

21. *Cyrtophora citricola* (Forskål)

22. *Cyrtophora jabalpurensis* Gajbe & Gajbe

Genus 17. *Larinia* Simon

23. *Larinia bharatae* Bhandari & Gajbe

24. *Larinia chloris* (Audouin)

25. *Larinia emertoni* Gajbe & Gajbe

Genus 18. *Leucauge* White

26. *Leucauge decorata* (Blackwall)

Genus 19. *Neoscona* Simon

27. *Neoscona biswasi* Bhandari & Gajbe

28. *Neoscona dyali* sp. nov.

29. *Neoscona elliptica* Tikader & Bal

30. *Neoscona mukerjei* Tikader

31. *Neoscona nautica* (L. Koch)

32. *Neoscona platnicki* Gajbe & Gajbe

33. *Neoscona rumpfi* (Thorell)

34. *Neoscona sanghi* sp. nov.

35. *Neoscona sanjivani* sp. nov.

36. *Neoscona theis* (Walckenaer)

Genus 20. *Nephila* Leach

37. *Nephila maculata* (Fabricius)

Genus 21 *Zygeilla* F. O. P. Cambridge

38. *Zygeilla indica* Tikader & Bal

XI. Family LYCOSIDAE

Genus 22. *Arctosa* Koch

39. *Arctosa indicus* Tikader & Malhotra

Genus 23. *Hippasa* Simon

40. *Hippasa fabreae* Gajbe & Gajbe
41. *Hippasa hansae* Gajbe & Gajbe
42. *Hippasa partita* (Cambridge)
43. *Hippasa pisaurina* Pocock
44. *Hippasa wigglesworthi* Gajbe & Gajbe

Genus 24. *Lycosa* Latreille

45. *Lycosa nigrotibialis* Simon
46. *Lycosa shaktae* Bhandari & Gajbe

Genus 25. *Pardosa* Koch

47. *Pardosa birmanica* Simon
48. *Pardosa jabalpurensis* Gajbe & Gajbe
49. *Pardosa mukundi* Tikader & Malhotra
50. *Pardosa ranjani* sp. nov.

XII. Family OXYOPIDAE

Genus 26. *Oxyopes* Latreille

51. *Oxyopes jabalpurensis* Gajbe & Gajbe
52. *Oxyopes ketani* Gajbe & Gajbe
53. *Oxyopes pankaji* Gajbe & Gajbe

Genus 27. *Peucetia* Thorell

54. *Peucetia ashae* Gajbe & Gajbe
55. *Peucetia jabalpurensis* Gajbe & Gajbe

XIII. Family AGELENIDAE

Genus 28. *Tegenaria* Latreille

56. *Tegenaria comstocki* sp. nov.

XIV Family DICTYNIDAE

Genus 29. *Dictyna* Sundevall

57. *Dictyna shiprai* Tikader

XV Family GNAPHOSIDAE

Genus 30. *Callilepis* Westring

58. *Callilepis lambai* Tikader & Gajbe

59. *Callilepis rukminiae* Tikader & Gajbe

Genus 31. *Drassodes* Westring

60. *Drassodes oppenheimeri* Tikader

Genus 32. *Gnaphosa* Latreille

61. *Gnaphosa poonaensis* Tikader

Genus 33. *Herpyllus* Hentz

62. *Herpyllus goaensis* Tikader

Genus 34. *Liodrassus* Chamberlin

63. *Liodrassus tikaderi* Gajbe

Genus 35. *Megamyrmecon* Wider

64. *Megamyrmecon ashae* Tikader & Gajbe

Genus 36. *Poecilochroa* Westring

65. *Poecilochroa barmani* Tikader

Genus 37. *Scopodes* Chamberlin

66. *Scopodes maitraiae* Tikader & Gajbe

Genus 38. *Scotophaeus* Simon

67. *Scotophaeus poonaensis* Tikader

Genus 39. *Sergiolus* Simon

68. *Sergiolus lamhetaghatensis* Gajbe & Gajbe

Genus 40. *Sosticus* Chamberlin

69. *Sosticus jabalpurensis* Bhandari & Gajbe

Genus 41. *Zelotes* Gistel

70. *Zelotes jabalpurensis* Tikader & Gajbe

XVI. Family HETEROPODIDAE

Genus 42. *Heteropoda* Latreille

71. *Heteropoda* sp.

XVII. Family PHILODROMIDAE

Genus 43. *Dieta* Simon72. *Dieta elongata* TikaderGenus 44. *Philodromus* Walckenaer73. *Philodromus ashae* Gajbe & Gajbe74. *Philodromus durvei* Tikader75. *Philodromus jabalpurensis* Gajbe & Gajbe76. *Philodromus pali* Gajbe & Gajbe77. *Philodromus sanjeevi* sp. nov.Genus 45. *Thanatus* Koch78. *Thanatus jabalpurensis* Gajbe & Gajbe79. *Thanatus ketani* Bhandari & GajbeGenus 46. *Tibellus* Simon80. *Tibellus jabalpurensis* Gajbe & Gajbe

XVIII. Family THOMISIDAE

Genus 47. *Misumenoides* Cambridge81. *Misumenoides gwarighatensis* sp. nov.Genus 48. *Monaeses* Thorell82. *Monaeses jabalpurensis* Gajbe & RaneGenus 49. *Oxyptila* Simon83. *Oxyptila amkhasensis* Tikader84. *Oxyptila jabalpurensis* Bhandari & GajbeGenus 50. *Runcinia* Simon85. *Runcinia khandari* sp. nov.86. *Runcinia yogeshi* Gajbe & GajbeGenus 51. *Synaema* Simon87. *Synaema decorata* TikaderGenus 52. *Thomisus* Walckenaer88. *Thomisus bargi* sp. nov.89. *Thomisus danieli* sp. nov.90. *Thomisus pateli* sp. nov.91. *Thomisus pathaki* sp. nov.92. *Thomisus rajani* Bhandari & Gajbe

93. *Thomisus simoni* sp. nov.
 94. *Thomisus sundari* Gajbe & Gajbe
 95. *Thomisus viveki* sp. nov.
 96. *Thomisus whitakeri* sp. nov.

Genus 53. *Tmarus* Simon

97. *Tmarus jabalpurensis* Gajbe & Gajbe

Genus 54. *Xysticus* Koch

98. *Xysticus bengalensis* Tikader & Biswas
 99. *Xysticus bharatae* Gajbe & Gajbe
 100. *Xysticus jabalpurensis* Gajbe & Gajbe
 101. *Xysticus minutus* Tikader
 102. *Xysticus tikaderi* Bhandari & Gajbe

XIX. Family SALTICIDAE

Genus 55. *Marpissa* Koch

103. *Marpissa dhakuriensis* Tikader
 104. *Marpissa mandali* Tikader

Genus 56. *Phidippus* Koch

105. *Phidippus bhimrakshiti* sp. nov.

Genus 57. *Rhene* Thorell

106. *Rhene haldanei* sp. nov.
 107. *Rhene sanghrakshiti* sp. nov.

Key to Families of Spiders Recorded from Jabalpur

1. Cribellum present..... 2
 — Cribellum absent 6
 2. Cephalothorax broad in front; cephalic region high; clypeus low; antero-lateral eyes on the side of the head, postero-laterals far removed from the other eyes Family ERESIDAE
 — Cephalothorax narrow in front 3
 3. Small spiders with carapace subcircular 4
 — Small to large spiders with carapace squarer in front 5

4. Anal tubercle large and prominent, two-segmented with a fringe of long hairs; postero-
median eyes triangular or irregular in shape Family OECOBIDAE
- Anal tubercle very large, fringed with long hairs; ocular group compact
..... Family UROCTEIDAE
5. Eyes homogeneous, dark, both rows recurved, the posterior row more strongly so,
with the laterals of each side further apart than the two pairs of medians
..... Family ULOBORIDAE
- Eyes heterogeneous, the anterior medians alone dark, and at least the anterior row
practically straight Family DICTYNIDAE
6. With six eyes 7
- With eight eyes 8
7. Carapace much arched behind, six eyes arranged in three pairs; tarsi with three
claws Family SCYTODIDAE
- Eyes arranged in a compact group, median eyes larger than laterals; tarsi with three
claws Family OONOPIDAE
8. Tarsi long and flexible, with many pseudosegments; antero-median eyes smallest, other
eyes arranged in two triads Family PHOLCIDAE
- Tarsi of the usual type, without pseudosegments 9
9. First row of eyes on a more or less vertical face, the medians much the largest;
the second row of two very small; the third row of two medium-sized eyes far
behind Family SALTICIDAE
- Eyes in two rows of the usual type 10
10. Tarsi with three claws borne on a distal extension, the onychium; colulus vestigial,
anterior spinnerets close together and posterior spinnerets longest
..... Family AGELENIDAE
- Tarsi with two or three claws without an onychium 11
11. At least legs I and II laterigrade, i.e., turned so that the morphologically dorsal surface
is posterior and the prolateral surface appears to be the dorsal 12
- All legs of the usual prograde type 14
12. Large spiders; cephalothorax as long as wide; retromargin of cheliceral fang furrow
armed with teeth Family HETEROPODIDAE
- Smaller spiders; chelicerae with retromargin of fang furrow smooth, the promargin
alone with at most one or two teeth 13

13. Colulus present; legs I and II much longer than III and IV; claw-tufts lacking, or composed of simple hairs, and tarsi I and II not scopulate Family THOMISIDAE
 — Colulus absent; all legs about the same length or leg II alone much longer. Claw-tufts composed of spatulate hairs, and tarsi I and II scopulate Family PHILODROMIDAE
14. Posterior spinnerets exceptionally long, with the apical segment as long as the abdomen, or longer; colulus prominent; body very flat, but with the head region much elevated above the thoracic region Family HERSILIIDAE
 — Posterior spinnerets much shorter 15
15. Posterior row of eyes so strongly recurved that it may be considered to form two rows; median claw smooth, or with a single tooth Family LYCOSIDAE
 — Posterior row not so strongly recurved 16
16. Eye group hexagonal, the posterior row procurved, the anterior row recurved, with the clypeus high; abdomen pointed behind; legs with prominent spines Family OXYOPIDAE
 — Eye group not hexagonal; posterior row not procurved 17
17. Chelicerae exceptionally large and powerful; rudimentary boss on chelicerae; femora with trichobothria Family TETRAGNATHIDAE
 — Chelicerae of the usual type 18
18. Epigastric furrow nearly straight; boss conspicuously present on chelicerae in most, though rudimentary in some; femora without trichobothria Family ARANEIDAE
 — Eyes distinctly heterogeneous, the anterior medians alone dark; anterior spinnerets cylindrical, longer and more heavily sclerotized than the posterior Family GNAPHOSIDAE

SYSTEMATIC ACCOUNT

Class ARACHNIDA

Order ARANEAE

Suborder LABIDOGNATHA

I. Family SCYTODIDAE

Characters : Cephalothorax very high, sloping forward. Eyes six in number and arranged in three pairs. Labium fused with sternum. Legs very long and slender.

Genus 1. *Scytodes* Latreille, 1804

1804. *Scytodes* Latreille, *Nouv. Dict. Etc.*, **24** : 134.

1981: *Scytodes* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.* **30** : 16.

Diagnostic characters : Cephalothorax high and subglobose behind, sloping forward. Six pearly eyes arranged in three pairs, making a strongly recurved row.

Type species : *Scytodes thoracica* Latreille

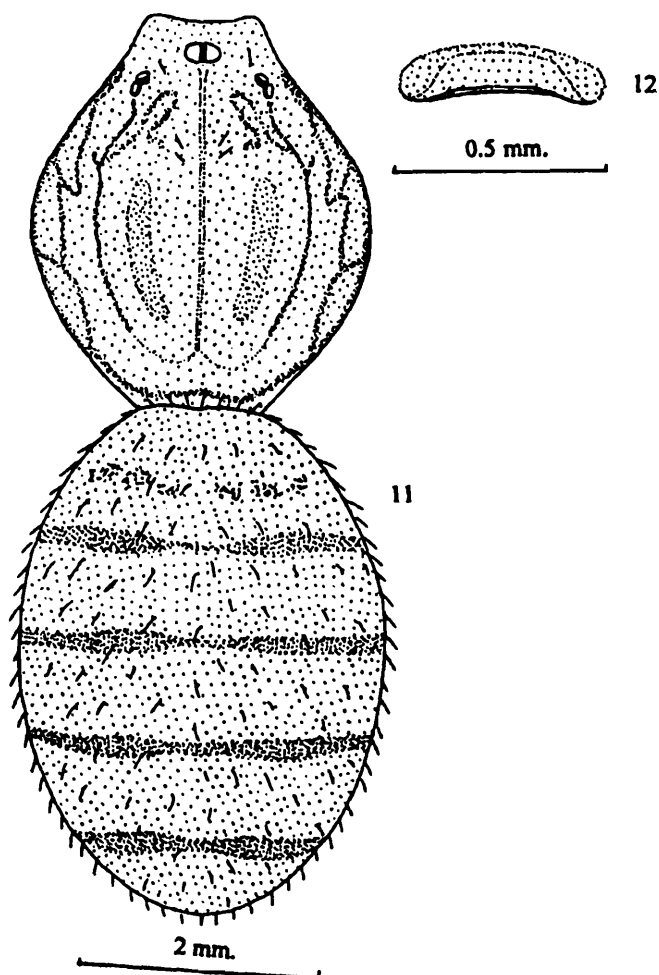
Distribution : Asia, Africa, America and Europe.

1 *Scytodes alfredi* sp. nov.

(Figs. 11-12)

General : Cephalothorax, legs and abdomen yellowish with blackish patches. Total length 8.0 mm. Carapace 3.5 mm. long, 3.0 mm. wide; abdomen 4.6 mm. long, 3.2 mm. wide.

Cephalothorax : Slightly longer than wide, very high posteriorly, depressed and narrowing anteriorly, clothed with fine hairs; two lines starting below the anterior median eyes and ending near the posterior end of cephalothorax; mid-dorsally and laterally, thoracic region provided with conspicuous blackish lines and two banana shaped faint patches, as in fig. 11



Figs. 11-12. *Scytodes alfredi* sp. nov. : 11. Dorsal view of female, legs omitted. 12. Epigyne.

Eyes six, pearly white, arranged in three widely separated pairs. Sternum nearly oval, pale yellow, clothed with pubescence and hairs. Labium longer than wide, provided with distinct scopulae. Maxillae with distal end narrower than proximal end. Legs long and slender, clothed with hairs and small spines, end of each segment with a small transverse brown band, femora with two long black lines.

Abdomen : Longer than wide, globular, covered with fine hairs, dorsally provided with four blackish stripes, as in fig. 11. Ventral side lighter than dorsal. Epigyne, as in fig. 12.

Type specimen : Holotype ♀, in spirit, collected from *Lantana camara* bushes.

Type locality : Lamhetaghat, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 25.vii.1998.

Etymology : The specific name is a patronym in honour of Zoologist Dr. J. R. B. Alfred, Z.S.I.

Remarks : This species resembles *Scytodes mawplongensis* Tikader but can be distinguished from it as follows : (i) Sternum not provided with coloured dots but in *S. mawplongensis* sternum provided with black dots. (ii) Abdomen dorsally provided with four transverse blackish stripes but in *S. mawplongensis* such stripes are absent. (iii) Epigyne also structurally different.

II. Family PHOLCIDAE

(Cellar Spiders)

Characters : The anterior median eyes are smallest, while the other eyes are arranged in two triads. The legs are extremely long and thin and the tarsi flexible.

The snares are either sheet-like or irregular, the spider hanging in an inverted position beneath the web. The webs are built in cellars and other dark locations. The eggs when laid are surrounded by only a few fibres and held by the female in her chelicerae.

Key to the genera of Family PHOLCIDAE

1. Abdomen very high, sub-globular; each chelicera with an additional tooth; sternum broader than long *Artema* Walckenaer
- Abdomen elongate, more than twice as long as wide, and more than twice as long as the cephalothorax *Pholcus* Walckenaer

Genus 2. *Artema* Walckenaer, 1837

1837. *Artema* Walckenaer, *Hist. nat. des insects* : 656.

1981. *Artema* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.* 30 : 17.

Diagnostic characters : Cephalothorax broader than long, cephalic part prominent, anterior medians not much smaller than the other eyes; ocular quad not longer than wide; each chelicera with an additional tooth; sternum broader than long; legs long; abdomen very high, sub-globular.

Type species : *Artema atlanta* Walckenaer

Distribution : Afghanistan, India, Iran, Central Asia, Africa, America.

2. *Artema atlanta* Walckenaer, 1837

1837. *Artema atlanta* Walckenaer, *Hist. nat. des insects* : 656.

1981. *Artema atlanta* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.* **30** : 18.

Specimens examined : 1 ♀, Khandari, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 23-VII-1998.

Distribution : India : Maharashtra (Mumbai, Pune), Madhya Pradesh (Jabalpur), Uttar Pradesh (Meerut), Travancore, West Bengal, Punjab, Rajasthan. *Elsewhere* : Sri Lanka, Myanmar.

Genus 3. *Pholcus* Walckenaer, 1805

1805. *Pholcus* Walckenaer, *Tabl. des araneides, Paris* : 88.

1978. *Pholcus* : Kaston, *How to know the spiders, 3rd ed.* : 95.

Diagnostic characters : With eight eyes elevated on a prominence, abdomen elongate, more than twice as long as wide and more than twice as long as the cephalothorax. Femur I five or more times as long as the carapace.

Type species : *Pholcus phalangoides* Fuesslin

Distribution : All over the world.

3. *Pholcus* sp.

Specimens examined : 1 ♀, Garha, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 12-X-1999.

III. Family OONOPIDAE

Characters : Small spiders, generally possessing six eyes (except *Diblemma*, which has two), eyes light in colour, fairly large and in a compact group, which is nearly as wide as the head. Abdomen oval, long and provided with hard chitinous shield (scuta) present dorsally and ventrally.

Genus 4. *Triaeris* Simon, 1891

1891. *Triaeris* Simon, *Proc. Zool. Soc. London* : 561.

1974. *Triaeris* : Tikader & Malhotra, *Oriental Ins.* 8(4) : 496.

Diagnostic characters : Eyes six, placed in a semicircular group; the anterior lateral eyes being at least practically in front of the median eyes; the four posterior eyes form a recurved row. Abdomen soft, a small ventral scutum lies posterior to the epigastric fold. Patella I very long; progressively shorter in II, III and IV; patella I and II with three pairs of ventral spines.

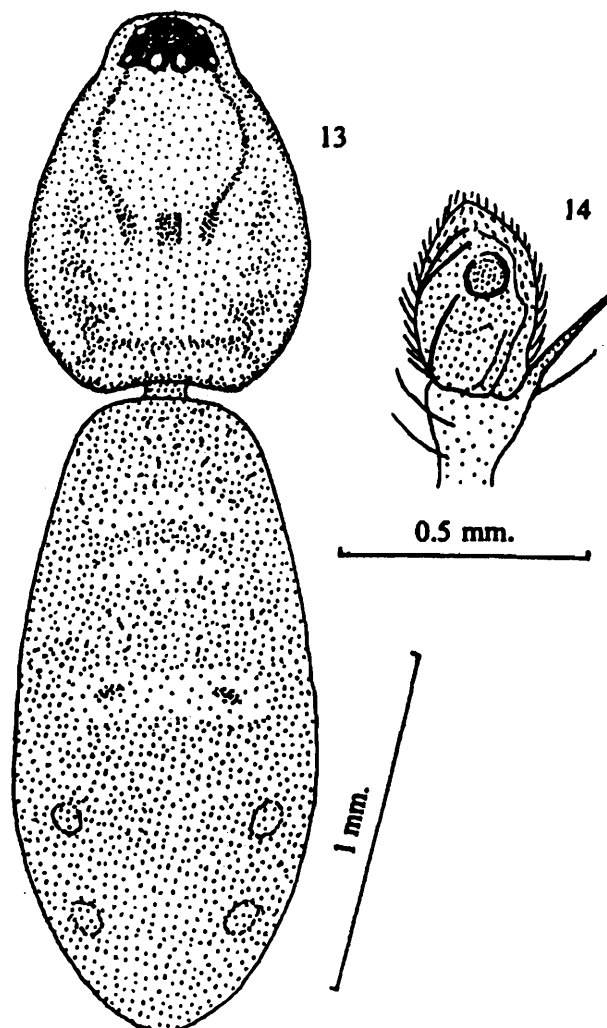
Type species : *Triaeris stenaspis* Simon

Distribution : Asia, Africa, and North America.

4. *Triaeris barela* sp. nov.

(Figs. 13-14)

General : Cephalothorax and abdomen dark brownish, legs light brown. Total length 3.0 mm. Carapace 1.1 mm. long, 0.8 mm. wide; abdomen 1.9 mm. long, 0.9 mm. wide.



Figs. 13-14. *Triaeris barela* sp. nov. : 13. Dorsal view of male, legs omitted. 14. Left male palp, ventral view.

Cephalothorax : Longer than wide, smooth, clothed with fine hairs, convex; cephalic region narrow and slightly high; thoracic region provided with some blackish patches, as in fig. 13. Eyes six, pearly white, arranged in two rows; posterior median eyes larger than others, remaining eyes nearly equal in size. Ocular area provided with conspicuous blackish patch. Margin of clypeus provided with two hairs directed forward. Sternum heart-shaped, pointed behind, clothed with fine hairs. Legs moderately long, clothed with fine hairs and scanty spines. Male palp, as in fig. 14.

Abdomen : Longer than wide, elliptical, clothed with fine hairs and provided with three light brownish patches and four spots, as in fig. 13. Ventral side lighter in colour and provided with a complete scutum. Female unknown.

Type specimen : Holotype ♀, in spirit; collected from under a stone.

Type locality : Barela, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 28.ix.1997.

Etymology : The specific name is a noun taken in appropriation from the type locality.

Remarks : This species resembles *Triaeris manii* Tikader but differs from it as follows :
 (i) Cephalothorax provided with some blackish patches but in *T. manii* such patches are absent.
 (ii) Abdomen provided with three light brown patches and four spots but in *T. manii* such patches and spots are absent. (iii) Male palp also structurally different.

IV Family ERESIDAE

Characters : Cephalothorax very wide in front (resembling at first sight that of Salticidae), cephalic region high, clypeus low; the four median eyes form a small quadrangle narrowing in front than behind, the anterior lateral eyes on the side of the head, the posterior laterals far removed from the rest of the eyes and situated high up on the posterior portion of the head. Abdomen heavy, overhanging cephalothorax; cribellum thick, transversely divided.

Genus 5. *Stegodyphus* Simon, 1873

1873. *Stegodyphus* Simon, *Ann. Soc. Ent. Fr.*, 3(5) : 336.

1981. *Stegodyphus* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, 30 : 13.

Diagnostic characters : Cephalic region large, rounded, high, posterior lateral eyes remote from other eyes; anterior lateral eyes situated at the edge of clypeus; clypeus low, mandibles flat in front, fang groove scarcely toothed; legs strong and stout, spiny. Abdomen oval, anterior spinnerets thick.

Type species : *Stegodyphus lineatus* Latreille

Distribution : Asia, Africa, and Arabia.

5. *Stegodyphus sarasinorum* Karsch, 1891
(Pl. 1a, b)

1891. *Stegodyphus sarasinorum* Karsch, *Ent. Z. Berlin*, **36** : 275.

1981. *Stegodyphus sarasinorum* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.* **30** : 14.

Specimens examined : 71 ♀♀, 10 ♂♂; Lamhetaghat, Jabalpur, Madhya Pradesh, India.
Coll. P. Gajbe, 27-IX-1997 (Z.S.I., Jabalpur, Reg. No. A/5228).

Distribution : India : Chhattisgarh (Raigarh, Sarguja), Madhya Pradesh (Bhind, Chhatarpur, Chhindwara, Mandsaur, Morena, Ratlam, Tikamgarh), Maharashtra (Pune), Karnataka (Bangalore), Punjab, West Bengal (Kolkata). *Elsewhere* : Nepal, Sri Lanka.

Remarks : This species is gregarious in habit, which is an exceptional trait among spiders. The web (pl. 1a) from which the specimens were collected was spotted around human habitation, woven around the branches of a medium sized tree at a height of approximately 10 ft. from the ground. Among the inhabitants, females (pl. 1b) highly outnumbered the males. The web in itself was a wide and irregular mesh-like network, stretching from one branch to another and appeared quite effective in trapping insect prey, as, dried up remains of a large number of insects, mainly Diptera, butterflies, moths and dragonflies were found entangled in it.

V. Family OECOBIIDAE

Characters : Small spiders having three tarsal claws, and both the carapace and sternum wider than long. The cribellum may be rudimentary and the calamistrum even absent in the males.

These spiders live under stones, but are often found in houses, especially in corner angles of walls.

Genus 6. *Oecobius* Lucas, 1846

1846. *Oecobius* Lucas, *Expl. Alq. Ar.* : 101.

1981. *Oecobius* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 12.

Diagnostic characters : The cephalothorax is convex and moderately elevated. The legs are proportionately long, the metatarsus and tarsus together, of each of the legs far exceeding the carapace in length. Median ocular quadrangle as long as, or longer than broad.

Type species : *Oecobius cellariorum* Dugès, 1836

Distribution : America, Arabia, Japan and India.

6. *Oecobius putus* O. P. Cambridge, 1876

1876. *Oecobius putus* Cambridge, *Proc. Zool. Soc. London* : 544.

1981. *Oecobius putus* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 12.

Specimens examined : 1 ♀, New Adarsh Colony, Jabalpur, Madhya Pradesh; Coll. P. Gajbe, 23-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5229).

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur), Tamil Nadu (Chennai), Maharashtra (Pune), West Bengal (Kolkata). *Elsewhere* : Egypt, Libya, Yemen, Tanzania, and Pakistan.

Remarks : This spider lives in very small flat webs made in the corner angles of walls in houses.

VI. Family UROCTEIDAE

(Lehtinen, 1967 : 303 and Baum, 1972 : 149 consider it a junior synonym of Oecobiidae)

Characters : Carapace transversely reuniform, widely rounded in front and laterally, posteriorly emarginate, ocular group compact. Legs short and strong, spiny, subequal in length, tarsi armed with three claws. Abdomen large and depressed. Posterior spinnerets much longer than anterior spinnerets, short, sub-cylindrical, separated by colulus, patella very large and furnished with fringe of long hairs.

These spiders live under stones where they spin a small saccular tent-like web of about five sub-radially arranged bands of silk attached to the underside of it.

Genus 7. *Uroctea* Dufour, 1820

1820. *Uroctea* Dufour, *Ann. Sci Phys.*, **5** : 198.

1900. *Uroctea* : Pocock, *Fauna Brit. India, Arach.*, 243.

Diagnostic characters : Carapace widely rounded in front. Eyes compact, pearly white, arranged in two rows. Anal tubercle very large, fringed with long hairs.

Platnick (2002) has described this genus under family Oecobiidae.

Type species : *Uroctea durandi* Latreille

Distribution : Mediterranean Region, China, Japan, South Africa, and India.

7. *Uroctea indica* Pocock, 1900

1900. *Uroctea indica* Pocock, *Fauna Brit. India Arach.*, 243.

1978. *Uroctea indica* Gajbe & Bhadra, *J. Bombay nat. Hist. Soc.*, **75**(3) : 933.

Specimens examined : 1 ♀, Vijay Nagar, Jabalpur, Madhya Pradesh, Coll. P. Gajbe, 27-VII-1997.

Distribution : India : Madhya Pradesh (Jabalpur, Hoshangabad), Maharashtra (Pune, Nagpur), Rajasthan.

Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

VII. Family HERSILIIDAE

Characters : Posterior spinnerets exceptionally long, with the apical segment as long as the abdomen, or longer. Colulus prominent. Body very flat, but with the head region much elevated above the thoracic region.

These are very active spiders, living on tree trunks, old walls or under stones and at most spinning a scanty web of irregular threads.

Genus 8. *Hersilia* Audouin, 1826

1826. *Hersilia* Audouin, *Descr. Egypte Arachna*. 1(4) : 114.

1981. *Hersilia* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, 30 : 47.

Diagnostic characters : Ocular quadrangle parallel sided; head flat, angular laterally; clypeus usually very high, prominent; protarsi of legs I, II and IV bisegmented.

Type species : *Hersilia caudata* Audouin

Distribution : Africa, Asia, Australia and Madagascar.

8. *Hersilia savignyi* Lucas, 1836 (Pl. 2a)

1836. *Hersilia savignyi* Lucas, *Mag. Zool. Guérin*, 6(8) : 10.

1981. *Hersilia savignyi* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.* 30 : 47.

Specimens examined : 1 ♀, Tilwaraghat, Jabalpur, M.P. Coll. P. Gajbe, 25-V-1998.

Distribution : India : Chhattisgarh (Raigarh), Madhya Pradesh (Balaghat, Chhindwara, Mandla, Mandsaur, Jabalpur, Seoni), Karnataka (Bangalore), Maharashtra (Pune); Uttar Pradesh (Allahabad), Tamil Nadu (Chennai), Orissa (Puri), West Bengal (Howrah, Kolkata, Serampur), Jharkhand (Ranchi, Chhota Nagpur), Bihar (Chakradharpur, Dinapur, Siripur, Pusa), Assam. *Elsewhere* : Sri Lanka, Philippines.

Remarks : This species is most commonly seen on the bark of trees and is very well adapted in respect to its habitat. The general colouration of the body is dark brownish, which highly resembles the bark on which it stands (pl. 2a). The imitation is so good, that it is extremely difficult to locate a stationary spider on bark even from a short distance.

VIII. Family ULOBORIDAE

Characters : Eyes dark in colour, the lateral eyes on each side farther apart from the median eyes, the posterior medians moderate in size. Chelicerae robust, nearly parallel sided. Anterior legs longest, femora with dorsal trichobothria, tarsi with three foot claws, metatarsus IV bearing the calamistrum, somewhat curved at least along the dorsal edge. Anal tubercle well developed and close to posterior spinnerets.

These spiders spin geometric orb webs or sectors of webs. They are unique among spiders in lacking poison glands. These spiders are commonly found in fields, gardens, old houses and forests. They are known to prey on insect pests in rice fields.

Genus 9. *Uloborus* Latreille, 1806

1806. *Uloborus* Latreille, *Gen. Crust. Ins. Etc.*, **1** : 109.

1981. *Uloborus* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.* **30** : 15.

Diagnostic characters : Anal tubercle prominent in the female, diminished in the male. Legs I much longer and stronger than the rest. Male tibia of I with six to seven dorsal spines, almost in the form of teeth.

Type species : *Uloborus walckenaerius* Latreille

Distribution : Asia, America, and Africa.

Key to species of Genus *Uloborus* Latreille

1. Antero-dorsal region of abdomen provided with a hump and dorsum decorated with brownish patches and fine net-like patterns *danolius* Tikader
- Hump present but antero-dorsal region of abdomen provided with a blackish marking, while posterior region provided with six tufts of white hairs
..... *jabalpurensis* Bhandari & Gajbe

9. *Uloborus danolius* Tikader, 1969

1969. *Uloborus danolius* Tikader, *Proc. Indian Acad. Sci.*, **70**(3) : 129.

1981. *Uloborus danolius* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 15.

Specimen examined : 1 ♀, Vijay Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 30-IV-1998.

Distribution : India : Madhya Pradesh (Jabalpur, Panna, Ratlam), Maharashtra, West Bengal, Car Nicobar.

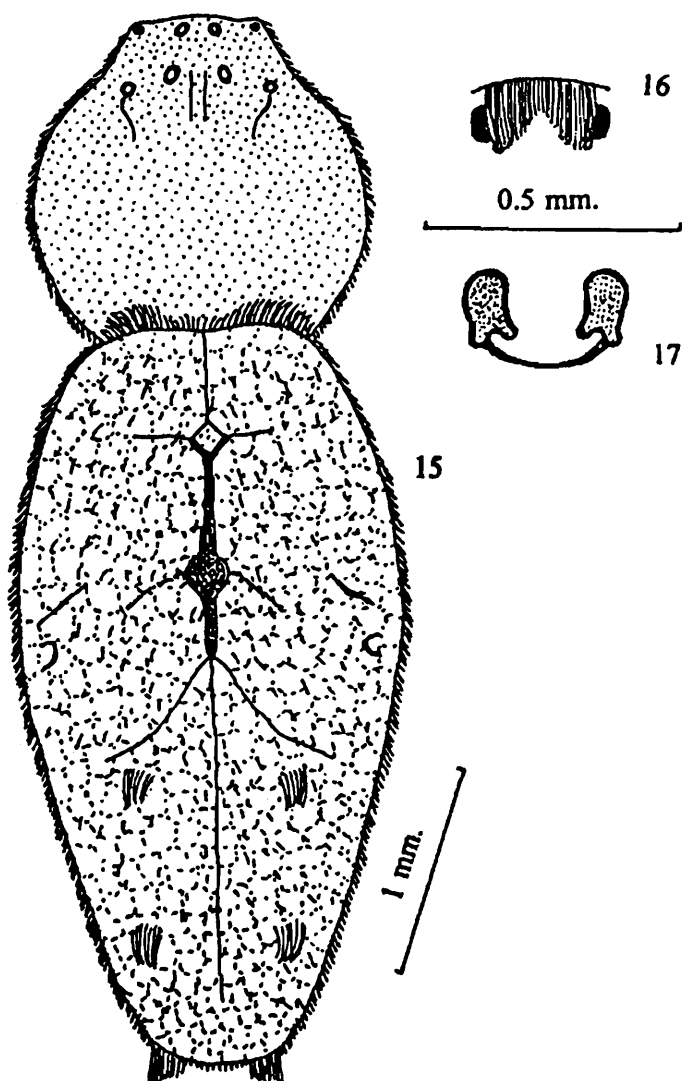
10. *Uloborus jabalpurensis* Bhandari & Gajbe, 2001
(Figs. 15-17)

2001c. *Uloborus jabalpurensis* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 87.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5520/18).

General : Cephalothorax, legs and abdomen dirty white. Total length 5.1 mm. Carapace 1.5 mm. long, 1.5 mm. wide; abdomen 3.6 mm. long, 1.8 mm. wide.

Cephalothorax : As long as wide, narrowing anteriorly, extremely hairy, densely clothed with fine whitish hairs. Eyes on black tubercles, anterior eye row straight, posterior row slightly recurved; anterior medians closer to each other than to adjacent laterals; posterior medians slightly closer to adjacent laterals than to each other, as in fig. 15. Sternum longer than wide, triangular, pointed behind, yellowish-white and densely clothed with hairs. Legs moderately long and slender, densely clothed with whitish hairs.



Figs. 15-17. *Uloborus jabalpurensis* Bhandari & Gajbe : 15. Dorsal view of female, legs omitted. 16. Epigyne. 17. Internal genitalia.

Abdomen : Longer than wide, high and broad in front, densely clothed with fine hairs and decorated with fine net-like patterns. Anterior dorsal side provided with a hump, mid-dorsal region provided with a conspicuous blackish marking and posterior region provided with six tufts of white hairs, as in fig. 15. Ventral side with chalk white spots. Epigyne, as in fig. 16. Internal genitalia, as in fig. 17.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

IX. Family TETRAGNATHIDAE

(Long-jawed orb-weavers)

Characters : Spiders of this family are easily recognized by their narrow, elongated bodies and exceptionally long chelicerae. Cephalothorax is flat, and legs are long and slender.

These spiders are moisture loving and are generally found living on reeds growing on the bank of ponds. They show nocturnal activity and construct their webs at night.

Key to the genera of Family TETRAGNATHIDAE

1. Abdomen produced behind the spinnerets *Eucta* Simon
- Abdomen not produced behind the spinnerets *Tetragnatha* Latreille

Genus 10. *Eucta* Simon, 1881

1881. *Eucta* Simon, *Ar. Fr.*, 5 : 5.

1972. *Eucta* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 37.

Diagnostic characters : Body long and narrow; chelicerae elongated; differs from *Tetragnatha* only in having the abdomen produced beyond the spinnerets into a pointed tail.

Type species : *Eucta gallica* Simon

Distribution : India, Japan, Malaysia, and Europe.

11. *Eucta chamberlini* sp. nov.

(Figs. 18-19; pl. 2b)

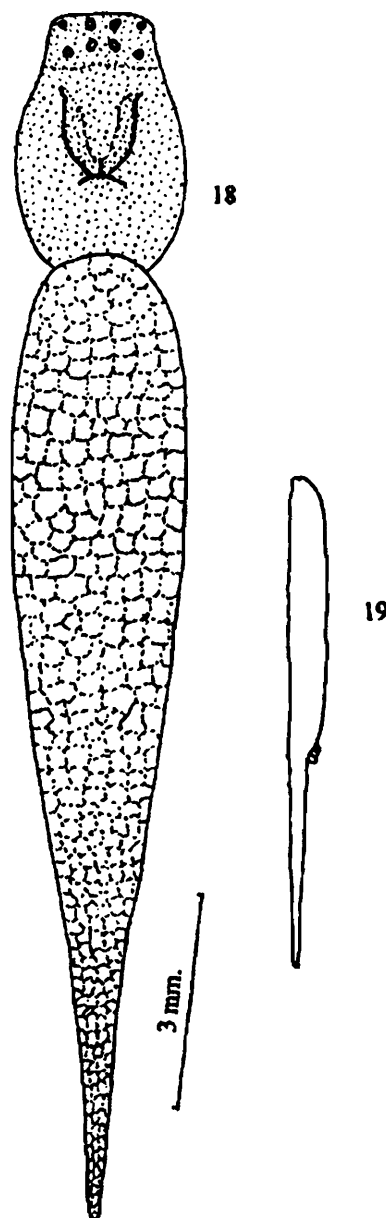
General : Cephalothorax and legs yellowish, abdomen silvery-white. Total length 16.4 mm. Carapace 3.2 mm. long, 2.2 mm. wide; abdomen 3.2 mm. long, 12.6 mm. wide.

Cephalothorax : Longer than wide, flat, cephalic region slightly high and distinct from the thoracic region, which is provided with a U-shaped marking, as in fig. 18. Anterior row of eyes straight, posterior row strongly recurved, ocular quad as long as wide. Sternum dark

brown, triangular, pointed behind and clothed with hairs. Clypeus narrow. Labium and maxillae much longer than wide, provided with distinct scopulae. Chelicerae long; the first tooth on either side of the fang-groove situated at the base of the fang; dorsal row with eight teeth, ventral row with seven teeth; in both rows, the second tooth far from the first tooth. Legs very long and slender, clothed with hairs and spines, legs I longest.

Abdomen : Very long, pointed behind, slightly overlapping the posterior region of cephalothorax in front and provided with silvery-white spots, as in fig. 18. Abdomen produced beyond the spinnerets into a pointed tail, as in fig. 19. Antero-ventral end of abdomen provided with an eye-shaped mark. Epigyne absent.

Type specimen : Holotype ♀, in spirit, collected from some reeds near the edge of a pond.



Figs. 18-19. *Eucta chamberlini* sp. nov. : 18. Dorsal view of female, legs omitted. 19. Lateral view of female, legs omitted.

Type locality : Pachpedi, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 7-VII-1997.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. R. V Chamberlin.

Remarks : This species resembles *Eucta javana* Thorell but can be distinguished from it as follows : (i) Thoracic region provided with a U-shaped marking but in *E. javana* such a marking is absent. (ii) Dorsum of abdomen provided with different coloured patterns in both species. (iii) Antero-ventral end of abdomen provided with an eye-shaped mark but in *E. javana* such a mark is absent.

Genus 11 *Tetragnatha* Latreille, 1804

1804b. *Tetragnatha* Latreille, *Hist. Nat. gen., Paris*, 7.

1978. *Tetragnatha* : Kaston, *How to know the spiders* : 160.

Diagnostic characters : Endites parallel and more or less dilated distally. Lateral eyes of each side not contiguous. Legs spiny. Abdomen long and narrow, usually two or three times as long as wide.

Type species : *Tetragnatha extensa* Linnaeus

Distribution : All over the world.

12. *Tetragnatha* sp.

Specimens examined : 1 ♀, near Pariat tank, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 18-VII-1998.

X. Family ARANEIDAE

(Orb Web Spiders)

Characters : Cephalothorax usually flat, thoracic region oval or nearly circular, separated from head by an oblique depression. Eyes not very different in size. Medians may form either a square or a trapezium; laterals close to one another and often projecting. Clypeus narrower than the ocular area. Sternum heart-shaped or triangular, coxa IV being nearly contiguous. Legs furnished with numerous spines, with three tarsal claws.

Key to the genera of Family ARANEIDAE

1. Abdomen ornamented with silvery bands or spots *Leucauge* Blackwall
- Abdomen not ornamented with silvery bands or spots 2
2. Carapace posteriorly armed with a pair of tubercles *Nephila* Leach
- Carapace posteriorly not armed with a pair of tubercles 3

3. Carapace not thickly covered with silvery hairs 4
 - Carapace flat, thickly covered with silvery hairs; abdomen variably shaped; web provided with a stabilimentum *Argiope* Audouin
4. Carapace not provided with a U-shaped junction between cephalic and thoracic region 5
 - Carapace provided with a U-shaped junction between cephalic and thoracic region; posterior median eyes very close, nearly touching *Cyclosa* Menge
5. Abdomen may or may not be provided with shoulder humps 6
 - Abdomen anteriorly very high and provided with at least one pair of shoulder humps *Cyrtophora* Simon
6. Ventral side of abdomen with a white median longitudinal band framed by black *Larinia* Simon
 - Ventral side of abdomen not with a white median longitudinal band framed by black 7
7. Carapace strongly convex, anteriorly roundish; abdomen provided with a few tubercles *Chorizopes* O. P. Cambridge
 - Carapace may or may not be convex, anteriorly narrowing; abdomen may or may not be with tubercles 8
8. Cephalic region brownish-black with light coloured thoracic region and provided with very few hairs; dorsum of abdomen with distinct folium *Zygeilla* F. O. P. Cambridge
 - Cephalic region otherwise with more hairs; dorsum of abdomen with or without distinct folium 9
9. Thoracic groove transverse; epigyne with distinct scape, often wrinkled, not provided with any lateral lobes *Araneus* Clerck
 - Thoracic groove longitudinal; epigyne with unwrinkled scape provided with one or two pairs of lateral lobes *Neoscona* Simon

Genus 12. *Araneus* Clerck, 1757

1757. *Araneus* Clerck, *Argn. Suec.*, p. 15.

1982. *Araneus* : Tikader, *Fauna of India, Spiders*, 2(1) : 219.

Diagnostic characters : Carapace moderately convex with no horny outgrowths; thoracic groove transverse in female, but in male longitudinal, often having lateral prolongations. Ocular quad forming a trapezium, not much longer than wide; median eyes slightly unequal in size,

laterals close and usually situated on prominent tubercles; both rows of eyes recurved. Males with a hook on coxa I and a groove on femur II; tibia II armed with spines on prolateral side and often bent. Epigyne with a prominent scape, which may be long, wrinkled and winding, or in some straight and short; epigynal openings situated in to the grooves at the base. Palpus of male with a large terminal apophysis, palpal patella with two strong, long and curved spines.

Type species : *Araneus angulatus* Clerck

Distribution : Cosmopolitan.

13. *Araneus mitifica* (Simon, 1886)

1886. *Epeira mitifica* Simon, *Act. Soc. Linn. Bordeaux*, **40** : 150.

1982. *Araneus mitifica* : Tikader, *Fauna of India, Spiders*, **2(1)** : 233.

Specimens examined : 2 ♀ ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 5-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5232).

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Chhindwara, Jabalpur, Mandsaur, Ujjain), (Maharashtra (Pune), Karnataka, West Bengal. *Elsewhere* : Pakistan, Bangladesh, Myanmar, and Malaysia.

Genus 13. *Argiope* Audouin, 1826

1826. *Argiope* Audouin, in *Savigny, Description de l'Egypte*, **1(4)** : 121.

1982. *Argiope* : Tikader, *Fauna of India, Spiders*, **2(1)** : 111.

Diagnostic characters : Carapace remarkably flat, clothed with thick layer of white pubescence. Ocular quad forms a trapezium, longer than wide and wider behind than in front, posterior row of eyes strongly procurved, anterior lateral eyes smaller than posterior laterals, lateral eyes close and situated on conspicuous tubercles. Chelicerae small, weak and provided with small boss. Legs long and strong, metatarsus and tarsus together longer than patella and tibia together. Abdomen generally flat, with variable shapes. Adult females larger than 9-mm. Epigyne provided with thin or thick median septum. Web provided with a stabilimentum or two stabiliments crossing.

Type species : *Argiope lobata* (Thorell)

Distribution : Tropical and temperate countries of the world.

14. *Argiope aemula* (Walckenaer, 1841)

(Pl. 3a)

1841. *Epeira aemula* Walckenaer, *Hist. Nat. Ins. Apt.*, **2** : 118.

1982. *Argiope aemula* : Tikader, *Fauna of India, Spiders*, **2(1)** : 119.

Specimens examined : 1 ♀, Tilwaraghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 28-XI-1997 (Z.S.I., Jabalpur, Reg. No. A/5231).

Distribution : India : C hattisgarh (Bastar), Madhya Pradesh (Jabalpur, Mandla, Seoni), Tamil Nadu (Nilgiri Hills), Maharashtra (Pune), West Bengal (Darjeeling) Gujarat, Andaman & Nicobar Islands. *Elsewhere* : Sri Lanka, Myanmar, Indo and Austro-Malaysia.

Remarks : The female of this species is quite beautiful and much larger than the rarely seen male. Its web looks quite conspicuous, as it is provided with an X-shaped structure across the hub (centre) called stabilimentum (pl. 3a). The stabilimentum consists of a large number of minute bands resembling a swathing band. The function of stabilimentum has long been a subject of debate. However, it is supposed that it has a camouflaging and concealing function. It may obscure the outline of the spider, which does not have a retreat, but sits head down in the centre of the web and holds its legs in pairs in such a way that they appear to be aligned to the four arms of the letter 'X'

Genus 14. *Chorizopes* O. P. Cambridge, 1870

1870. *Chorizopes* Cambridge, *Proc. Zool. Soc. Lond.* : 737.

1982. *Chorizopes* : Tikader, *Fauna of India, Spiders*, 2(1) : 157.

Diagnostic characters : Carapace often broadest anteriorly, with highly convex and roundish cephalic region, thoracic region descending sharply behind and low. Ocular quad forms a trapezium, slightly wider behind than in front. Labium transversely triangular; maxillae short, broad, converging towards inside. Sternum triangular, posteriorly tapering but tip is blunt. Legs short and slender, coxa IV subcontiguous. Abdomen overlapping the carapace anteriorly and provided with a few paired or unpaired conical or blunt tubercles. Epigyne with or without a blunt scape.

Type species : *Chorizopes frontalis* Cambridge

Distribution : India, China, Japan, Madagascar, Sri Lanka, and Sumatra.

Key to species of Genus *Chorizopes* O. P. Cambridge

1. Dorsum of abdomen elevated and provided with four pairs of white spots
..... *kastoni* Gajbe & Gajbe
- Dorsum of abdomen provided with a beautiful design of blackish patches and sigilla
..... *tikaderi* Bhandari & Gajbe

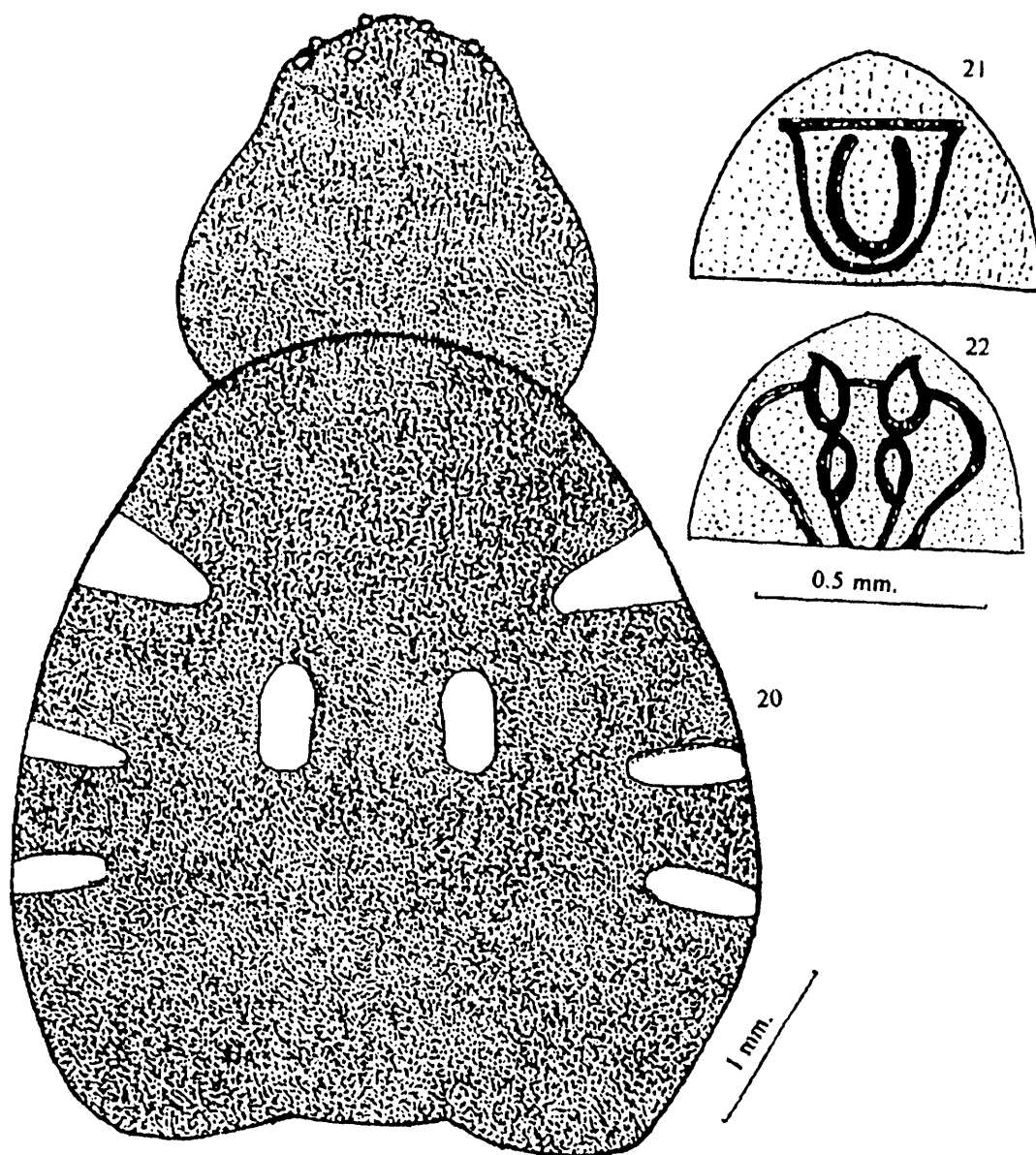
15. *Chorizopes kastoni* Gajbe & Gajbe (Figs. 20-22)

2004. *Chorizopes kastoni* Gajbe & Gajbe, *Rec. zool. Surv. India*, **102**(3-4) : 117-119.

Specimens examined : This species is being recorded herein from literature (Gajbe & Gajbe, 2004b).

General : Cephalothorax, legs and abdomen black. Total length 6.7 mm. Carapace 1.9 mm. long, 2.4 mm. wide; abdomen 4.8 mm. long, 4.5 mm. wide.

Cephalothorax : Wider than long, narrowing anteriorly, clothed with hairs, cephalic region elevated and convex. Ocular quad forming a trapezium, wider behind than in front. Eyes pearly white; anterior median eyes slightly larger than posterior median eyes; lateral eyes subequal in size, separated a little; both rows of eyes recurved, as in fig. 20. Sternum heart-shaped, pointed behind, dark brown in colour and clothed with fine hairs. Labium wider than long, pale in colour. Chelicerae strong and stout, dark brownish and clothed with hairs. Legs moderately strong, coxae and femora with transverse brownish bands, clothed with hairs and spines.



Figs. 20-22. *Chorizopes kastoni* Gajbe & Gajbe : 20. Dorsal view of female, legs omitted. 21. Epigyne. 22. Internal genitalia.

Abdomen : Longer than wide, clothed with hairs, posterior end concave, dorsum elevated and provided with four pairs of white spots, as in fig. 20. Ventral side having the same colour as dorsal. Epigyne, as in fig. 21. Internal genitalia, as in fig. 22.

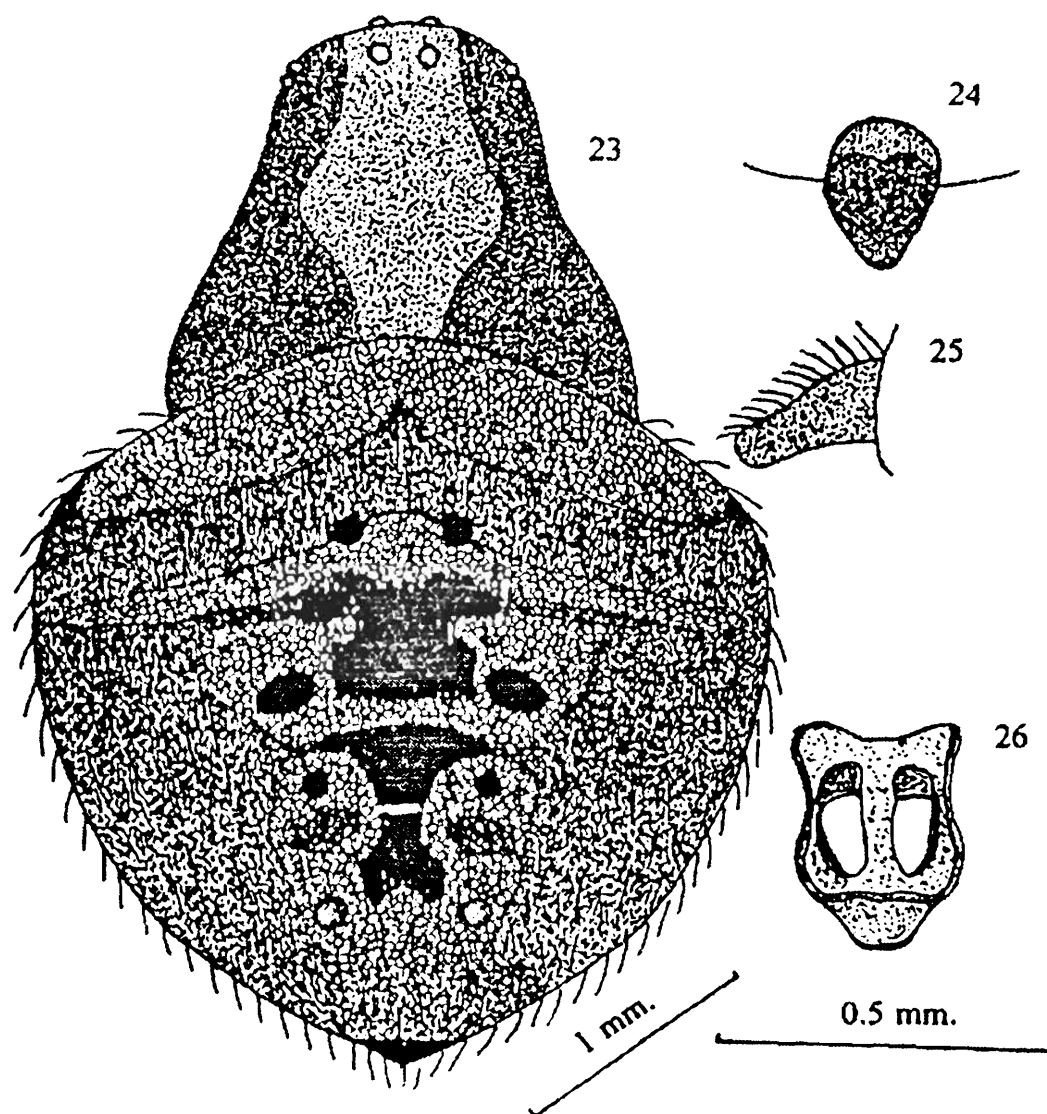
Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

16. *Chorizopes tikaderi* Bhandari & Gajbe, 2001
(Figs. 23-26)

2001a. *Chorizopes tikaderi* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 59.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5516/18).

General : Cephalothorax, legs and abdomen reddish-brown with blackish patches. Total length 4.3 mm. Carapace 1.6 mm. long, 1.8 mm. wide; abdomen 3.1 mm. long, 3.0 mm. wide.



Figs. 23-26. *Chorizopes tikaderi* Bhandari & Gajbe : 23. Dorsal view of female, legs omitted. 24. Epigyne, ventral view. 25. Epigyne, lateral view. 26. Internal genitalia.

Cephalothorax : Wider than long, broadest posteriorly, narrowing anteriorly; clothed with fine pubescence and provided with a pair of blackish patches, as in fig. 23. Cephalic region slightly elevated, convex. Ocular quad nearly square, eyes pearly white, both rows strongly recurved; posterior medians encircled by blackish ring and larger than anterior medians, laterals closely situated. Sternum heart-shaped, pointed behind, blackish, clothed with grey pubescence. Labium wider than long, triangular, dark brown with pale distal margin. Maxillae broad, dark brown with pale inner margins, provided with distinct scopulae. Chelicerae strong and stout, deep brown. Legs relatively long and strong, clothed with hairs and spines, posterior region of each femur with a transverse blackish patch.

Abdomen : Slightly longer than wide, clothed with pubescence and provided with a beautiful design of blackish patches and sigilla, as in fig. 23. Ventral side blackish with two big chalk white spots between the epigynal furrow and spinnerets. Epigyne having a short scape, as in figs. 24 and 25. Internal genitalia, as in fig. 26.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 15. *Cyclosa* Menge, 1866

1866. *Cyclosa* Menge, *Schrift. Nat. Ges. Danzig (N.F.)*, 1 : 73.

1982. *Cyclosa* : Tikader, *Fauna of India, Spiders*, 2(1) : 183.

Diagnostic characters : Carapace with anteriorly narrow cephalic region; cephalic region distinctly separated from thoracic region by an oblique groove forming a U-shape. Ocular quad trapezium-like, much narrower behind than in front; anterior median eyes usually larger than posterior medians; posterior medians very close, almost touching; laterals close and situated on prominent tubercles; both rows of eyes recurved. Palpal patella of male with one large, strong curved spine. Abdomen provided with humps, both paired and median unpaired. Epigyne having a small, weak scape, which may be straight, wrinkled, bent, pointed or circular.

Type species : *Cyclosa conica* (Pallas)

Distribution : Cosmopolitan.

Key to species of Genus *Cyclosa* Menge

1. Caudal tubercle bifurcated, two pairs of distinct tubercles on the posterior half of abdomen; base of epigyne large and prominent *moondensis* Tikader
- Caudal tubercle not bifurcated 2
2. One pair of less distinct tubercles in the posterior region of abdomen; base of epigyne small and prominent *confraga* (Thorell)
- One pair of distinct tubercles at the base of caudal tubercle; scape of epigyne with a contraction, the narrow tip of scape bent nearly at right angle to the base *spirifera* Simon

17. *Cyclosa confragata* (Thorell, 1892)

1892. *Epeira confragata* Thorell, *Bull. Soc. Ent. Ital.*, **24** : 239.

1963. *Cyclosa confragata* : Tikader, *J. Univ. Poona. Sci. & Tech.*, **24** : 45.

Specimens examined : 1 ♀, Khandari, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 12-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5240).

Distribution : India : Madhya Pradesh (Jabalpur) Gujarat (Ballabhvidyanagar), Maharashtra (Pune), Karnataka, Assam, Sikkim. *Elsewhere* : Myanmar, Malaysia.

18. *Cyclosa moonduensis* Tikader, 1963

1963. *Cyclosa moonduensis* Tikader, *J. Univ. Poona, Sci. & Tech.*, **24** : 46.

1982. *Cyclosa moonduensis* : Tikader, *Fauna of India, Spiders*, **2(1)** : 191.

Specimens examined : 1 ♀, Hulki, Jabalpur, Madhya Pradesh. Coll. U. A. Gajbe, 30-X-1985.

Distribution : India : Gujarat (Ahmednagar), Maharashtra (Pune), Madhya Pradesh (Chhindwara, Jabalpur).

19. *Cyclosa spirifera* Simon, 1889

1889. *Cyclosa spirifera* Simon, *J. Asiat. Soc. Beng.*, **58** : 337.

1982. *Cyclosa spirifera* : Tikader, *Fauna of India, Spiders*, **2(1)** : 195.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 5-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5236).

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur), Joansar, Thadyar.

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

Genus 16. *Cyrtophora* Simon, 1864

1864. *Cyrtophora* Simon, *Hist. Nat. des Araign.*, **1** : 261.

1982. *Cyrtophora* : Tikader, *Fauna of India, Spiders*, **2(1)** : 171.

Diagnostic characters : Carapace nearly flat with long cephalic region. Ocular quad a little longer than wide; lateral eyes equal and slightly separated from each other. Legs moderately long and stout. Abdomen very high anteriorly and provided with paired tubercles.

Type species : *Cyrtophora citricola* (Forskål)

Distribution : Tropical and sub-tropical countries of the world.

Key to species of Genus *Cyrtophora* Simon

- 1 Abdomen provided with two pairs of humps and one median caudal hump; epigyne with a broad rim *cicatrosa* (Stoliczka)
- Abdomen with three pairs of humps 2
2. Caudal humps bifurcate the abdomen posteriorly; epigyne provided with a narrow rim *citricola* (Forskål)
- Dorsum of abdomen provided anteriorly with blackish patches; epigyne with a broad, short scape *jabalpurensis* Gajbe & Gajbe

20. *Cyrtophora cicatrosa* (Stoliczka, 1869)

1869. *Epeira* (*Nephila*) *cicatrosa* Stoliczka, *J. Asiat. Soc. Beng.*, **33** : 242.

1982. *Cyrtophora cicatrosa* : Tikader, *Fauna of India, Spiders*, **2**(1) : 178.

Specimens examined : 1 ♀, Barela, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 28-IX-1997 (Z.S.I., Jabalpur, Reg. No. A/5242).

Distribution : India : Madhya Pradesh (Jabalpur), Tamil Nadu (Chingleput), Maharashtra (Nasik. Pune), West Bengal (Kolkata), Uttar Pradesh (Allahabad), Karnataka, Punjab, Gujarat, Andaman & Nicobar Islands. *Elsewhere* : Myanmar, New Guinea, Pakistan, and Austro-Malaysia.

21. *Cyrtophora citricola* (Forskål, 1775)

1775. *Aranea citricola* Forskål, *Descriptions animalium* : 86.

1982. *Cyrtophora citricola* : Tikader, *Fauna of India, Spiders*, **2**(1) : 180.

Specimens examined : 2 ♀♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 6-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5237).

Distribution : India : Madhya Pradesh (Chhindwara, Jabalpur, Ratlam), Karnataka (Bangalore), Tamil Nadu (Chingleput), Maharashtra (Pune), West Bengal (Kolkata), Assam, Punjab, Rajasthan, Gujarat. *Elsewhere* : Sri Lanka, Myanmar, Australia, Madagascar, Malaysia, Egypt, Africa, and Europe.

22. *Cyrtophora jabalpurensis* Gajbe & Gajbe, 1999 (Figs. 27-29)

1999i. *Cyrtophora jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(4) : 29.

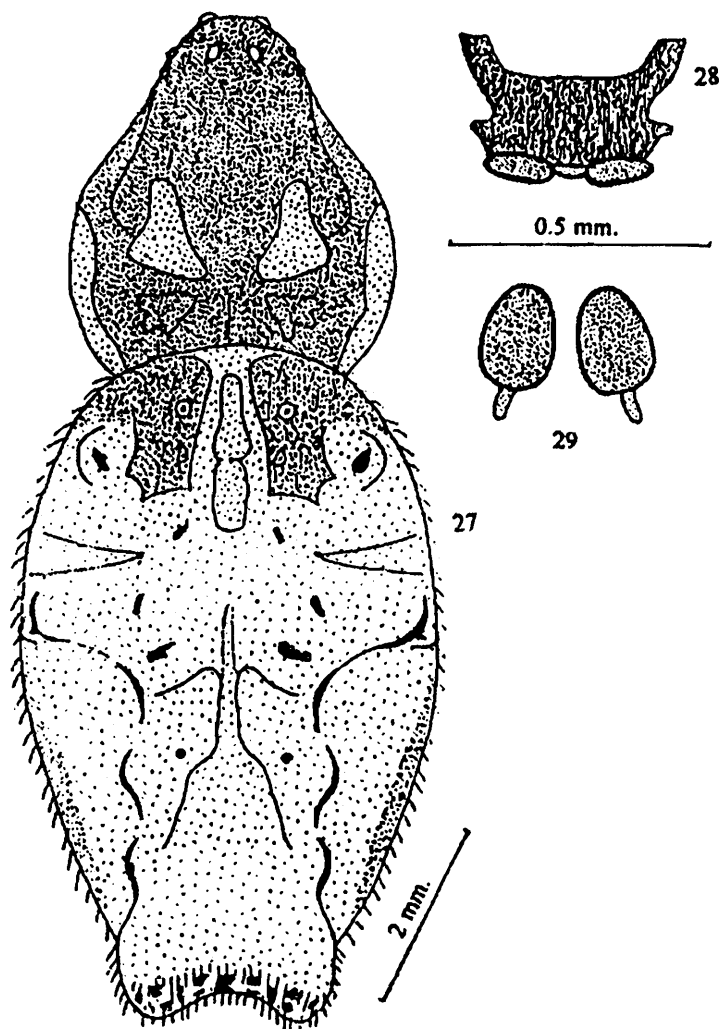
Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5516/18).

General : Cephalothorax and legs blackish with brownish patches, abdomen whitish-brown. Total length 10.6 mm. Carapace 4.0 mm. long, 3.4 mm. wide; abdomen 7.0 mm. long, 4.3 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing anteriorly, densely clothed with grey pubescence, thoracic region provided with a fovea, mid-dorsal and lateral regions with light brown patches, as in fig. 27. Ocular quad forming a trapezium, longer than wide, slightly wider in front than behind, antero-median eyes larger than postero-medians, both eye rows strongly recurved. Sternum brownish, clothed with hairs. Labium wider than long, dark brown with pale distal margin. Maxillae dark brown with broad distal end. Chelicerae strong, provided with prominent boss. Legs relatively long, strong and stout, densely clothed with pubescence, hairs and spines, provided with transverse brownish patches.

Abdomen : Anteriorly high and strongly overlapping the cephalothorax, thickly clothed with pubescence and hairs. Dorsum with one pair of shoulder humps, one pair of lateral humps and one pair of bifid caudal humps, anterior region with one pair of blackish patches, as in fig. 27. Ventral side brownish, with a chalk white patch between epigastric furrow and spinnerets. Epigyne provided with a small and broad scape, a conspicuous blackish patch present above the epigyne, as in fig. 28. Internal genitalia, as in fig. 29.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).



Figs. 27-29. *Cyrtophora jabalpurensis* Gajbe & Gajbe : 27. Dorsal view of female, legs omitted. 28. Epigyne. 29. Internal genitalia.

Genus 17. *Larinia* Simon, 1874

1874. *Larinia* Simon, *Ar. Fr.*, **1** : 115.

1982. *Larinia* : Tikader, *Fauna of India, Spiders*, **2**(1) : 205.

Diagnostic characters : Carapace rather long, scarcely convex posteriorly. Ocular quad forming a trapezium nearly twice as wide in front than behind; lateral eyes subequal in size and very close. Maxillae longer than wide. Legs long and slender. Abdomen elongated with a single median blunt point in front and no caudal process, ventral side with a longitudinal white band guarded laterally by black patches between epigastric furrow and spinnerets. Males with palpal patella bearing two heavy curved spines at the apex.

Type species : *Larinia lineata* Lucas

Distribution : Tropical and sub-tropical countries of the world.

Key to species of Genus *Larinia* Simon

1. Abdomen greyish-brown, darker posteriorly with a mid-longitudinal pale line and two sub-median pale lines one on each side *chloris* (Audouin)
- Abdomen not greyish-brown 2
2. Abdomen yellowish, posterior end blackish, inverted U-shaped blackish spot present anteriorly *emertoni* Gajbe & Gajbe
- Abdomen brownish-black, mid-dorsally provided with a blackish patch running the whole length of abdomen *bharatae* Bhandari & Gajbe

23. *Larinia bharatae* Bhandari & Gajbe, 2001

(Figs. 30-31)

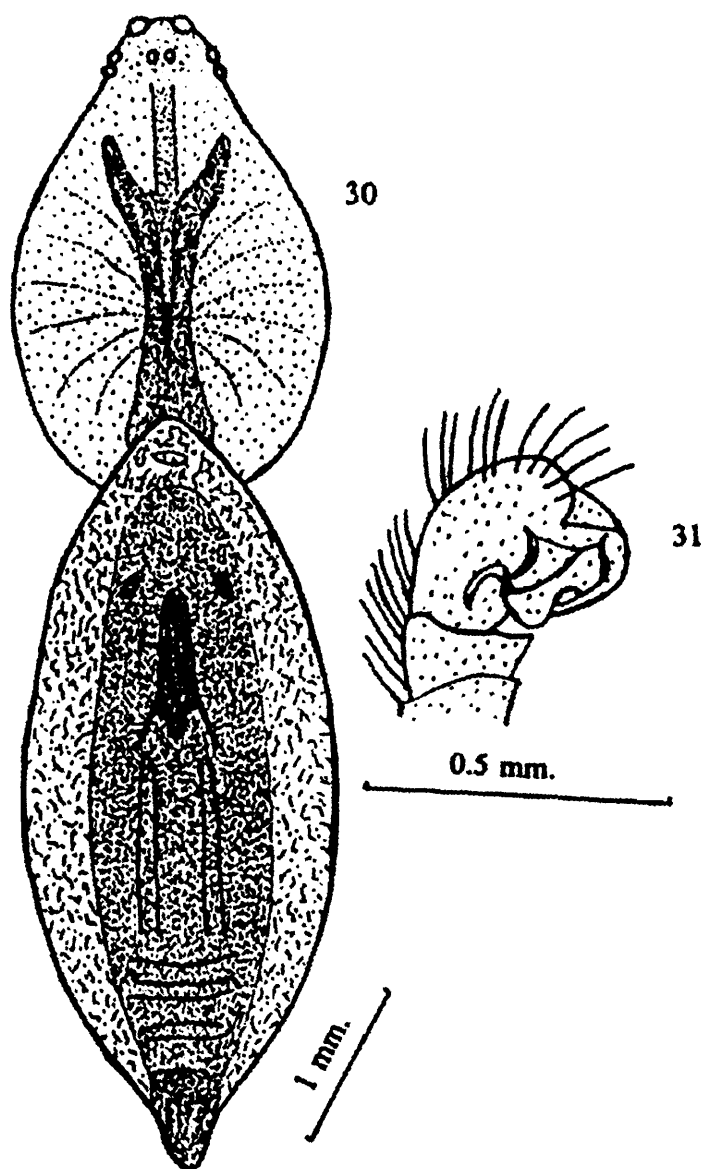
2001a. *Larinia bharatae* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 61.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5517/18).

General : Cephalothorax and legs yellowish with blackish patches, abdomen brownish-black. Total length 7.2 mm. Carapace 2.8 mm. long, 1.9 mm. wide; abdomen 4.7 mm. long, 1.8 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with fine pubescence, provided with a mid-dorsal longitudinal blackish patch, two lines running from the posterior median eyes to the longitudinal thoracic furrow, as in fig. 30. Ocular quad forming a trapezium, wider in front than behind, anterior medians larger than posterior medians,

which are close to each other, laterals subequal, close to each other and situated on distinct tubercles; both rows of eyes recurved but posterior row very narrowly recurved. Sternum much elongated, heart-shaped, pointed behind, uniform pale yellow in colour. Labium as long as wide, brownish, with pale distal border. Maxillae longer than broad, yellowish, provided with distinct scopulae. Chelicerae strong and stout, yellowish, provided with distinct boss. Legs long and strong, clothed with hairs and spines, provided with blackish spots. Male palp, as in fig. 31.



Figs. 30-31. *Larinia bharatae* Bhandari & Gajbe : 30. Dorsal view of male, legs omitted. 31. Left male palp, ventral view.

Abdomen : Longer than wide, pointed anteriorly over the carapace, clothed with hairs and pubescence, mid-dorsally provided with a blackish patch running the whole length of the abdomen, and laterally lighter in colour, as in fig. 30. Ventral side pale yellow. Female unknown.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

24. *Larinia chloris* (Audouin, 1826)

1826. *Epeira chloris* Audouin, *Descr. de l'Egrpte*, **22** : 347.

1982. *Larinia chloris* : Tikader, *Fauna of India, Spiders*, **2**(1) : 206.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 12-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5241).

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra (Pune). *Elsewhere* : Libya, Syria, Egypt, Israel, and Uganda.

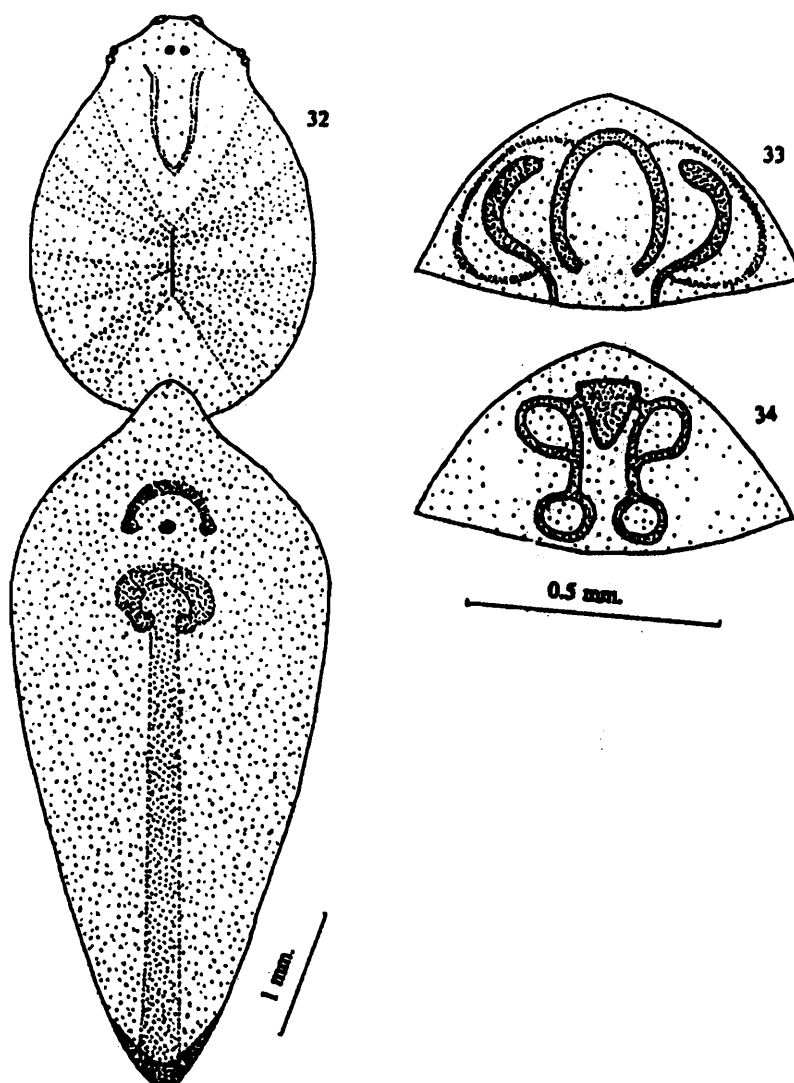
Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

25. *Larinia emertoni* Gajbe & Gajbe, 2004

(Figs. 32-34)

2004. *Larinia emertoni* Gajbe & Gajbe, *Rec. zool. Surv. India*, **102**(3-4) : 113-115.

Specimens examined : This species is being recorded herein from literature (Gajbe & Gajbe, 2004a).



Figs. 32-34. *Larinia emertoni* Gajbe & Gajbe : 32. Dorsal view of female, legs omitted. 33. Epigyne. 34. Internal genitalia.

General : Cephalothorax brownish-yellow, legs and abdomen yellowish. Total length 8.5 mm. Carapace 2.9 mm. long, 2.0 mm. wide; abdomen 5.6 mm. long, 2.3 mm. wide.

Cephalothorax : Much longer than wide, narrow in front, clothed with hairs and pubescence, light brown bands running to the sides from the deep longitudinal thoracic furrow, as in fig. 32. Ocular quad forming a trapezium, more than three times wider in front than behind; anterior medians much larger than posterior medians, posterior medians closely situated, laterals subequal, extremely close to each other and situated on distinct tubercles; both eye rows recurved but posterior row very narrowly recurved than anterior row. Sternum elongated, oval, clothed with fine pubescence, without any patch. Labium as long as wide, yellowish-brown. Maxillae slightly longer than broad, yellowish, provided with distinct scopulae. Chelicerae strong and stout, provided with distinct boss, anterior margin of each chelicera with four teeth. Legs long and slender, clothed with hairs and spines.

Abdomen : Much longer than wide, pointed anteriorly over the carapace, clothed with pubescence and few spines, an inverted U-shaped black spot present on the mid-dorsal line, with three tiny black spots above it, as in fig. 32. The posterior end is blackish, the region between the inverted U-shaped black spot and the posterior end is slightly darker than the rest. Ventral side lighter than dorsal, without any patch. Epigyne, as in fig. 33. Internal genitalia, as in fig. 34.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 18. *Leucauge* White, 1841

1841. *Leucauge* White, *Ann. Mag. Nat. Hist.*, 7 : 473.

1982. *Leucauge* : Tikader, *Fauna of India, Spiders*, 2(1) : 71.

Diagnostic characters : Carapace truncate anteriorly. Thoracic furrow deep and posteriorly directed. Legs I and II long and slender, femora IV with a double fringe of hairs on the prolateral surface of the basal half. Abdomen nearly twice as long as wide, with silvery pigmentation; epigastric plate without any furrow.

Type species : *Leucauge hortorum* Hentz

Distribution : Tropical and sub-tropical countries of the world.

26. *Leucauge decorata* (Blackwall, 1864)

(Pl. 3b)

1864. *Tetragnatha decorata* Blackwall, *Ann. Mag. Nat. Hist.* 14(3) : 44.

1982. *Leucauge* : Tikader, *Fauna of India, Spiders*, 2(1) : 78.

Specimens examined : 1 ♀, Tilwaraghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 28-VIII-1998 (Z.S.I., Jabalpur, Reg. No. A/5239).

Distribution : India : Madhya Pradesh (Bhind, Chhindwara, Damoh, Jabalpur, Morena), Karnataka (Bangalore), Kerala (Cochin), Tamil Nadu (Nilgiri Hills, Red Hills, Chingleput), Uttaranchal (Dehradun), West Bengal (Kolkata, Darjeeling, Kalimpong), Meghalaya (Shillong), Sikkim, Assam, Bihar, Orissa, Gujarat, Pondicherry. *Elsewhere* : Sri Lanka, Myanmar, and Pakistan.

Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

Genus 19. *Neoscona* Simon, 1864.

1864. *Neoscona* Simon, *Hist. Nat. Araign.*, 1 : 261.

1982. *Neoscona* : Tikader, *Fauna of India, Spiders*, 2(1) : 238.

Diagnostic characters : Presence of longitudinal thoracic groove in female separates *Neoscona* from all members of the genus *Araneus*. Epigyne is a simple tongue like scape, completely fused to the base and provided with one or two pairs of lateral lobes, epigynal openings situated on the underneath of scape.

Type species : *Neoscona arabesca* Walckenaer

Distribution : All over the world.

Key to species of Genus *Neoscona* Simon

- 1 Abdomen triangular or sub-triangular 2
- Abdomen not triangular or sub-triangular 5
2. Abdomen triangular; epigynal scape short, broad and triangular *nautica* (L. Koch)
- Abdomen sub-triangular, epigynal scape long and narrow 3
3. Cephalic region with a conspicuous dark brown V-shaped patch; epigynal scape with a deep constriction *mukerjei* Tikader
- Cephalic region not with a conspicuous dark brown V-shaped patch; epigynal scape with a deep constriction 4
4. Lateral lobes of epigyne distinct; horn-like and visible from ventral side of abdomen *rumpfi* (Thorell)
- Epigyne with a long and thin scape 6
5. Abdomen rounded at both anterior and posterior ends; distal ends of tarsi having brown bands; epigynal scape rather thick with distinct rim, genital openings placed underneath the scape *elliptica* Tikader & Bal

- Abdomen not rounded at posterior end; sternum dark brown with longitudinal white band; epigynal scape with no prominent rim, constriction present behind the lateral lobe *theis* (Walckenaer)
- 6. Ventral side of abdomen brownish; a big deep brown patch bordered by yellowish spots present between the epigastric furrow and spinnerets *platnicki* Gajbe & Gajbe
- Ventral side of abdomen having no big deep brown patch bordered by yellowish spots between the epigastric furrow and spinnerets 7
- 7. Ventral side of abdomen with a big blackish patch bordered by two dumble-shaped light brown patches *biswasi* Bhandari & Gajbe
- Ventral side with two blackish patches between epigastric furrow and spinnerets 8
- 8. Legs long, distal end of segments provided with blackish transverse bands *dyali* sp. nov.
- Legs long, distal end of segments not provided with blackish transverse bands 9
- 9. Abdomen provided mid-dorsally with a spear-shaped blackish patch bordered by a narrow chalk white patch *sanghi* sp. nov.
- Abdomen provided mid-dorsally with many small blackish spots *sanjivani* sp. nov.

27. *Neoscona biswasi* Bhandari & Gajbe, 2001

(Figs. 35-38)

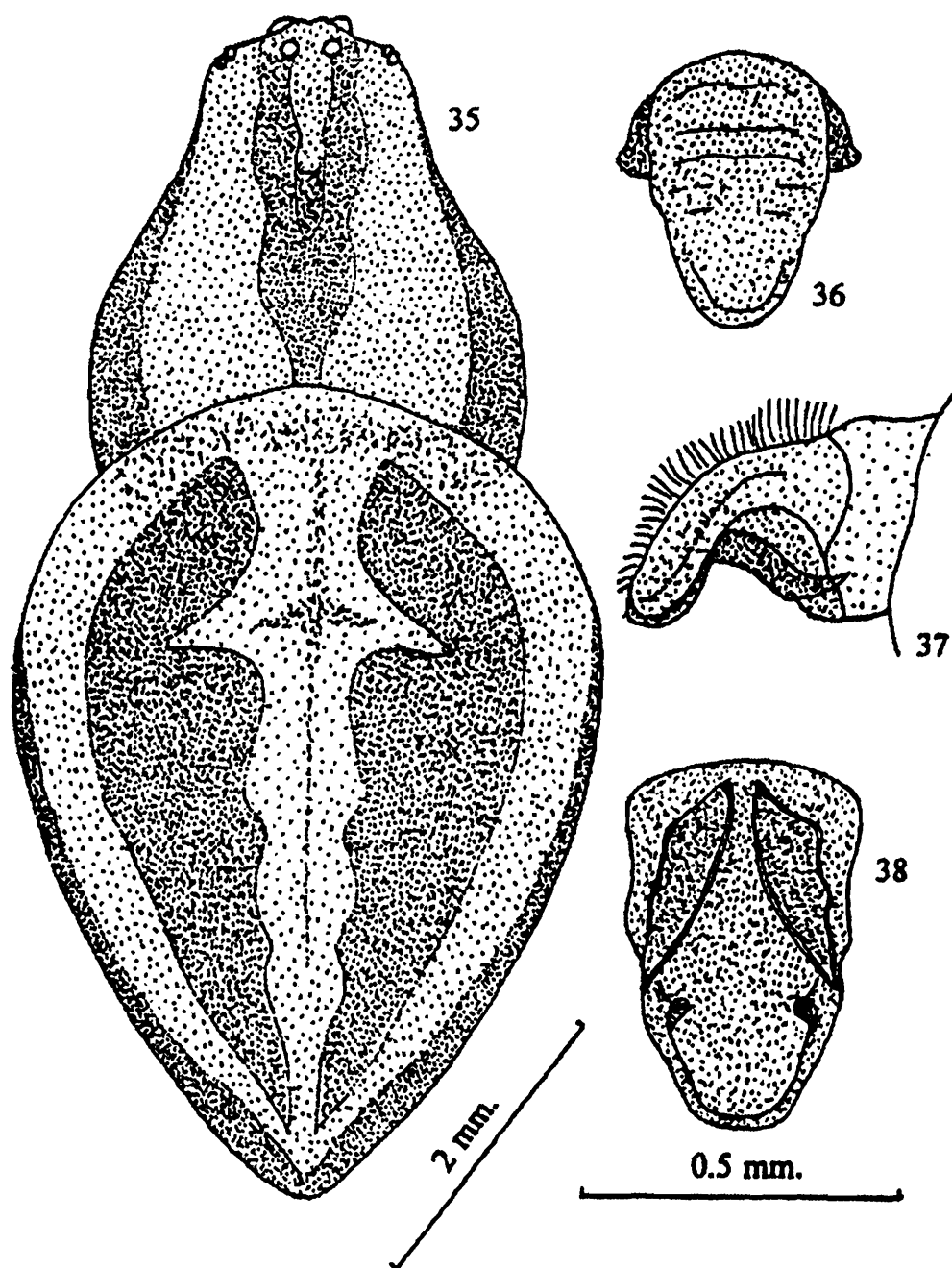
2001a. *Neoscona biswasi* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 62.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5515/18).

General : Cephalothorax and legs greyish-brown, abdomen dark brown. Total length 3.9 mm. Carapace 1.5 mm. long, 1.2 mm. wide; abdomen 2.7 mm. long, 1.8 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with pubescence and hairs, provided with one mid-dorsal and two lateral brown bands, as in fig. 35. Cephalic region slightly high, ocular quad nearly as long as wide and slightly wider in front than behind; anterior medians larger than posterior medians, which are encircled by black ring, laterals close and situated on small tubercles, both eye rows recurved but posterior row only slightly recurved. Sternum heart-shaped, pointed behind, blackish-brown, provided with a mid-longitudinal greyish band. Labium wider than long, dark brown with pale distal margin. Maxillae broad, nearly as long as wide, proximal portion dark brown, distal portion pale yellow, provided with distinct scopulae. Chelicerae strong, dark brown, having moderate boss.

Legs long and moderately strong, clothed with hairs and spines, distal ends of segments with transverse brown bands.



Figs. 35-38. *Neoscona biswasi* Bhandari & Gajbe : 35. Dorsal view of female, legs omitted. 36. Epigyne, ventral view. 37. Epigyne, lateral view. 38. Internal genitalia.

Abdomen : Nearly elliptical, longer than wide, clothed with pubescence and hairs, strongly overlapping on the cephalothorax, provided with two mid-dorsal and two lateral light brown patches along the whole length of the abdomen, as in fig. 35. Ventral side dark brown, a big blackish patch present between the epigastric furrow and spinnerets and is bordered by two dumbel-shaped light brown patches. Scape of the epigyne curved, long and thin with a broad, dirty white base, as in figs. 36 and 37. Internal genitalia, as in fig. 38.

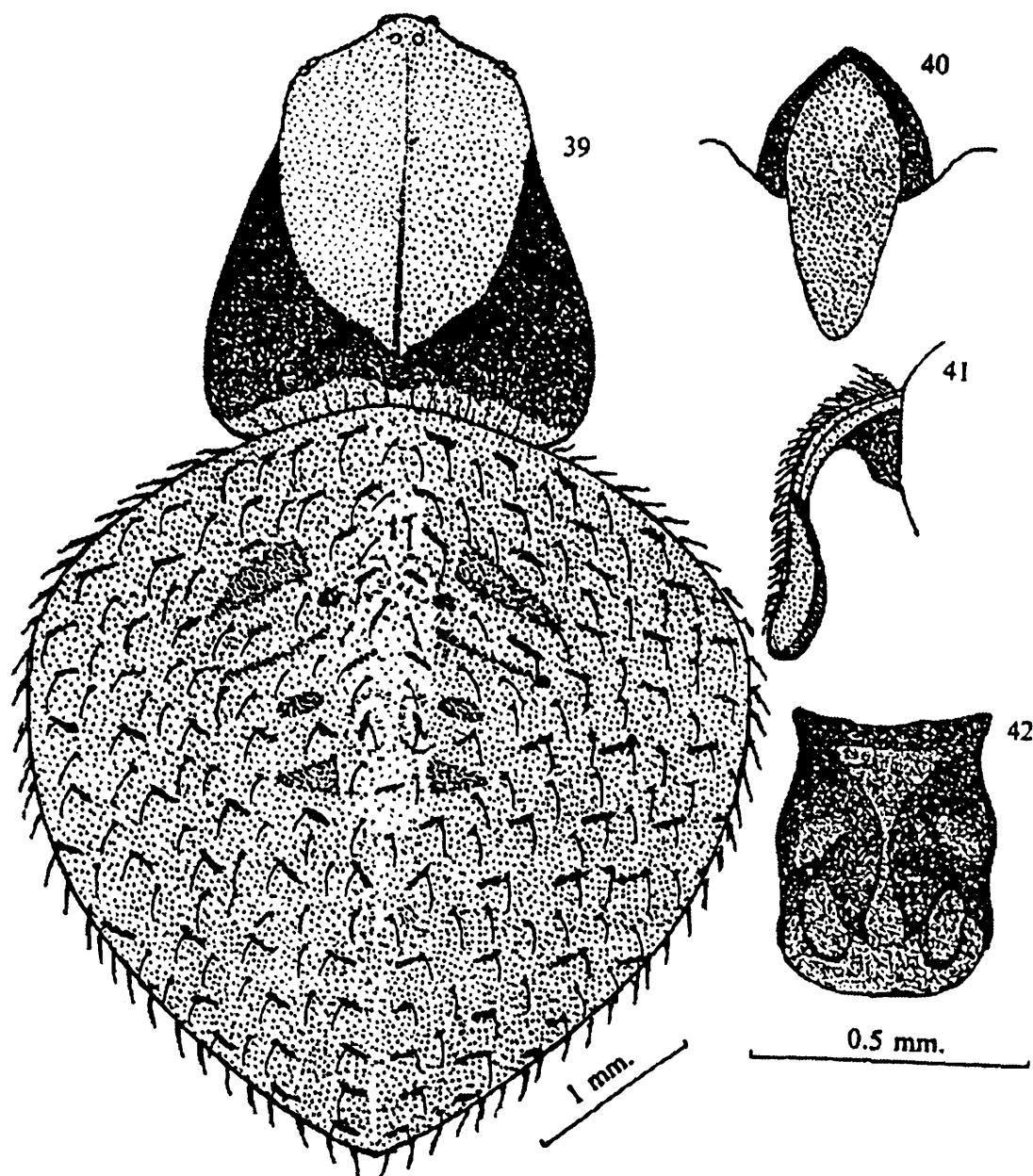
Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

28. *Neoscona dyali* sp. nov.

(Figs. 39-42; pl. 4a))

General : Cephalothorax brownish-black, legs reddish-brown and abdomen deep brown. Total length 7.2 mm. Carapace 2.8 mm. long, 2.5 mm. wide; abdomen 4.6 mm. long, 4.4 mm. wide.

Cephalothorax : Longer than wide, narrow in front, clothed with pubescence and hairs; thoracic region blackish, as in fig. 39. Ocular quad wider in front than behind. Anterior median eyes larger than the posterior medians, lateral eyes close to each other; both eye rows recurved. Sternum heart-shaped, pointed behind, dark brown on its lateral sides and clothed with pubescence and few spine like hairs. Labium wider than long, brownish-yellow in colour.



Figs. 39-42. *Neoscona dyali* sp. nov. : 39. Dorsal view of female, legs omitted. 40. Epigyne, ventral view. 41. Epigyne, lateral view. 42. Internal genitalia.

Maxillae broad, provided with distinct scopulae. Chelicerae strong, yellowish-brown, provided with prominent boss. Legs long and strong, distal ends of segments provided with blackish transverse bands; all legs covered with hairs and spines. Femora I, II, III and IV reddish-brown in colour.

Abdomen : Longer than wide, provided with few dark brown patches and many small blackish dots, clothed with pubescence and spines, as in fig. 39. Mid-dorsal region a little lighter in colour. Ventral side lighter in colour, with two blackish patches in between epigastric furrow and spinnerets. Epigynal scape long and narrow, and clothed with hairs, with its base blackish in colour and clothed with hairs, as in fig. 41. Epigyne, as in figs. 40 and 41. Internal genitalia, as in fig. 42.

Type specimen : Holotype ♀, in spirit, other details as above.

Type locality : Khandari, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 8-VIII-1998.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. S. Dyal.

Remarks : This species resembles *Neoscona rumpfi* (Thorell) but can be distinguished from it as follows : (i) Thoracic region blackish in colour but in *N. rumpfi* thoracic region dark brown in colour. (ii) Femora of all legs reddish-brown in colour but in *N. rumpfi* only femora I and II reddish-brown in colour. (iii) Epigyne and internal genitalia also structurally different.

29. *Neoscona elliptica* Tikader & Bal, 1981

1981. *Neoscona elliptica* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 24.

1982. *Neoscona elliptica* : Tikader, *Fauna of India, Spiders*, **2**(1) : 259.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 12-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5238).

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra (Pune).

30. *Neoscona mukerjei* Tikader, 1980

1980. *Neoscona mukerjei* Tikader, *Proc. Indian Acad. Sci.* **89**(3) : 247.

1982. *Neoscona mukerjei* : Tikader, *Fauna of India, Spiders*, **2**(1) : 248.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 7-IX-1997 (Z.S.I., Jabalpur, A/5233).

Distribution : India : Madhya Pradesh (Bhind, Chhindwara, Jabalpur, Mandsaur, Ratlam, Sagar), Maharashtra (Pune), West Bengal.

31. *Neoscona nautica* (L. Koch, 1875)

(Pl. 4b)

1875. *Epeira nautica* Koch, *Aegypt. Abyssin Arachn. Jickeli* : 17.1982. *Neoscona nautica* : Tikader, *Fauna of India, Spiders*, 2(1) : 242.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 31-VIII-1997 (Z.S.I., Jabalpur, A/5243).

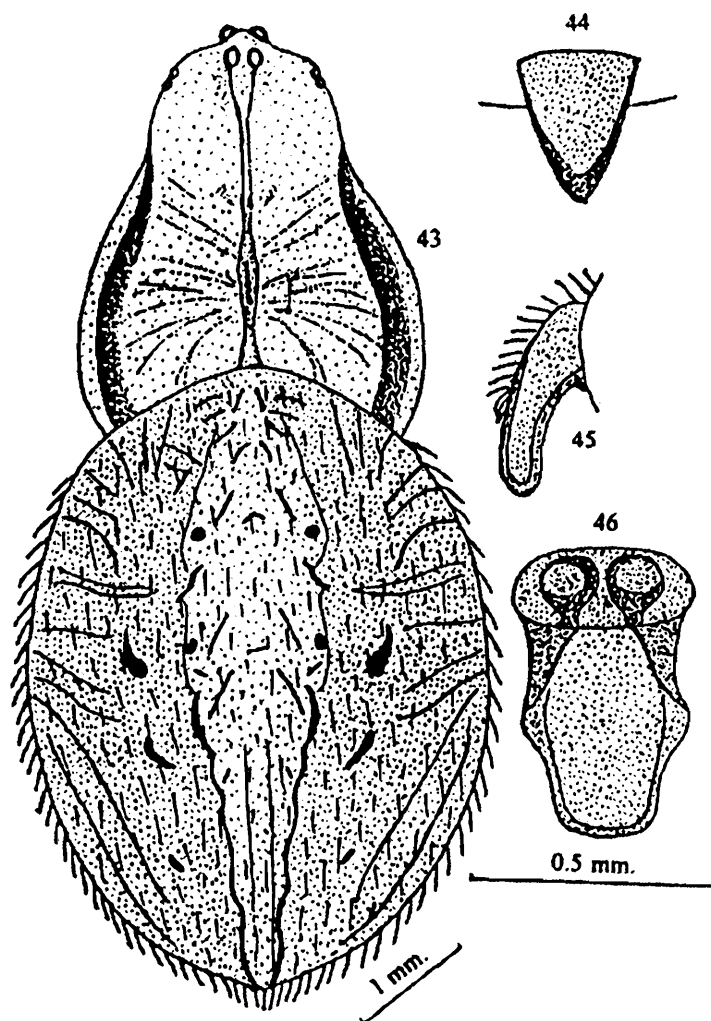
Distribution : India : Madhya Pradesh (Chhindwara, Damoh, Jabalpur, Mandla, Mandsaur, Ratlam), Maharashtra (Pune, East Khandesh), West Bengal (Darjeeling), Gujarat (Rajkot), Meghalaya (Rilbong, Shillong). *Elsewhere* : Myanmar, Pakistan, and North America.

32. *Neoscona platnicki* Gajbe & Gajbe, 2000

(Figs. 43-46)

2000c. *Neoscona platnicki* Gajbe & Gajbe, *Rec. zool. Surv. India*, 98(2) : 119.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5515/18).



Figs. 43-46. *Neoscona platnicki* Gajbe & Gajbe : 43. Dorsal view of female, legs omitted. 44. Epigyne, ventral view. 45. Epigyne, lateral view. 46. Internal genitalia.

General : Cephalothorax and legs brown, abdomen greyish-brown. Total length 7.8 mm. Carapace 3.5 mm. long, 2.7 mm. wide; abdomen 5.0 mm. long, 3.6 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with pubescence and hairs, provided with two dark brown bands laterally, two lines starting just below the median eyes and ending before the thoracic groove, as in fig. 43. Both eye rows recurved, ocular quad longer than broad and wider in front than behind, median eyes encircled by black rings, antero-medians larger than postero-medians, lateral eyes close to each other. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, dark brown, provided with a yellowish longitudinal bar. Labium wider than long, dark brown with pale distal border. Maxillae longer than broad, yellowish and provided with distinct scopulae. Chelicerae strong, light brown with prominent boss. Legs long and strong, clothed with hairs and spines.

Abdomen : Longer than wide, oval, clothed with pubescence and hairs, overlapping the posterior end of cephalothorax, provided with a mid-dorsal greyish-yellow band running the entire length of dorsum; lateral region brownish, with blackish lines and spots, as in fig. 43. Ventral side brownish, a big deep brown patch bordered by yellowish spots present between the epigastric furrow and spinnerets. Epigyne, as in figs. 44 and 45. Internal genitalia, as in fig. 46.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

33. *Neoscona rumpfi* (Thorell, 1887)

1887. *Araneus rumpfi* Thorell, *Annal. Mus. Civ. Genova*, **13** : 296.

1982. *Neoscona rumpfi* : Tikader, *Fauna of India, Spiders*, **2**(1) : 253.

Specimens examined : 3 ♀♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 5-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5234).

Distribution : India : Madhya Pradesh (Chhindwara, Jabalpur, Mandla), Tamil Nadu (Chingleput, Ootacamund), Karnataka (Bangalore), Andhra Pradesh (Wagar, Karoor), Maharashtra (Pune), Orissa. *Elsewhere* : Sri Lanka, Myanmar, Pakistan, Indo and Austro-Malaysia.

34. *Neoscona sanghi* sp. nov.

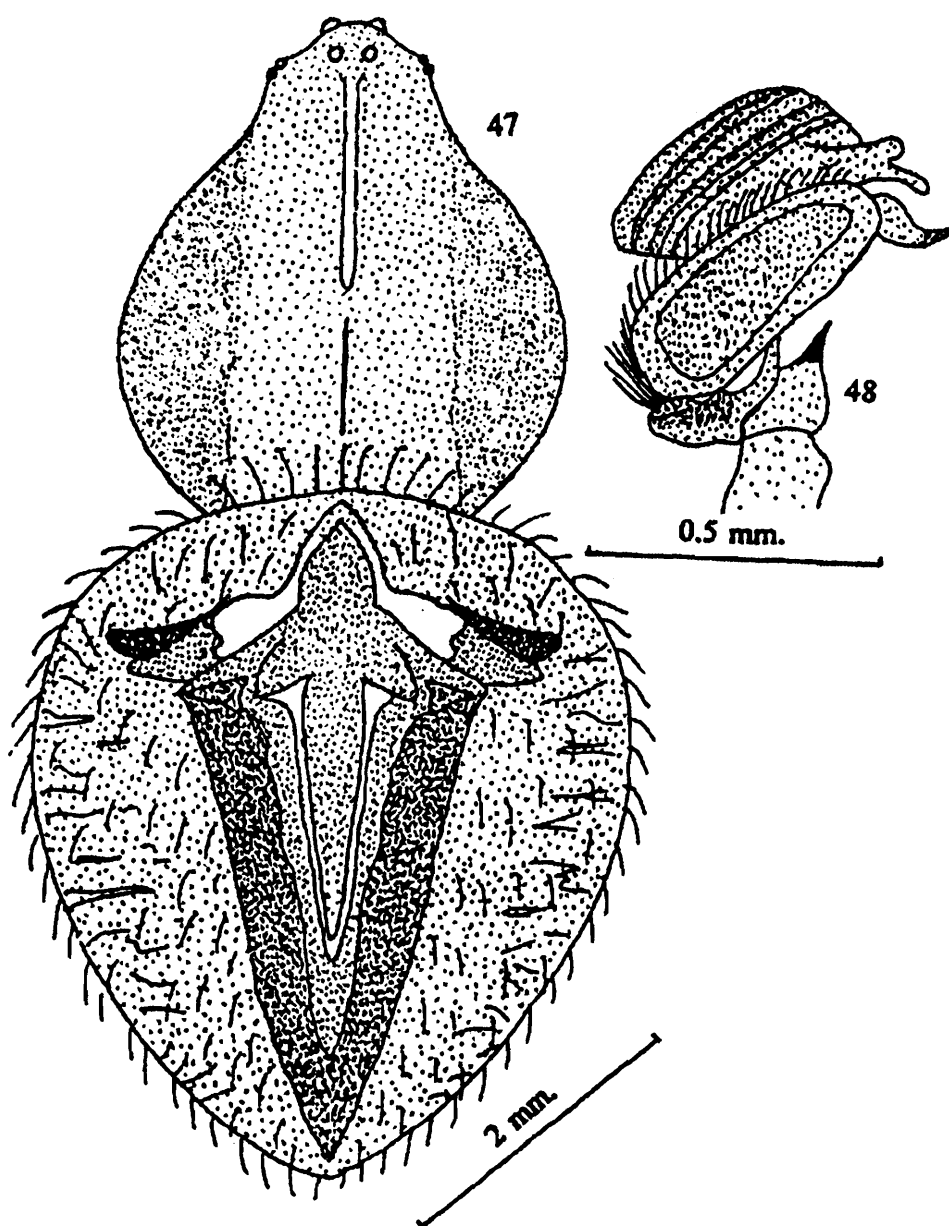
(Figs. 47-48)

General : Cephalothorax and legs brownish, abdomen blackish-brown. Total length 8.4 mm. Carapace 3.4 mm. long, 3.1 mm. wide; abdomen 5.0 mm. long, 4.1 mm. wide.

Cephalothorax : Longer than wide, narrow in front, clothed with pubescence and hairs; cephalic region slightly high, lateral sides slightly darker than mid-dorsal region, as in fig. 47. Two lines starting just behind the posterior median eyes and ending before a conspicuous fovea. Ocular quad longer than wide and wider in front than behind, anterior medians larger

than posterior medians; lateral eyes closer to each other and situated on separate tubercles. Both eye rows recurved but anterior row more strongly recurved. Sternum heart-shaped, pointed behind, brownish in colour, clothed with pubescence and hairs and provided with a broad mid-longitudinal chalk white patch. Labium wider than long, distal end pale brownish. Maxillae broad, provided with distinct scopulae. Chelicerae strong, provided with prominent boss. Legs relatively long, strong and stout, clothed with hairs and spines. Male palp, as in fig. 48.

Abdomen : Longer than wide, elliptical, clothed with pubescence and hairs, slightly overlapping on the cephalothorax; provided with a spear-shaped blackish patch on the dorsum bordered by a narrow chalk white patch; a big V-shaped blackish patch below the spear-shaped patch, as in fig. 47. Ventral side lighter in colour, four chalk white patches above the spinnerets. Female unknown.



Figs. 47-48. *Neoscona sanghi* sp. nov. : 47. Dorsal view of male, legs omitted. 48. Left male palp, ventral view.

Type specimen : Holotype ♀, in spirit, other details as above.

Type locality : MR-4 Road, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 16.VIII.1998.

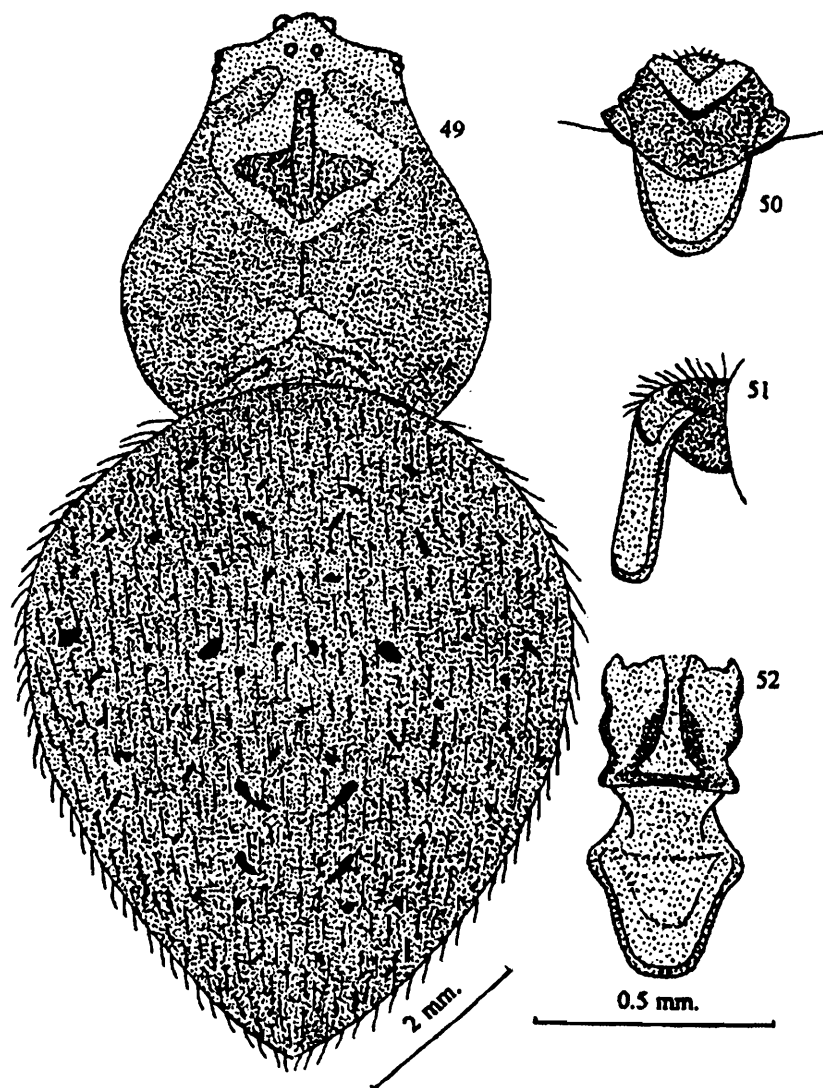
Remarks : This species resembles *Neoscona rumpfi* (Thorell) but can be distinguished from it as follows : (i) Cephalothorax brownish with slightly darker lateral sides but in *N. rumpfi* the thoracic region is dark-brown. (ii) Abdomen provided with a spear-shaped blackish patch and a V-shaped blackish patch but in *N. rumpfi* such patches absent. (iii) Male palp also structurally different.

35. *Neoscona sanjivani* sp. nov.

(Figs. 49-52)

General : Cephalothorax, legs and abdomen dark brown. Total length 12.2 mm. Carapace 4.3 mm. long, 4.2 mm. wide; abdomen 7.9 mm. long, 6.2 mm. wide.

Cephalothorax : Longer than wide, narrow in front, clothed with pubescence and hairs, provided with a plus-shaped dark brown patch below the posterior median eyes, as in fig. 49.



Figs. 49-52. *Neoscona sanjivani* sp. nov. : 49. Dorsal view of female, legs omitted. 50. Epigyne, ventral view. 51. Epigyne, lateral view. 52. Internal genitalia.

Cephalic region slightly elevated; ocular quad longer than wide, wider in front than behind; anterior medians larger than posterior medians; laterals close, each on a distinct tubercle. Both eye rows recurved but anterior row more prominently recurved. Sternum heart-shaped, pointed behind, dark brown, clothed with hairs and pubescence, provided with a mid-longitudinal yellowish band. Labium wider than long, dark brown with pale distal border. Maxillae broad, nearly as long as wide, provided with distinct scopulae. Chelicerae strong, dark brown, with a prominent boss. Legs long, strong and stout, clothed with hairs and spines, provided with transverse yellowish patches. Femora I and II, reddish-brown in colour.

Abdomen : Longer than wide, elliptical, broadest anteriorly, clothed with pubescence and spine like hairs, provided with many small blackish spots, as in fig. 49. Ventral side lighter in colour; two P-shaped blackish patches and two chalk white spots present in between the epigastric furrow and spinnerets. Epigyne provided with a moderately long scape and a pair of indistinct lateral lobes, as in figs. 50-51. Internal genitalia, as in fig. 52.

Type specimen : Holotype ♀, in spirit, other details as above.

Type locality : Sanjivani Nagar, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 8-VIII-1998.

Etymology : The specific name is a noun taken in appropriation from the type-locality.

Remarks : This species resembles *Neoscona mukerjei* Tikader but differs from it as follows : (i) Cephalothorax provided with a plus-shaped dark brown patch below the posterior median eyes but in *N. mukerjei* cephalothorax without such a patch. (ii) Legs provided with transverse yellowish patches but in *N. mukerjei* distal ends of segments of legs with transverse dark brownish bands. (iii) Epigyne and internal genitalia also structurally different.

36. *Neoscona theis* (Walckenaer, 1842)

1842. *Epiera theis* Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 53.

1982. *Neoscona theis* : Tikader, *Fauna of India, Spiders*, 2(1) : 269.

Specimens examined : 1 ♀, Lamhetaghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 27-IX-1997 (Z.S.I., Jabalpur, Reg. No. A/5235).

Distribution : India : Madhya Pradesh (Bhind, Chhattarpur, Chhindwara, Jabalpur, Mandsaur, Tikamgarh, Ujjain), Maharashtra (Pune), Orissa, Gujarat, West Bengal. *Elsewhere* : Guam, Mariana Island, and South New Guinea.

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

Genus 20. *Nephila* Leach, 1815

1815. *Nephila* Leach, *Zoological Miscellany* : 133.

1982. *Nephila* : Tikader, *Fauna of India, Spiders*, 2(1) : 94.

Diagnostic characters : Carapace with cephalic region convex, more elevated than thoracic region and usually armed posteriorly with one pair of tubercles. Labium longer than broad. Ocular quad nearly square or slightly wider behind. Legs very long and strong, spinulose; tarsi and metatarsi together longer than tibiae and patellae together. Epigyne heavily sclerotised.

Type species : *Nephila maculata* (Fabricius)

Distribution : Tropical and rarely sub-tropical countries of the world.

37. *Nephila maculata* (Fabricius, 1793)
(Pl. 5a)

1793. *Aranea maculata* Fabricius, *Ent. Syst.*, 2 : 425.

1982. *Nephila maculata* : Tikader, *Fauna of India, Spiders*, 2(1) : 97.

Specimen examined : 1 ♀, Bargi, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 19-VIII-1998 (Deposited with Z.S.I., Jabalpur, Reg. No. A/5223).

Distribution : India : Madhya Pradesh (Chhindwara, Jabalpur, Mandla, Seoni), Tamil Nadu (Ootacamund, Trinnevelly), Karnataka, Uttaranchal (Dehradun, Hardwar), Assam (Tezpur, Darrang), Sikkim (Gazing, Rongli), West Bengal (Kalimpong, Darjeeling), Maharashtra (Thane, Pune), Gujarat (Dangs), Andaman & Nicobar Islands. *Elsewhere* : Sri Lanka, Myanmar, China, Australia, Malaysia, Japan, New Guinea.

Remarks : This species is known to construct one of the largest orb-webs. The web appears golden in the sunlight and therefore, this species is commonly known as golden orb-web spider. It is often found in forests. The adult female (pl. 5a) of this species is very large in size compared to the tiny male.

Genus 21. *Zygeilla* F. O. P. Cambridge, 1902

1902. *Zygeilla* Cambridge, *Ann. Mag. Nat. Hist.*, 9(7) : 15.

1982. *Zygeilla* : Tikader, *Fauna of India, Spiders*, 2(1) : 214.

Diagnostic characters : Carapace with cephalic region usually darker in colour than thoracic region and with very few hairs. Anterior median eyes larger than others. Ocular quad as long as wide in front and slightly narrower behind than in front. Abdomen oval with no humps and decorated with distinct folium on the dorsum. Epigyne variable with a posterior median depression; may or may not be provided with scape, scape when present, not wrinkled.

Palpal patella of male provided with a large spine-like hair, palpal femur lacks proximal ventral teeth; paracymbium modified and diverse.

Type species : *Zygeilla atrica* Koch

Distribution : Cosmopolitan.

38. *Zygeilla indica* Tikader & Bal, 1980

1980. *Zygeilla indica* Tikader & Bal, *Proc. India Acad. Sci.*, **89**(3) : 243.

1982. *Zygeilla indica* : Tikader & Bal, *Fauna of India, Spiders*, **2**(1) : 215.

Specimen examined : 3 ♀♀, 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh, Coll. P. Gajbe, 5-X-1997 (A/5230).

Distribution : India : Madhya Pradesh (Jabalpur, Ratlam, Tikamgarh, Ujjain), Maharashtra (Pune).

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

XI. Family LYCOSIDAE (Wolf Spiders)

Characters : Cephalothorax high, narrowing in front; eyes of anterior row small, forming straight or slightly curved line, eyes of posterior row strongly recurved. Legs spiny, III legs shorter than the others, tarsi with three claws and claw-tufts absent. Abdomen oval or elongated, spinnerets forming a compact group, generally subequal in length.

Key to the genera of Family LYCOSIDAE

1. Tarsus I without a dorso-basal thin, long bristle 2
- Tarsus I with a dorso-basal bristle, which is drawn out thin and fine at the end and is much longer than the hairs and trichobothria; carapace glabrous or nearly so
.....*Arctosa* Koch
2. Sternum generally with a mid-longitudinal dark band *Hippasa* Simon
- Sternum without a mid-longitudinal dark band 3
3. Anterior row of eyes straight or slightly procurved, antero-medians never smaller than antero-laterals *Lycosa* Latreille
- Cephalic region not much elevated from thoracic region; legs comparatively longer and thinner *Pardosa* Koch

Genus 22. *Arctosa* Koch, 1847

1847. *Arctosa* Koch, *Die Arachniden*, **14**(3) : 94.

1980. *Arctosa* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 368.

Diagnostic characters : Moderately large spiders, general colouration greyish-brown to black. Carapace with no properly defined longitudinal light band and is glabrous or nearly so. Legs slender, tarsi I provided with a dorso-bristal, which is drawn out thin and fine at the end, and is much longer than the hairs and trichobothria. Tibia IV dorsally with the proximal spine usually thinner or more drawn out than the distal one, sometimes reduced to a bristle.

Type species : *Arctosa cinerea* (Fabricius)

Distribution : India, America, and Europe.

39. *Arctosa indicus* Tikader & Malhotra, 1980

1980. *Arctosa indicus* Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 371.

Specimens examined : 1 ♀, Devtal, Jabalpur, Madhya Pradesh. Coll. L. P. Dubey, 7-XII-1973.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla), Maharashtra (Pune).

Genus 23. *Hippasa* Simon, 1885

1885. *Hippasa* Simon, *Bull. Soc. Zool. Fr.*, **10** : 31.

1980. *Hippasa* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 272.

Diagnostic characters : This genus is allied to *Lycosa* but differs from it in having posterior spinnerets considerably longer than the anterior spinnerets and the apical piece of the posterior spinnerets is as long as the basal piece. Anterior row of eyes little wider than the second row and the space enclosed between the posterior eyes is much wider behind than in front. In almost all species, a black mid-longitudinal band is present on the sternum.

They build sheet-like webs with a funnel retreat over which they run like members of the family Agelenidae, hence Simon gave the name *Hippasa agelenoides* to the type species of the genus.

Type species : *Hippasa agelenoides* Simon

Distribution : India, Madagascar, Africa, Arabia, and Malaysia.

Key to species of Genus *Hippasa* Simon

1. Legs provided with irregular greenish-brown patches 2
- Legs not provided with coloured patches *partita* (Cambridge)

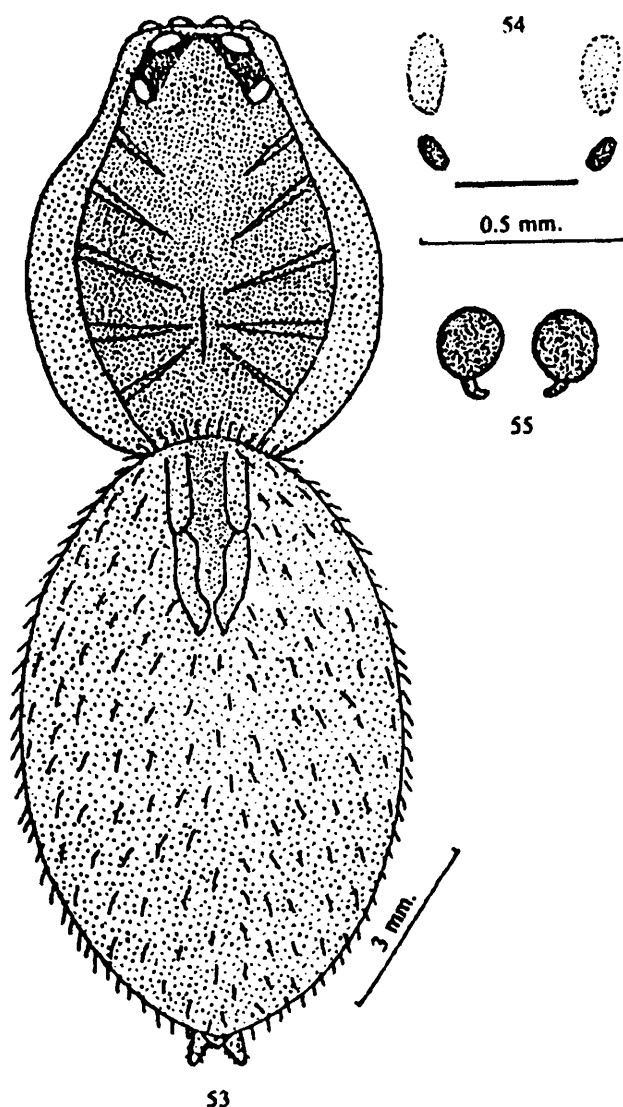
2. A Y-shaped mark extends from below the third eye row toward the posterior side
*pisaurina* Pocock
 — Y-shaped mark not present on cephalothorax 3
 3. Abdomen provided with blackish and brownish patches *hansae* Gajbe & Gajbe
 — Abdomen not provided with blackish and brownish patches 4
 4. Retromargin of fang groove provided with three teeth *fabreae* Gajbe & Gajbe
 — Retromargin of fang groove provided with four teeth *wigglesworthi* Gajbe & Gajbe

40. *Hippasa fabreae* Gajbe & Gajbe, 1999

(Figs. 53-55)

1999h. *Hippasa fabreae* Gajbe & Gajbe, *Rec. zool. Surv. India*, 97(4) : 24.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5512/18).



Figs. 53-55. *Hippasa fabreae* Gajbe & Gajbe : 53. Dorsal view of female, legs omitted. 54. Epigyne. 55. Internal genitalia.

General : Cephalothorax, legs and abdomen brown. Total length 17.5 mm. Carapace 7.5 mm. long, 5.8 mm. wide; abdomen 10.2 mm. long, 6.2 mm. wide.

Cephalothorax : Longer than wide, narrowing anteriorly, clothed with pubescence; lateral region lighter in colour than mid-dorsal region; thoracic region with a conspicuous fovea, which has brownish bands extending laterally from it, as in fig. 53. Anterior eye row slightly procurved and anterior medians larger than anterior laterals. Eyes of the second row larger than others, base of posterior eyes provided with blackish patch. Sternum provided with a longitudinal blackish band. Labium as long as wide with the basal excavation prominent. Maxillae broader at the distal end, which is provided with conspicuous scopulae. Chelicerae strong and retromargin of fang groove having three teeth. Legs long and strong, clothed with hairs and spines.

Abdomen : Longer than wide, elliptical, clothed with pubescence and hairs, antero-mid-dorsal half with a spear-shaped brownish marking, as in fig. 53. Ventral side same in colour as dorsal. Epigyne, as in fig. 54. Internal genitalia, as in fig. 55.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

41. *Hippasa hansae* Gajbe & Gajbe, 1999
(Figs. 56-58)

1999h. *Hippasa hansae* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(4) : 23.

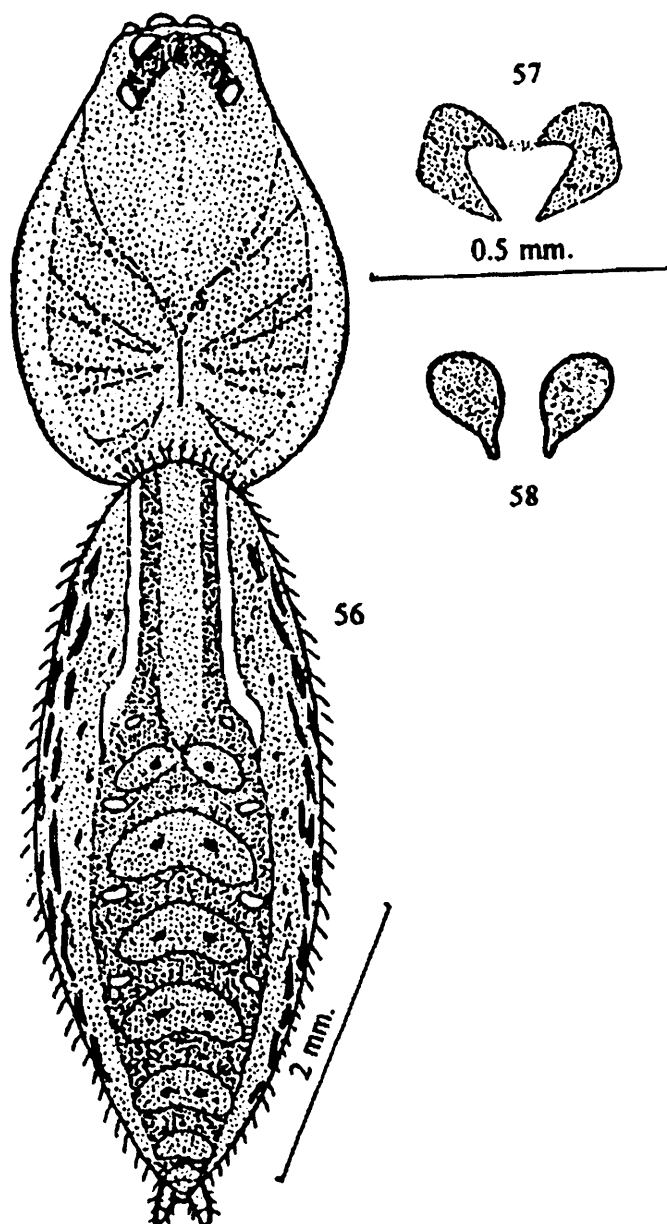
Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5514/18).

General : Cephalothorax and legs brown, abdomen brown with blackish patches. Total length 8.0 mm. Carapace 3.2 mm. long, 2.2 mm. wide; abdomen 5.0 mm. long, 1.9 mm. wide.

Cephalothorax : Longer than wide, clothed with pubescence, cephalic region tapered and narrow. Anterior eye row very slightly procurved and wider than the second row. Base of the posterior eyes provided with conspicuous blackish patch. Centre of thoracic region provided with a conspicuous fovea, brownish bands radiating from the fovea toward the lateral region, as in fig. 56. Sternum heart-shaped, pointed behind, pale, clothed with hairs, and provided with a longitudinal dark band. Labium as long as wide, with the basal excavation prominent. Maxillae pale, with broad distal ends. Chelicerae strong, provided with distinct scopulae. Legs long and slender, clothed with hairs and spines.

Abdomen : Longer than wide, elliptical, clothed with pubescence, the antero-mid-dorsal half provided with a pale spear-shaped marking, rest of dorsum provided with blackish and brownish patches, as in fig. 56. Ventral side lighter in colour than dorsal. Epigyne, as in fig. 57. Internal genitalia, as in fig. 58.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).



Figs. 56-58. *Hippasa hansae* Gajbe & Gajbe : 56. Dorsal view of female, legs omitted. 57. Epigyne. 58. Internal genitalia.

42. *Hippasa partita* (Cambridge, 1876)

1876. *Trochosa partita* Cambridge, *Proc. Zool. Soc. Lon.* : 541-630.

1980. *Hippasa partita* : Tikader & Malhotra, *Fauna of India, Spiders*, 1(2) : 291.

Material examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 8.X.1997.

Distribution : India : Madhya Pradesh (Chhindwara, Hoshangabad, Jabalpur, Mandla, Shahdol), probably Rajasthan and Gujarat according to Tikader & Malhotra (1980). *Elsewhere* Alexandria, Egypt, Arabia, Central Asia, and Pakistan.

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

43. *Hippasa pisaurina* Pocock, 1900

1900. *Hippasa pisaurina* Pocock, *Fauna. Brit. India, Arach.* : 250.

1980. *Hippasa pisaurina* : Tikader & Malhotra, *Fauna of India, Spiders*, 1(2) : 300.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 22-VII-1998.

Distribution : India : Madhya Pradesh (Bhind, Jabalpur, Panna, Ratlam), Maharashtra (Pune).

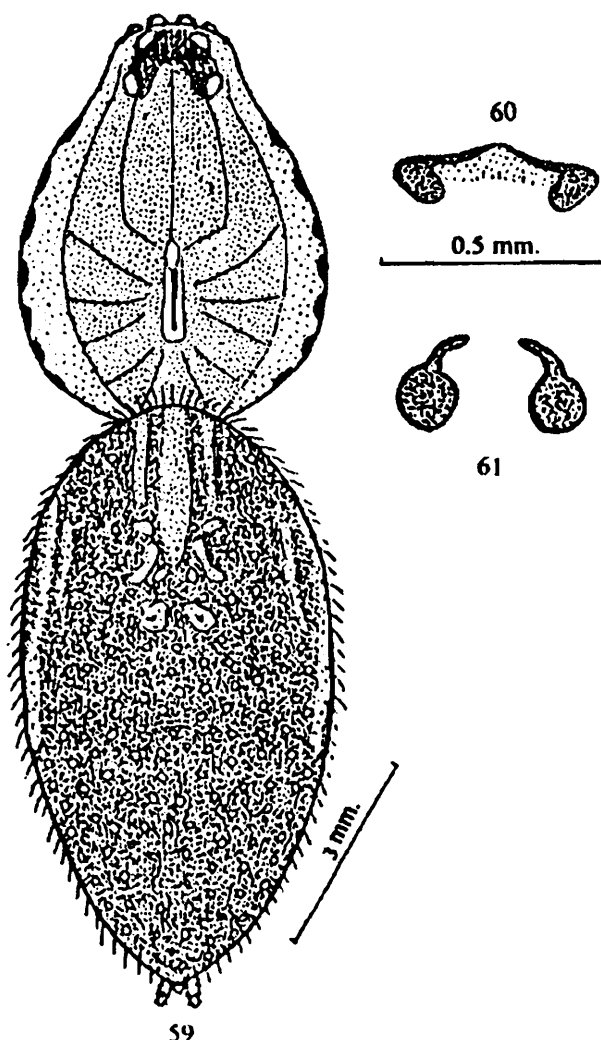
Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

44. *Hippasa wigglesworthi* Gajbe & Gajbe, 1999 (Figs. 59-61)

1999h. *Hippasa wigglesworthi* Gajbe & Gajbe, *Rec. zool. Surv. India*, 97(4) : 24.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5513/18).

General : Cephalothorax and legs brownish, abdomen blackish. Total length 15.0 mm. Carapace 6.4 mm. long, 4.6 mm. wide; abdomen 8.8 mm. long, 4.6 mm. wide.



Figs. 59-61. : *Hippasa wigglesworthi* Gajbe & Gajbe : 59. Dorsal view of female, legs omitted. 60. Epigyne. 61. Internal genitalia.

Cephalothorax : Longer than wide, clothed with pubescence, cephalic region abruptly tapering and narrowing. Mid-dorsal area of cephalic and thoracic regions darker than lateral region, lateral margin provided with small blackish spots, as in fig. 59. Anterior eye row very slightly procurved, base of posterior eyes provided with conspicuous blackish patch. Thoracic region provided with conspicuous fovea, which has thin brownish bands radiating laterally from it. Sternum pale in colour, clothed with hairs, with a longitudinal dark band. Labium as long as wide, with the basal excavation prominent. Maxillae pale with blunt proximal end and broad distal end. Chelicerae strong, reddish-brown, retromargin of fang groove provided with four teeth. Legs long and slender, clothed with hairs and spines.

Abdomen : Longer than wide, oval, pointed behind, clothed with pubescence, antero-mid-dorsal half provided with a reddish-brown, spear-shaped marking and few whitish patches, rest of dorsum provided with small brownish dots, as in fig. 59. Ventral side light brown with three blackish bands running from epigastric furrow to spinnerets. Epigyne, as in fig. 60. Internal genitalia, as in fig. 61

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 24. *Lycosa* Latreille, 1804

1804a. *Lycosa* Latreille, *Nouv. Dict. D. Hist. Nat.*, **24** : 135.

1980. *Lycosa* : Tikader & Malhotra, *Fauna of India, Spiders*, **1(2)** : 377.

Diagnostic characters : Carapace long, facial area vertical and sides of the face slanting, four posterior eyes large and arranged in a quadrangle which is slightly wider behind than in front. The labium is always longer than wide and the basal excavation is prominent, usually one-third or more of the length of the labium. Clypeus is not vertical. Tibiae I and II armed with three pairs of ventral spines, metatarsi IV never longer than tibia plus patella together.

This is a very large genus including majority of species of wolf spiders. The species of this genus spin no web. The large forms live in a silk-lined burrow, and under stones. The females carry the cocoon attached to their spinnerets and the young, after hatching swarm on the mother's back.

Type species : *Lycosa tarantula* Rossi

Distribution : All over the world.

Key to species of Genus *Lycosa* Latreille

1. Dorsum of abdomen with longitudinal dark patch; ventral side black in colour
.....*nigrotibialis* Simon
- Dorsum with a spear-shaped brown mark and brownish dots and lines; ventral side lighter in colour*shaktae* Bhandari & Gajbe

45. *Lycosa nigrotibialis* Simon, 1884

1884. *Lycosa nigrotibialis* Simon, *Ann. Mus. Stor. Nat. Genova*, **20** : 330.

1980. *Lycosa nigrotibialis* : Tikader & Malhotra, *Fauna of India*, Spiders, **1**(2) : 405.

Specimens examined : 1 ♀, Amkhas, Jabalpur, Madhya Pradesh. Coll. V V Rao, 4.VII.1969.

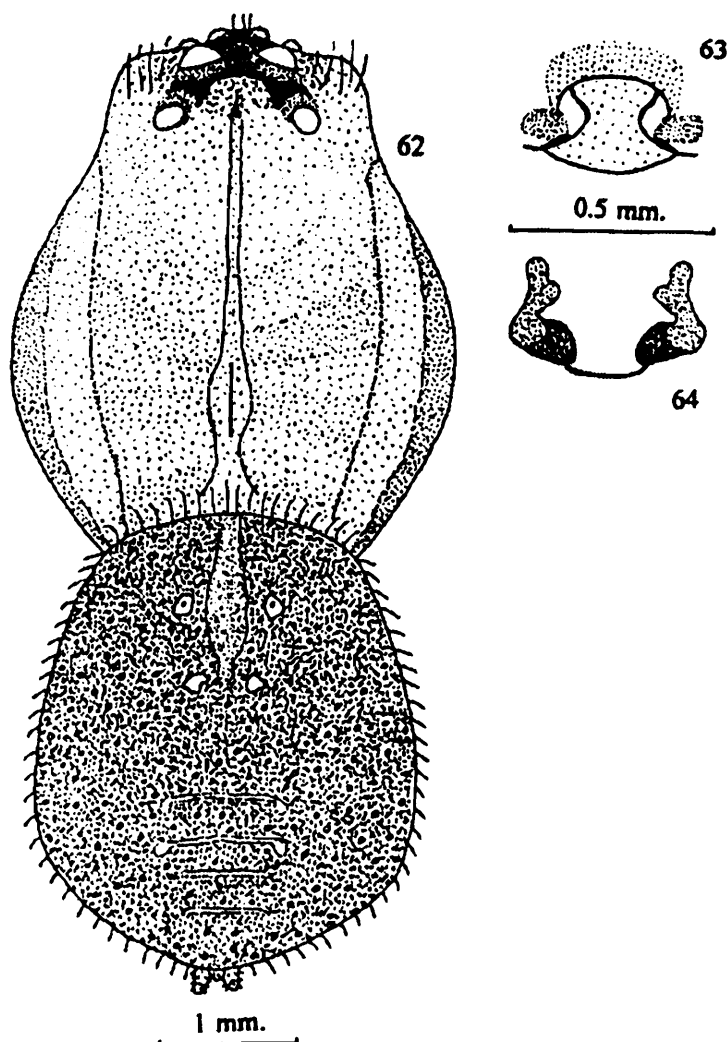
Distribution : India : Madhya Pradesh (Betul, Chhindwara, Hoshangabad, Jabalpur), Maharashtra (Satara, Pune), Gujarat, Himachal Pradesh (Shimla, Dharampur), West Bengal (Sukna Singal, Kalimpong, Darjeeling, Kolkata), Bihar (Pusa, Sirpur, Saran, Purnea, Gmatia, Birbhum), Sikkim, Assam (Mangaldai, Sibsagar, Garo Hills). *Elsewhere* : Afghanistan, Pakistan, and Myanmar.

46. *Lycosa shaktae* Bhandari & Gajbe, 2001

(Figs. 62-64)

2001c. *Lycosa shaktae* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 92.

Specimen examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5521/18).



Figs. 62-64. *Lycosa shaktae* Bhandari & Gajbe : 62. Dorsal view of female, legs omitted. 63. Epigyne. 64. Internal genitalia.

1. Abdomen mid-dorsally with a broad longitudinal pale band and light brown irregular patches, sub-lateral sides with blackish patches and pale spots *mukundi* Tikader & Malhotra
— Abdomen not provided with such a pattern 2

2. Carapace with a conspicuous pale patch surrounding fovea *birmanica* Simon
— Carapace not provided with such a patch 3

3. Abdomen with two whitish patches and round whitish spots
 *jabalpurensis* Gajbe & Gajbe
 — Abdomen with a spear-shaped blackish mark under which are few triangular and
 rectangular blackish marks *ranjani* sp. nov.

47. *Pardosa birmanica* Simon, 1884

1884. *Pardosa birmanica* Simon, *Ann. Mus. Civ. Stor. Nat. Genova*, **20** : 333.

1980. *Pardosa birmanica* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 329.

Specimens examined : 1 ♀, Sanjivani Nagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 5-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5225).

Distribution : India : Maharashtra (Panchgani, Pune, Mumbai, Ahmednagar), Punjab (Ludhiana, Khewra), West Bengal (Berhampore, Burdwan, Gurdanga, Gmatia, Birbhum, Kolkata, Dum Dum, Singal, Darjeeling), Orissa (Barkuda Island, Chilka lake, Brijal Sagar), Uttaranchal (Dehradun), Uttar Pradesh (Mowai, Barabanki, Mirzapur), Rajasthan (Udaipur, Jodhpur), Gujarat (Rajkot, Jamnagar, Mehsana), Himachal Pradesh (Poonta, Kangra, Solan, Sirmour, Kot Khal, Chamba), Madhya Pradesh (Mandla, Jabalpur, Burhanpur, Rewa), Meghalaya (Garo Hills, Shillong), Bihar (Manbhum, Siripur, Saran, Chaibassa, Chakradharpur), Tamil Nadu (Ootacamund, Nilgiris, Chennai), Andhra Pradesh (Horsleykonda, Ennur, Chingleput), *Elsewhere* : Myanmar, Java, Alexandria, Pakistan.

48. *Pardosa jabalpurensis* Gajbe & Gajbe, 1999

(Figs. 65-67)

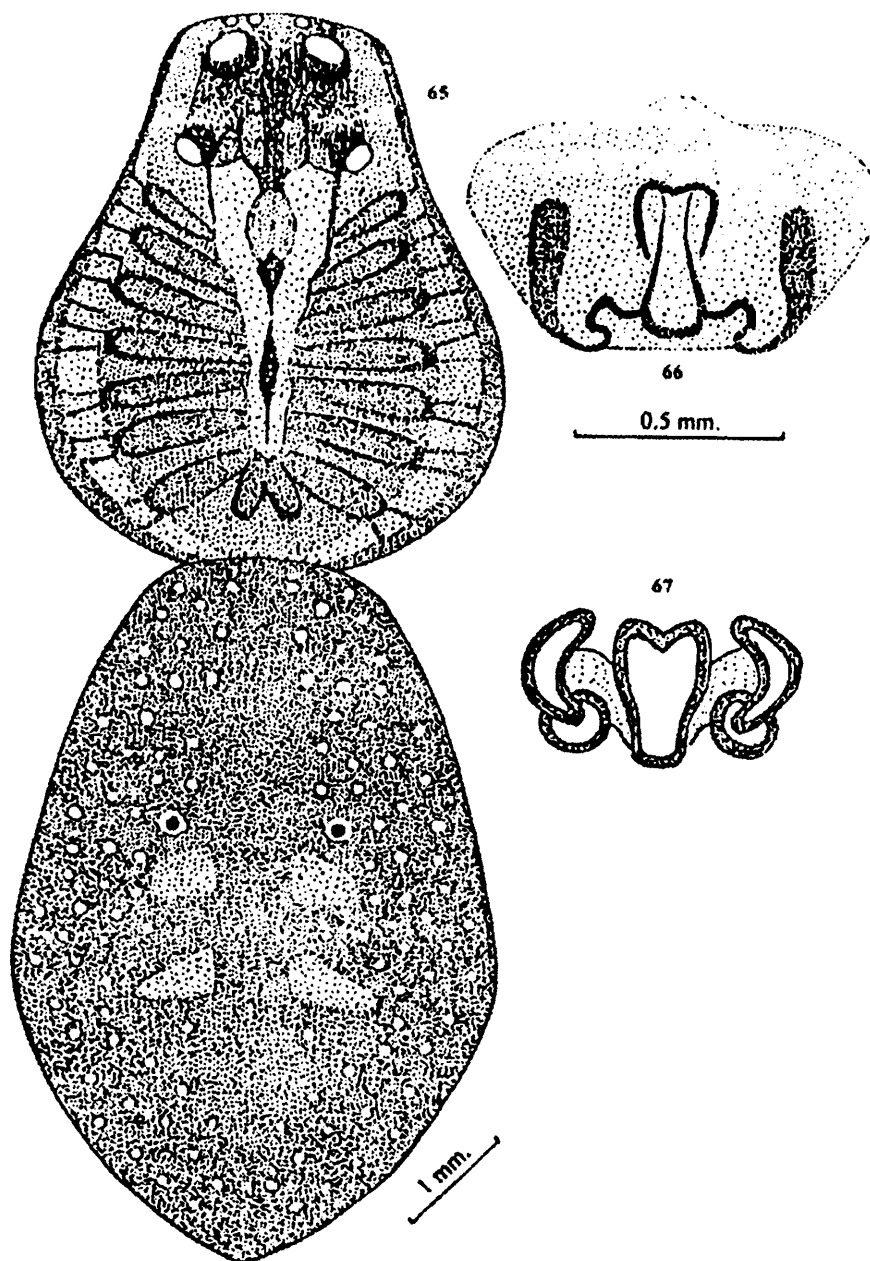
1999k. *Pardosa jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(4) : 95.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5511/18).

General : Cephalothorax and legs light reddish-brown, abdomen dark brown. Total length 11.0 mm. Carapace 4.5 mm. long, 4.0 mm. wide; abdomen 6.1 mm. long, 4.0 mm. wide.

Cephalothorax : Longer than wide, cephalic region slightly higher and narrowing in front, clothed with pubescence and some hairs and spine-like hairs on the clypeus, thoracic region with a fovea from which small deep brown patches radiate toward the lateral area, as in fig. 65. Ocular area deep brown, ocular quad wider behind and narrowing in front, base of posterior eyes with conspicuous blackish patch, anterior row of eyes slightly recurved, less wider than the second row, medians slightly larger than the laterals and closer to laterals than to each other; eyes of second row larger than others. Sternum heart-shaped, pointed posteriorly,

light reddish-yellow and clothed with pubescence and small spine-like hairs. Labium nearly as long as wide and pale yellow in colour. Distal end of maxilla broader and provided with conspicuous scopulae. Chelicerae moderately strong, inner margin provided with three teeth, outer margin without teeth. Legs thin and long, uniform in colour, clothed with spines and hairs.



Figs. 65-67. *Pardosa jabalpurensis* Gajbe & Gajbe : 65. Dorsal view of female, legs omitted. 66. Epigyne. 67. Internal genitalia.

Abdomen : Longer than wide, widest at the middle, pointed behind, clothed with pubescence and some hairs, mid-dorsal region provided with two pairs of whitish patches, round whitish spots present throughout the dorsum, as in fig. 65. Ventral side lighter than dorsal. Epigyne, as in fig. 66. Internal genitalia, as in fig. 67.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

49. *Pardosa mukundi* Tikader & Malhotra, 1980

1980. *Pardosa mukundi* : Tikader & Malhotra, *Fauna of India, Spiders*, 1(2) : 326.

Specimens examined: 1 ♀, Khandari, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 11.VIII.1998.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra (Pune).

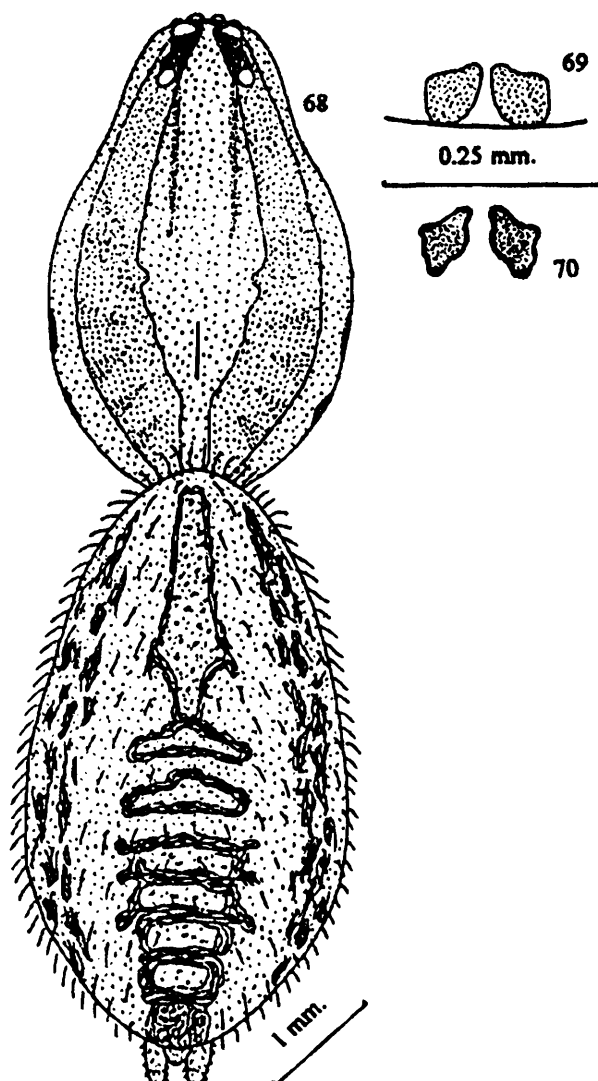
Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

50. *Pardosa ranjani* sp. nov.

(Figs. 68-70)

General : Cephalothorax and legs brownish, abdomen brownish with blackish patches. Total length 9.3 mm. Carapace 3.9 mm. long, 2.6 mm. wide; abdomen 5.4 mm. long, 2.7 mm. wide.

Cephalothorax : Longer than wide, narrowing anteriorly, clothed with pubescence and hairs, provided with conspicuous fovea and two longitudinal dark brown patches near the lateral margins, as in fig. 68. Ocular area black; each eye encircled by black ring; anterior



Figs. 68-70. *Pardosa ranjani* sp. nov. : 68. Dorsal view of female, legs omitted. 69. Epigyne. 70. Internal genitalia.

row of eyes slightly recurved; anterior medians larger than anterior laterals; posterior medians larger than all eyes; posterior laterals more widely separated than posterior medians. Sternum light brown, heart-shaped, pointed behind and clothed with hairs and spines. Labium slightly wider than long, light brown, provided with distinct scopulae. Chelicerae strong, dark brown. Legs long, strong and stout, clothed with hairs and spines. Femora I and II with four and three dorsal spines, respectively.

Abdomen : Longer than wide, elliptical, clothed with hairs and spines; provided with a spear-shaped blackish mark on the dorsum, under which are few triangular and rectangular blackish marks; lateral margins provided with blackish spots, as in fig. 68. Ventral side lighter in colour. Epigyne, as in fig. 69. Internal genitalia, as in fig. 70.

Type specimen : Holotype ♀, in spirit, collected near the edge of a small pond.

Type locality : Gwarighat, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 2-IX-1997.

Etymology : The specific name is a patronym.

Remarks : This species closely resembles *Pardosa mysorensis* Tikader & Mukerji but differs from it as follows : (i) Femora I, and II with four and three dorsal spines respectively but in *P. mysorensis* the number of spines differs. (ii) Epigyne and internal genitalia also structurally different.

XII. Family OXYOPIDAE

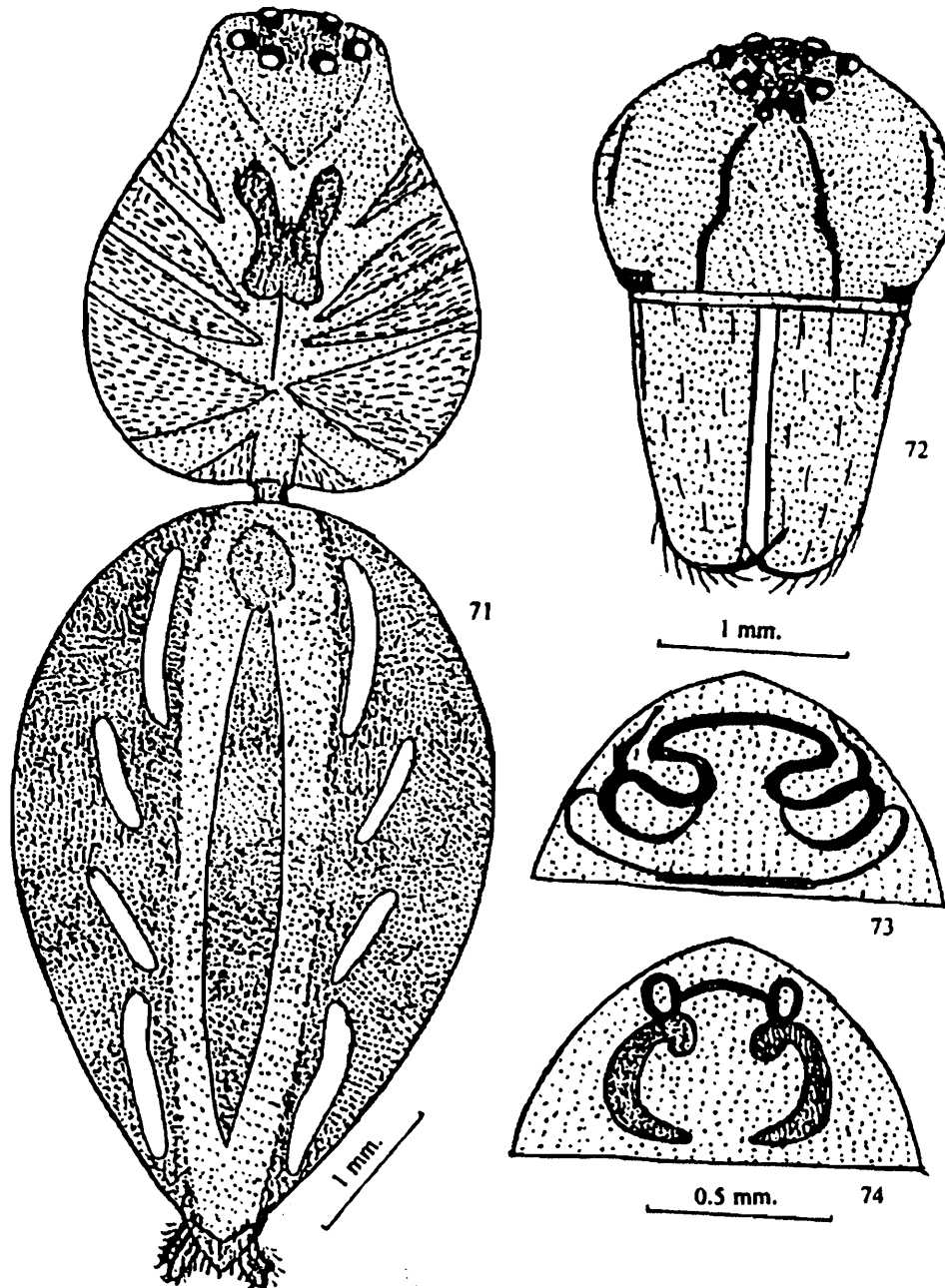
(Lynx Spiders)

Characters : The cephalothorax is variable in shape, the carapace high and convex, sloping sharply at the thoracic declivity and the sides. Anterior row of eyes recurved, anterior median eyes smallest, much smaller than the anterior lateral eyes. Posterior row procurved. The chelicerae are very long and tapering at the distal end and the fangs are short. The chelical margin is short and armed with one tooth on each side of the anterior and posterior margin or without teeth. The boss on the anterior lateral face of the chelicera is not so prominent. The labium is always longer than wide and the maxillae exceed greatly its length. The sternum is roughly heart-shaped and tapers behind to a thin projection between the posterior coxae.

Key to the genera of Family OXYOPIDAE

1. Inner margin of chelicera provided with a single tooth on each side; posterior eye row strongly procurved; living specimens not green in colour *Oxyopes* Latreille
- Inner margin of chelicera without tooth; posterior eye row slightly procurved; living specimens green in colour *Peucetia* Thorell

spine-like hairs. Sternum oval, clothed with fine hairs and few spines. Labium and maxillae longer than wide, clothed with hairs and spines. Legs long and strong, clothed with hairs and long spines.



Figs. 71-74. *Oxyopes jabalpurensis* Gajbe & Gajbe : 71. Dorsal view of female, legs omitted. 72. Clypeus. 73. Epigyne. 74. Internal genitalia.

Abdomen : Longer than wide, widest in the middle, narrowing posteriorly, mid-dorsally provided with a dark green band; laterally provided with silvery-white patches, as in fig. 71. Ventral side lighter than dorsal, mid-ventral region provided with a broad blackish band extending from the base of the epigastric furrow to the spinnerets. Epigyne, as in fig. 73. Internal genitalia, as in fig. 74.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

52. *Oxyopes ketani* Gajbe & Gajbe, 1999

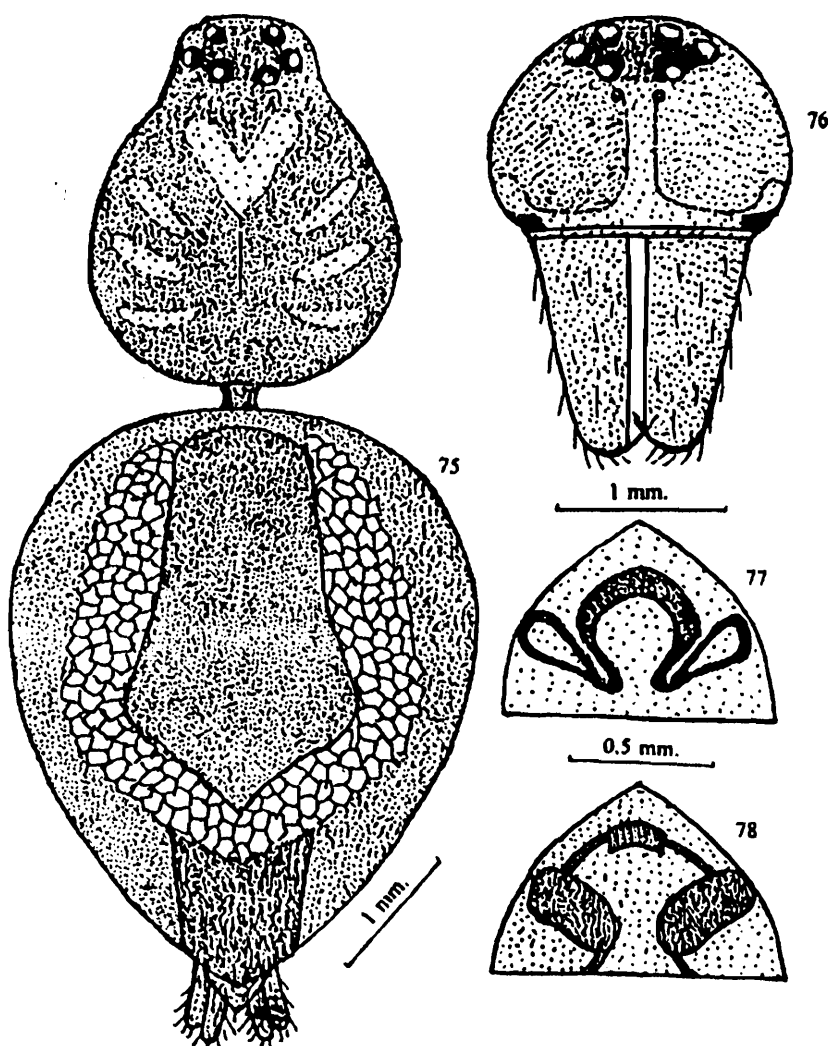
(Figs. 75-78)

1999b. *Oxyopes ketani* Gajbe & Gajbe, *Geobios new Reports*, 18(1) : 15.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5520/18).

General : Cephalothorax and legs reddish-brown; abdomen whitish-brown. Total length 7.7 mm. Carapace 2.8 mm. long, 2.3 mm. wide; abdomen 4.8 mm. long, 3.5 mm. wide.

Cephalothorax : Longer than wide, clothed with fine pubescence, cephalic region slightly elevated, centre provided with sharp fovea, a V-shaped light brown patch present in the mid-thoracic region and dirty chalk white patches present laterally, as in fig. 75. Anterior eye row strongly recurved, posterior row procurved, base of each eye encircled with a blackish patch, anterior medians smallest, postero-medians and postero-laterals same in size and nearly equidistant to each other. Clypeus, as in fig. 76. Sternum heart-shaped, pointed behind, clothed with fine hairs. Legs long and strong, not provided with any spots, clothed with fine hairs and conspicuous long spines, tarsi I and II with six pairs of spines.



Figs. 75-78. *Oxyopes ketani* Gajbe & Gajbe : 75. Dorsal view of female, legs omitted. 76. Clypeus. 77. Epigyne. 78. Internal genitalia.

Abdomen : Longer than wide, widest in the middle; mid-dorsally with a broad deep brown band surrounded by silvery-white reticulations, a short and broad dark brown band present at the posterior end, as in fig. 75. Ventral side lighter than dorsal, without any band. Epigyne, as in fig. 77. Internal genitalia, as in fig. 78.

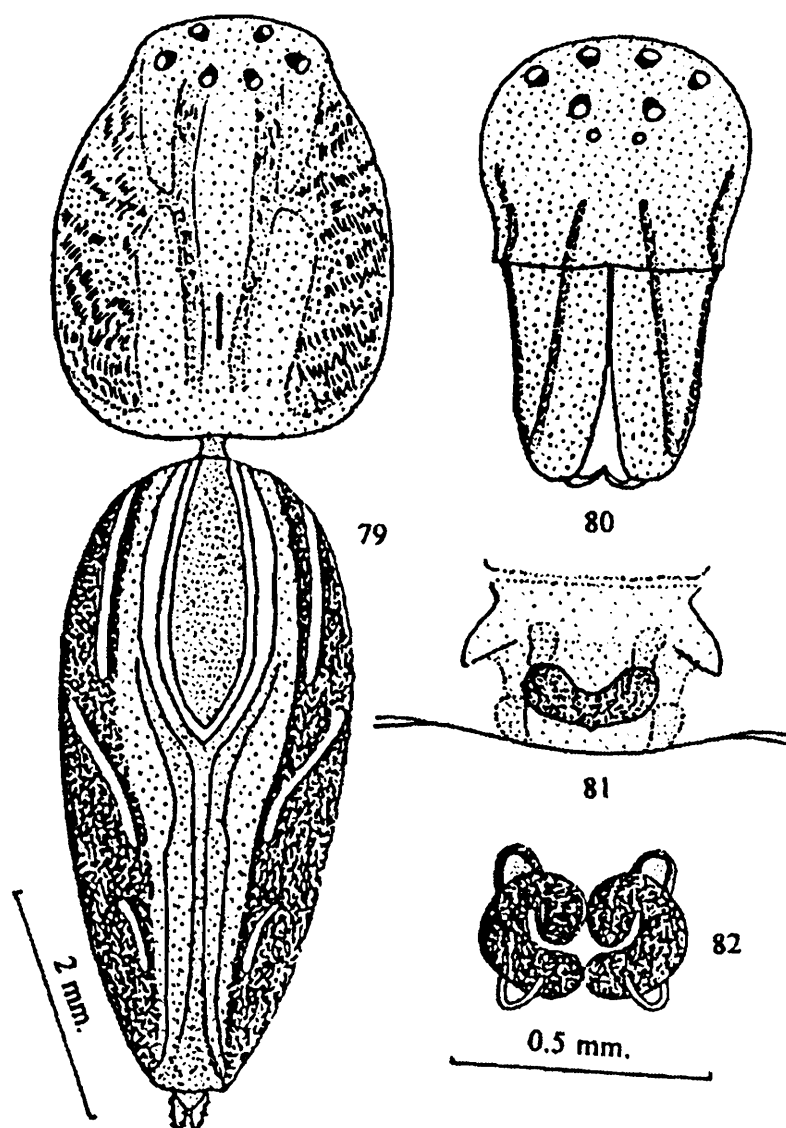
Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

53. *Oxyopes pankaji* Gajbe & Gajbe, 2000
(Figs. 79-82; pl. 5b)

2000d. *Oxyopes pankaji* Gajbe & Gajbe, *Rec. zool. Surv. India*, 98(2) : 123.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5518/18).

General : Cephalothorax, legs and abdomen reddish-green. Total length 10.0 mm. Carapace 3.7 mm. long, 2.9 mm. wide; abdomen 6.1 mm. long, 2.5 mm. wide.



Figs. 79-82. *Oxyopes pankaji* Gajbe & Gajbe : 79. Dorsal view of female, legs omitted. 80. Clypeus. 81. Epigyne. 82. Internal genitalia.

Cephalothorax : Longer than wide, cephalic region high and broad, clothed with fine hairs and some deep brown blunt hairs mainly on the lateral sides and mid-thoracic region, as in fig. 79. Centre of thorax with a sharp fovea. Eyes pearly-white, anterior row strongly recurved, posterior row procurved, posterior medians and laterals equidistant to each other, base of each eye encircled by a blackish patch. Clypeus long, provided with two blackish lines, as in fig. 80. Sternum heart-shaped, pointed behind, clothed with five hairs and conspicuous long spines. Legs long and strong, clothed with fine hairs and long spines, femora of all legs provided with longitudinal blackish lines.

Abdomen : Long, narrowing behind, clothed with fine hairs, anterior mid-dorsal region with a lens-shaped light green patch, bordered by brownish, whitish and light green stripes; laterally blackish with three pairs of silvery-white stripes, as in fig. 79. Ventral side dirty white but mid-ventral region provided with a broad deep brown band extending from epigastric fold to spinnerets. Epigyne, as in fig. 81. Internal genitalia, as in fig. 82.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 27. *Peucetia* Thorell, 1869

1869. *Peucetia* Thorell, *On European Spiders, Uppsaliae*, 7 : 196.

1999m. *Peucetia* : Gajbe, *Rec. zool. Surv. India*, 97(3) : 62.

Diagnostic characters : Anterior median eyes smallest, posterior lateral eyes forming a slightly procurved row, not so procurved as in *Oxyopes*. Cephalothorax not so high or convex as that of *Oxyopes*. Male palp with characteristic paracymbial process in each species, sometimes partly broken off during mating.

Type species : *Peucetia viridis* Blackwall

Distribution : Europe, Africa, Asia and America.

Key to species of Genus *Peucetia* Thorell

1. Dorsum of abdomen provided mid-dorsally with a dark brown patch
..... *jabalpurensis* Gajbe & Gajbe
- Dorsum of abdomen provided mid-dorsally with a narrow longitudinal blackish band
extending up to the posterior end of abdomen *ashae* Gajbe & Gajbe

54. *Peucetia ashae* Gajbe & Gajbe, 1999 (Figs. 83-86)

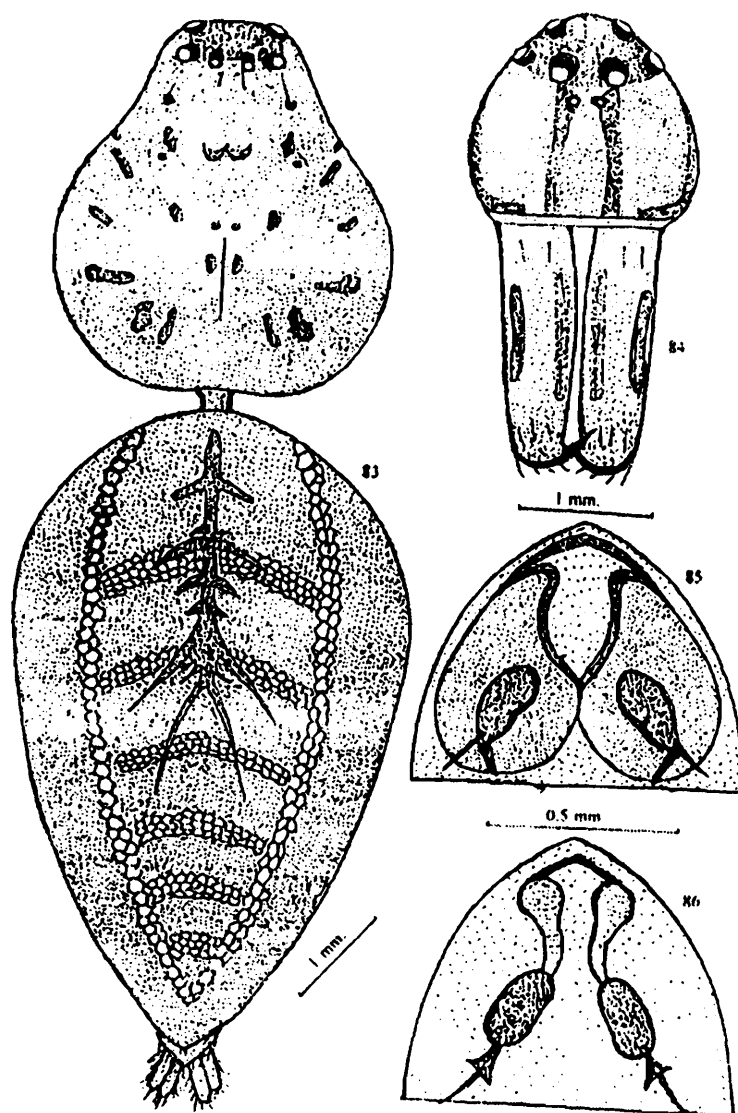
1999a. *Peucetia ashae* Gajbe & Gajbe, *Geobios new Reports*, 18(1) : 11.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5522/18).

General : Cephalothorax and legs reddish-brown, abdomen yellowish-green. Total length 8.8 mm. Carapace 3.2 mm. long, 2.6 mm. wide; abdomen 5.9 mm. long, 3.4 mm. wide.

Cephalothorax : Longer than wide, narrow in front, provided with five pairs of blackish spots laterally and five pairs of blackish spots mid-dorsally, as in fig. 83. Cephalic region slightly elevated, each eye encircled by a blackish patch. Anterior eye row strongly recurved (as seen from in front) and posterior row slightly procurved, anterior medians small, anterior laterals largest of all eyes; posterior medians and posterior laterals same in size and equidistant to each other. Clypeus provided with a pair of blackish bands extending from ocular area to the middle of chelicerae, as in fig. 84. Sternum heart-shaped, pointed behind, clothed with fine hairs, with a black band in the middle. Legs long and strong with blackish spots and conspicuous long spines.

Abdomen : Longer than wide, clothed with fine pubescence, mid-dorsally provided with a narrow longitudinal blackish band extending up to the posterior end of abdomen; mid-dorsal



Figs. 83-86. *Peucetia ashae* Gajbe & Gajbe : 83. Dorsal view of female, legs omitted. 84. Clypeus. 85. Epigyne. 86. Internal genitalia.

region blackish, laterally provided with dark brown patches, as in fig. 83. Ventral side lighter than dorsal, with a blackish band extending from base of epigastric furrow to the spinnerets. Epigyne, as in fig. 85. Internal genitalia, as in fig. 86.

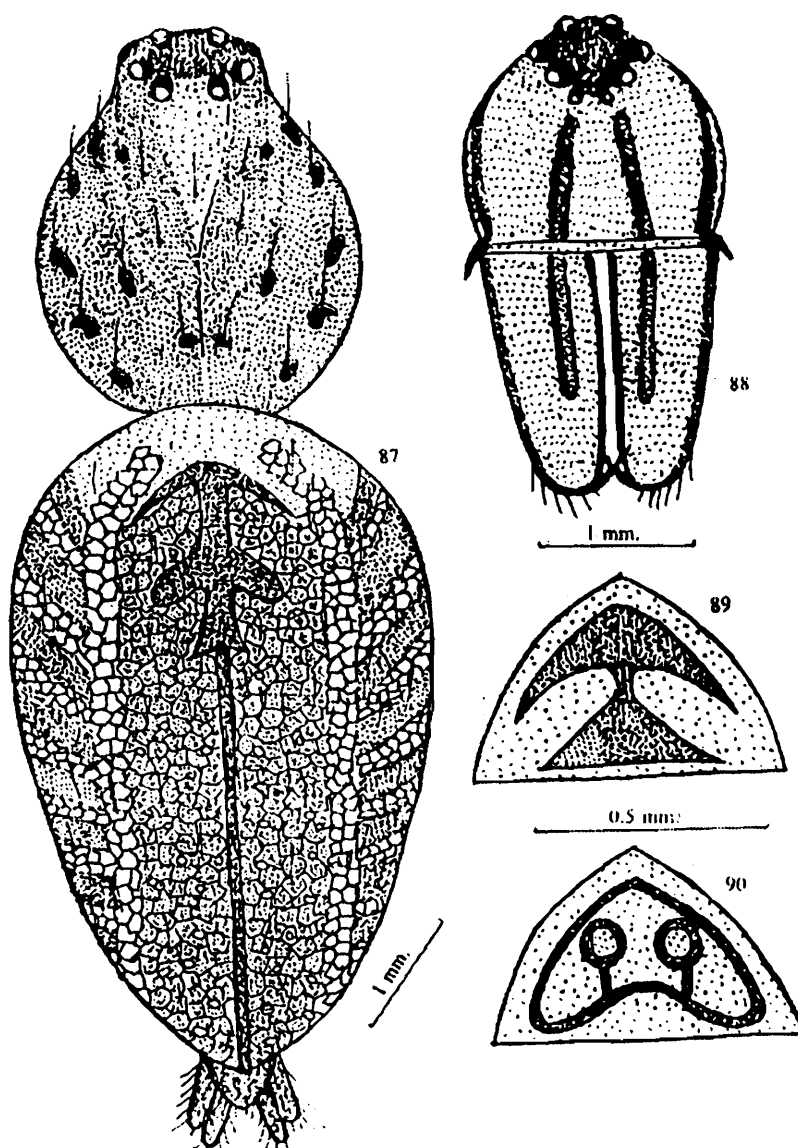
Distribution India : Madhya Pradesh, Jabalpur (Type locality).

55. *Peucetia jabalpurensis* Gajbe & Gajbe, 1999
(Figs. 87-90)

1999a. *Peucetia jabalpurensis* Gajbe & Gajbe, *Geobios new Reports*, 18(1) : 9.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5521/18).

General : Cephalothorax and legs brownish-grey, abdomen whitish-green. Total length 10.0 mm. Carapace 3.6 mm. long, 3.1 mm. wide; abdomen 6.3 mm. long, 3.8 mm. wide.



Figs. 87-90. *Peucetia jabalpurensis* Gajbe & Gajbe : 87. Dorsal view of female, legs omitted. 88. Clypeus. 89. Epigyne. 90. Internal genitalia.

Cephalothorax : Longer than wide, broad in front, clothed with pubescence and spine-like hairs; cephalic region high, laterally thoracic region provided with six pairs of dark brown spots, a V-shaped whitish grey band present in mid-thoracic region below which there is a sharp fovea, as in fig. 87. Anterior eye row strongly recurved (as seen from in front), anterior medians very small, anterior laterals larger than other eyes. Posterior eye row procurved, eyes same in size and equidistant to each other, each eye encircled by a blackish patch. Clypeus long, vertical and provided with one pair of light brown bands, as in fig. 88. Sternum heart-shaped, pointed behind, clothed with hairs and spines. Chelicerae moderately strong, clothed with hairs and spines. Labium and maxillae longer than wide, clothed with spines; anterior margin of both provided with distinct scopulae. Legs long and strong, clothed with hairs and conspicuous spines. Coxae and femora of all legs with many small dark brown spots, tibiae with few large dark brown spots.

Abdomen : Longer than wide, broadest in the anterior region, clothed with hairs and spines, provided mid-dorsally with a dark brown patch, as in fig. 87. Ventral side slightly lighter than dorsal, without any patches. Epigyne, as in fig. 89. Internal genitalia, as in fig. 90.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

XIII. Family AGELENIDAE (Funnel Web Spiders)

Characters : Cephalothorax rather long, the cephalic region narrowed. Eyes nearly equal in size, both rows strongly procurved, so that the posterior lateral and the anterior median form a nearly straight line. Anterior spinnerets clearly separated, posterior much longer and provided with two segments; the apical segment longer than the basal and tapering.

Genus 28. *Tegenaria* Latreille, 1804

1804a. *Tegenaria* Latreille, *Nouv. Dict. Hist. Nat.*, 24 : 134.

1970. *Tegenaria* : Tikader, *Rec. zool. Surv. India*, 64(1-4) : 56.

Diagnostic characters : Anterior eye row procurved; eyes equal or the medians smaller than the laterals. Posterior row a little longer, slightly procurved. The chelicerae usually slightly convex, the lower margin of the furrow of the chelicerae usually armed with four to six teeth, rarely with only three.

Type species : *Tegenaria domestica* Clerck

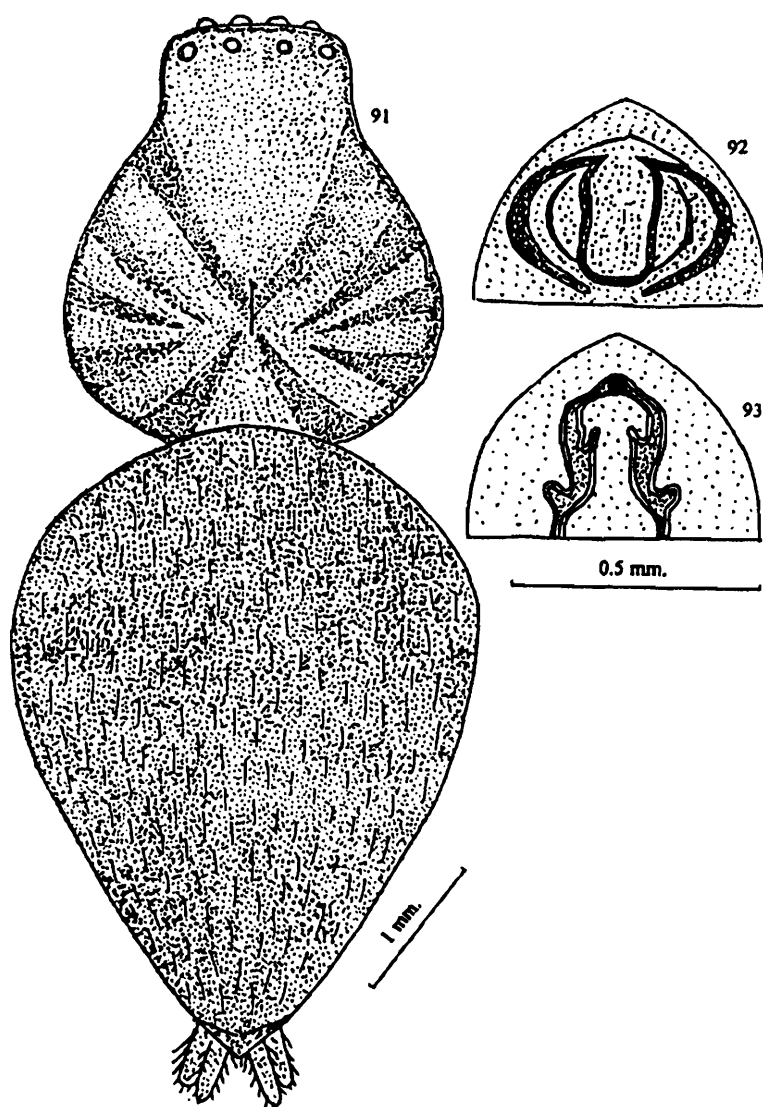
Type locality : Asia, Africa, America and Europe.

56. *Tegenaria comstocki* sp. nov.

(Figs. 91-93)

General : Cephalothorax and legs deep brown, abdomen blackish-grey. Total length 7.7 mm. Carapace 2.9 mm. long, 2.6 mm. wide; abdomen 4.8 mm. long, 3.2 mm. wide.

Cephalothorax : Longer than wide, squarer anteriorly, clothed with pubescence, provided with an inconspicuous fovea from which dark bands radiate to the lateral sides, as in fig. 91. Cephalic region slightly elevated, clothed with hairs. Eyes round, each eye encircled by a black ring, anterior row slightly procurved (as seen from in front), antero-laterals larger than antero-medians, equidistant to each other; posterior medians and laterals subequal and equidistant to each other. Ocular quad slightly wider behind than in front. Sternum deep brown, oval, very pointed behind, clothed with fine pubescence and hairs. Labium much longer than wide, deep brown with pale distal end. Maxillae broad and pale at the distal end, provided with spine like hairs at the lateral edges. Chelicerae moderately strong, deep brown, provided with spine like hairs. Legs moderately long, clothed with hairs and few spines.



Figs. 91-93. *Tegenaria comstocki* sp. nov. : 91. Dorsal view of female, legs omitted. 92. Epigyne. 93. Internal genitalia.

Abdomen : Longer than wide, slightly triangular, broadest anteriorly, clothed with hairs, without any coloured patches or spots. Ventral side same in colour as dorsal. Epigyne, as in fig. 92. Internal genitalia, as in fig. 93.

Type specimen : Holotype ♀, in spirit, other details as above.

Type locality : Bargi Hills, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 1-VIII-1997.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. J. H. Comstock.

Remarks : This species resembles *Tegenaria chhanguensis* Tikader, but differs from it as follows : (i) Cephalothorax and abdomen deep brown, abdomen blackish-grey but in *T. chhanguensis* cephalothorax and legs greenish-brown and abdomen whitish-brown. (ii) Abdomen dorsally not provided with any coloured patches or spots but in *T. chhanguensis* abdomen provided with a characteristic pattern of dark brown patches. (iii) Epigyne and internal genitalia also structurally different.

XIV Family DICTYNIDAE

Characters : Most of these spiders are small in size and superficially resemble the members of family Theridiidae in general appearance. They possess relatively very large poison glands. Eyes eight, heterogeneous, the anterior medians alone dark.

This is the largest family of cribellate spiders. They build irregular snares in foliage in the tops of weeds and underneath stones and dead leaves on the ground.

Genus 29. *Dictyna* Sundevall, 1833

1833. *Dictyna* Sundevall, *Conspectus Arachnidum*. : 1-39.

1977. *Dictyna* : Tikader, *Rec. zool. Surv. India*, **72** : 164.

Diagnostic characters : In the male, the chelicerae are long, concave in front and bowed outward near the middle of their length and provided near the clypeal margin with a more or less well developed matidion. The calamistrum occupies the middle half to two-third the length of metatarsus IV. The colour patterns are similar in related species yet variable within the same species. The male is usually darker than the female.

Type species : *Dictyna arundinacea* (Linnaeus)

Distribution : Asia, N. America, and Europe.

57. *Dictyna shiprai* Tikader, 1966

1966a. *Dictyna shiprai* Tikader, *Proc. Linn. Soc. Lond.*, **177**(1) : 46.

Specimens examined : 1 ♀, Bargi Hills, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 15-XII-1998 (Z.S.I., Jabalpur, Reg. No. A/5224).

Distribution : India : Maharashtra (Pune), Madhya Pradesh (Jabalpur).

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

XV Family GNAPHOSIDAE (Ground Spiders)

Characters : Eyes eight, heterogeneous, arranged in two rows. In these spiders the cephalic part is not sharply set off from the thoracic; the cephalothorax is hardly elevated. The chelicerae have a boss and scopula and the margins of the cheliceral fang furrow are oblique and usually armed. The teeth may be considerably reduced in size to minute denticles or a single denticle, or the inner margin may have a keeled lamina in place of teeth. The labium is longer than broad, with maxillae converging more or less and provided with scopulae. Usually the maxillae have an oblique or transverse depression. The posterior coxae are more or less separated by the sternum. The legs are generally spinose and the tarsi furnished with scopulae, two claws, and claw tufts. Legs formula 4123. The claws are similar and pectinate in a single row. The abdomen is oval and usually rather flattened and in some males provided with a dorsal scutum on the abdomen. Many species are uniformly coloured, more often darker than light and without markings. Some species have a striking or colourful pattern of lines or spots. The anterior spinnerets are cylindrical, longer and more heavily sclerotized than the posterior and widely separated.

Most gnaphosids are found under stones or bark or in moss. A few live on the leaves of plants, which they roll like the clubionids or at the time of oviposition. Some of the species that live under stones make a silken sac within which they live and in which the egg sac is made.

Key to the genera of Family GNAPHOSIDAE

1. Inner margin of cheliceral fang furrow with a keeled lamina 2
- Inner margin of cheliceral fang furrow smooth, or with one or more distinct teeth or denticles 3
2. Inner margin of chelicera with a wide serrated lamina; posterior row of eyes much longer than the anterior, with the medians nearer to each other than to the laterals *Gnaphosa* Latreille
- Inner margin of chelicera with a broad keel or a narrow lamina; posterior median eyes oval in shape *Callilepis* Westring
3. Posterior row of eyes very strongly procurved, as nearly semicircular 4
- Posterior row of eyes not strongly procurved 5

4. Inner margin of furrow of chelicera with one tooth; bulb of palpus of male with a stout median apophysis *Scopodes* Chamberlin
- Inner margin of furrow of chelicera without tooth; bulb of palpus of male simple, with no true apophysis *Megamyrmeleon* Reuss
5. Eyes of posterior row nearly equal in size and equidistant from each other
..... *Scotophaeus* Simon
- Eyes of posterior row not equal in size and not equidistant from each other 6
6. Tibia IV with two or more median dorsal spines 7
- Tibia IV with a single median dorsal spine or with none 9
7. Posterior median eyes much larger than posterior laterals and closer to laterals than to each other; inner margin of chelicera without tooth *Liodrassus* Chamberlin
- Posterior median eyes not much larger than posterior laterals and closer to each other than to posterior laterals; inner margin of chelicera with one or more teeth 8
8. Eye rows widely separated; posterior median eyes much nearer to each other than to the laterals *Drassodes* Westring
- Eye rows close together but equidistantly separated with each other, posterior median eyes well separated, being only a little further from the laterals than from each other
..... *Sosticus* Chamberlin
9. Posterior row of eyes more or less recurved 10
- Posterior row of eyes more or less procurved, or sometimes straight 11
10. Tibia III with a median dorsal spine; carapace without distinct median furrow
..... *Sergiolus* Simon
- Tibia III with no median dorsal spine; carapace with a distinct median furrow
..... *Poecilochroa* Westring
11. Lower margin of furrow of chelicera with one tooth or nodule; antero-median eyes usually as large as or larger than laterals; postero-median eyes always well separated from each other and smaller than or at most as large as the laterals *Herpyllus* Hentz
- Posterior row of eyes straight or slightly procurved; the eyes are equidistant, the medians small or slightly larger than laterals *Zelotes* Gistel

Genus 30. *Callilepis* Westring, 1874

1874. *Callilepis* Westring, *Göteborg Kongl. Vet. Handl.* 14 : 43

1982. *Callilepis* : Tikader, *Fauna of India, Spiders*, 2(2) : 347.

Diagnostic characters : The lower margin of the furrow of the chelicerae armed with a broad keel or a narrow lamina, without serrated edge. Posterior row of eyes a little longer

than the anterior row and straight or only slightly recurved. The eyes nearly equidistant, or the medians little further from each other than from the laterals. The posterior lateral eyes fairly larger than the posterior median eyes.

Type species : *Callilepis nocturna* (Linnaeus)

Distribution : India, Europe, Arabia, Ethiopia, Africa, Australia and America.

Key to species of Genus *Callilepis* Westring

1. Dorsum of abdomen with round whitish spots *rukminiae* Tikader & Gajbe
- Posterior half of dorsum with light chevrons *lambai* Tikader & Gajbe

58. *Callilepis lambai* Tikader & Gajbe, 1977

1977f. *Callilepis lambai* Tikader and Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 50.

1988. *Callilepis lambai* : Gajbe, *Rec. zool. Surv. India*, **85**(1) : 65.

Specimens examined : Specimens not seen, description based on previous record by Gajbe (1988).

Distribution : India : Madhya Pradesh (Balaghat, Jabalpur), Karnataka (Shimoga), Punjab.

59. *Callilepis rukminiae* Tikader & Gajbe, 1977

1977f. *Callilepis rukminiae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 49.

1988. *Callilepis rukminiae* : Gajbe, *Rec. zool. Surv. India*, **85**(1) : 65.

Specimens examined : Specimens not seen, description based on previous record by Gajbe (1988).

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra (Pune), Rajasthan, Tamil Nadu.

Genus 31. *Drassodes* Westring, 1861

1861. *Drassodes* Westring, *Göteb. Kongl. Vet. Handl.* **7** : 25.

1982. *Drassodes* : Tikader, *Fauna of India, Spiders*, **2**(2) : 388.

Diagnostic characters : Cephalothorax flat, broad in front with fovea and covered with pubescence. Eyes of anterior row slightly procurved, medians slightly larger than laterals and a little closer to laterals than to each other. Posterior row longer, procurved, medians oval, slightly larger than laterals. Chelicerae strong, inner margin normally with two teeth and two on the outer margin. Abdomen longer than wide, narrowing behind, covered with pubescence with a 'mousy' appearance.

Type species : *Drassodes lapidosus* (Walckenaer)

Distribution : Oriental, sub-tropical and temperate regions of the world.

60. *Drassodes oppenheimeri* Tikader, 1973

1973b. *Drassodes oppenheimeri* Tikader, *Proc. India. Acad. Sci.*, **77**(5) : 186.

1982. *Drassodes oppenheimeri* : Tikader, *Fauna of India, Spiders*, **2**(2) : 400.

Specimens examined : 1 ♀, Karondi Village, Jabalpur, Madhya Pradesh. Coll. U. A. Gajbe, 6-II-1982. 1 ♀, Amkhas, Jabalpur. Coll. V V Rao, 4-VII-1965.

Distribution : India : Madhya Pradesh (Jabalpur, Seoni), West Bengal (Hooghly, Singur), Maharashtra (Aurangabad, Pune), Gujarat, Orissa.

Genus 32. *Gnaphosa* Latreille, 1804

1804a. *Gnaphosa* Latreille, *Nouv. Dict. Hist. Nat.*, **24** : 134.

1982. *Gnaphosa* : Tikader, *Fauna of India, Spiders*, **2**(2) : 329.

Diagnostic characters : Cephalothorax nearly oval and broader in front, not attenuated. Pattern of widening streaks diverging from short fovea. Anterior row of eyes procurved (as seen from in front), occupying one-third to one-half width of head. Posterior row considerably longer than anterior row and rather strongly recurved, medians irregular in outline, larger than laterals and farther from each other. Sternum oval, pointed behind. Chelicerae not very strong, vertical, bearing numerous long bristles, which form a scopula on inner part of apical surface. Inner margin provided with a prominent chitinous ridge, whose edge is concave and serrated. Outer margin with two teeth. Maxillae and labium shorter than that of *Drassodes*. Legs uniform in colour as carapace. Tibiae I and II with two to four ventral spines. Abdomen black or deep brown with generally six faint marks or impressions dorsally. Male palp with a strong single tibial apophysis.

Type species : *Gnaphosa lucifuga* (Walckenaer)

Distribution : Europe, Asia, Africa and America.

61. *Gnaphosa poonaensis* Tikader, 1973

1973b. *Gnaphosa poonaensis* Tikader, *Proc. Indian. Acad. Sci.*, **77**(5) : 188.

1982. *Gnaphosa poonaensis* : Tikader, *Fauna of India, Spiders*, **2**(2) : 332.

Specimens examined : 1 ♀, Kaladehi village, Jabalpur, Madhya Pradesh. Coll. U. A. Gajbe, 30-X-1985.

Distribution : India : Madhya Pradesh (Betul, Jabalpur, Khargone, Panna), Maharashtra (Pune), Rajasthan (Jodhpur), Uttar Pradesh (Saharanpur), Himachal Pradesh, (Kulu).

Genus 33. *Herpyllus* Hentz, 1832

1832. *Herpyllus* Hentz, *Silliman Soum Sci. & Arts.*, **21** : 102.

1982. *Herpyllus* : Tikader, *Fauna of India, Spiders*, **2**(2) : 457.

Diagnostic characters : The two eye rows nearly straight and widely separated; the eyes of each row quiet evenly spaced, the anterior median eyes round, a little smaller than the posterior lateral eyes. Lower margin of chelicera armed with one tooth or nodule.

Type species : *Herpyllus ecclesiasticus* Hentz

Distribution : India, U.S.A.

62. *Herpyllus goaensis* Tikader, 1982

1982. *Herpyllus goaensis* Tikader, *Fauna of India, Spiders*, 2(2) : 460.

Specimens examined : 1 ♀, Bargi, Jabalpur, Madhya Pradesh. Coll. U. A. Gajbe, 30-XI-1985.

Distribution : India : Goa (Caranzelam), Madhya Pradesh (Jabalpur, Mandla).

Genus 34. *Liodrassus* Chamberlin, 1936

1936. *Liodrassus* Chamberlin, *Am. Mus. Novit.*, 853 : 4.

1982. *Liodrassus* : Tikader, *Fauna of India, Spiders*, 2(2) : 384.

Diagnostic characters : Cephalothorax oval and much narrow in front. The anterior row of eyes slightly procurved, the anterior medians larger than the laterals. The posterior row of eyes slightly procurved, eyes close together, the medians much larger than the laterals. The inner margin of the furrow of the chelicera completely devoid of teeth.

Type species : *Liodrassus arizonica* Chamberlin

Distribution : Oriental, sub-tropical and temperate regions of the world.

63. *Liodrassus tikaderi* Gajbe, 1992

1992. *Liodrassus tikaderi* Gajbe, *Rec. zool. Surv. India*, 91(2) : 247.

Specimens examined : Specimens not seen, description based on previous record by Gajbe (1992).

Distribution : India : Madhya Pradesh, Jabalpur district (Type locality).

Genus 35. *Megamyrmecon* Wider, 1834

1834. *Megamyrmecon* Wider, *Zool. Miscell. Mus. Ar.* : 217.

1982. *Megamyrmecon* : Tikader, *Fauna of India, Spiders*, 2(2) : 371.

Diagnostic characters : The cephalothorax is oval and much narrow in front. The eyes of anterior row are close together in a strongly procurved line, the anterior medians are larger than the laterals. The posterior row of eyes is very strongly procurved in a semicircular line.

The chelicerae are of moderate size, inner margin of the furrow unarmed. Bulb of male palpus simple with no true apophysis.

Type species : *Megamyrmecon caudatum* Reuss

Distribution : Africa, America, India.

64. *Megamyrmecon ashae* Tikader & Gajbe, 1977

1977e. *Megamyrmecon ashae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 16.

1982. *Megamyrmecon ashae* : Tikader, *Fauna of India, Spiders*, **2**(2) : 372.

Specimens examined : 1 ♀, Gwarighat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 28-VII-1997.

Distribution : India : Madhya Pradesh (Betul, Jabalpur, Khargone, Panna), Maharashtra (Pune), Rajasthan.

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

Genus 36. *Poecilochroa* Westring, 1874

1874. *Poecilochroa* Westring, *Goteborgs. K. Vetensk-o Vitterh Samb. Handl.*, **14** : 45.

1982. *Poecilochroa* : Tikader, *Fauna of India, Spiders*, **2**(2) : 451.

Diagnostic characters : Cephalothorax narrow, oblong, slightly convex and a little narrowed in front. The anterior eyes close together in a straight line and with the medians larger than the lateral eyes; the posterior eyes small, in a slightly recurved line. The median ocular area longer than broad and narrower in front than behind. The chelicerae of moderate size, with margins of the furrow unarmed. Abdomen with white spots.

Type species : *Poecilochroa variana* (C. L. Koch)

Distribution : Europe, Africa, Asia, and America.

65. *Poecilochroa barmani* Tikader, 1982

1982. *Poecilochroa barmani* Tikader, *Fauna of India, Spiders*, **2**(2) : 451

Specimens examined : 1 ♀, Lamhetaghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 27-IX-1997 (Z.S.I., Jabalpur, Reg. No. A/5249).

Distribution : India : Meghalaya (Shillong) Madhya Pradesh (Chhindwara, Jabalpur, Tikamgarh).

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

Genus 37. *Scopodes* Chamberlin, 1922

1922. *Scopodes* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 156.

1982. *Scopodes* : Tikader, *Fauna of India, Spiders*, **2(2)** : 364.

Diagnostic characters : The cephalothorax is ovate and much narrower in front. The anterior row of eyes are close together in a strongly procurved line, the anterior medians larger than the laterals. The posterior row of eyes very strongly procurved in a semicircular line. Chelicerae moderate-sized, the inner margin is armed with a single minute tooth. The spinnerets are comparatively long. The bulb of the male palpus has a stout median apophysis.

Type species : *Scopodes catharius* Chamberlin

Distribution : Claremont, America, India.

66. *Scopodes maitraiae* Tikader & Gajbe, 1977

1977e. *Scopodes maitraiae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73** (1-4) : 14.

1982. *Scopodes maitraiae* : Tikader, *Fauna of India, Spiders*, **2(2)** : 365.

Specimens examined : 1 ♀, Bareilly, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 28-X-1997 (Z.S.I., Jabalpur, Reg. No. A/5250).

Distribution : India : Madhya Pradesh (Betul, Chhindwara, Hoshangabad, Jabalpur, Mandla, Seoni), Maharashtra (Kopergaon, Ahmednagar, Pune), Gujarat, Orissa.

Genus 38. *Scotophaeus* Simon, 1893

1893. *Scotophaeus* Simon, *Hist. Nat. Agrignon.*, **1** : 371.

1982. *Scotophaeus* : Tikader, *Fauna of India, Spiders*, **2(2)** : 374.

Diagnostic characters : General appearance very similar with *Drassodes*, carapace narrower in front than in *Drassodes*. Anterior median eyes larger than the laterals, the medians circular and anterior laterals elliptical. Posterior row slightly longer than anterior, very slightly procurved, eyes equidistant and nearly equal, posterior medians elliptical in shape.

Type species : *Scotophaeus quadripunctatus* Latreille

Distribution : Oriental and Temperate regions of the world.

67. *Scotophaeus poonaensis* Tikader, 1982

1982. *Scotophaeus poonaensis* Tikader, *Fauna of India, Spiders*, **2(2)** : 380.

Specimens examined : 1 ♀, Tilwaraghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 27-VIII-1997 (Z.S.I., Jabalpur, Reg. No. A/5248).

Distribution : India : Maharashtra (Pune), Madhya Pradesh (Hoshangabad, Jabalpur).

Genus 39. *Sergiolus* Simon, 1891

1891. *Sergiolus* Simon, *Proc. Zool. Soc. Lon.* : 573.

1982. *Sergiolus* : Tikader, *Fauna of India, Spiders*, 2(2) : 444.

Diagnostic characters : These spiders are brightly coloured. Both eye rows straight, or slightly recurved, posterior median eyes round and median ocular area longer than wide and wider behind than in front. Inner margin of chelicera either with one small tooth or unarmed. Tibia III provided with a median dorsal spine.

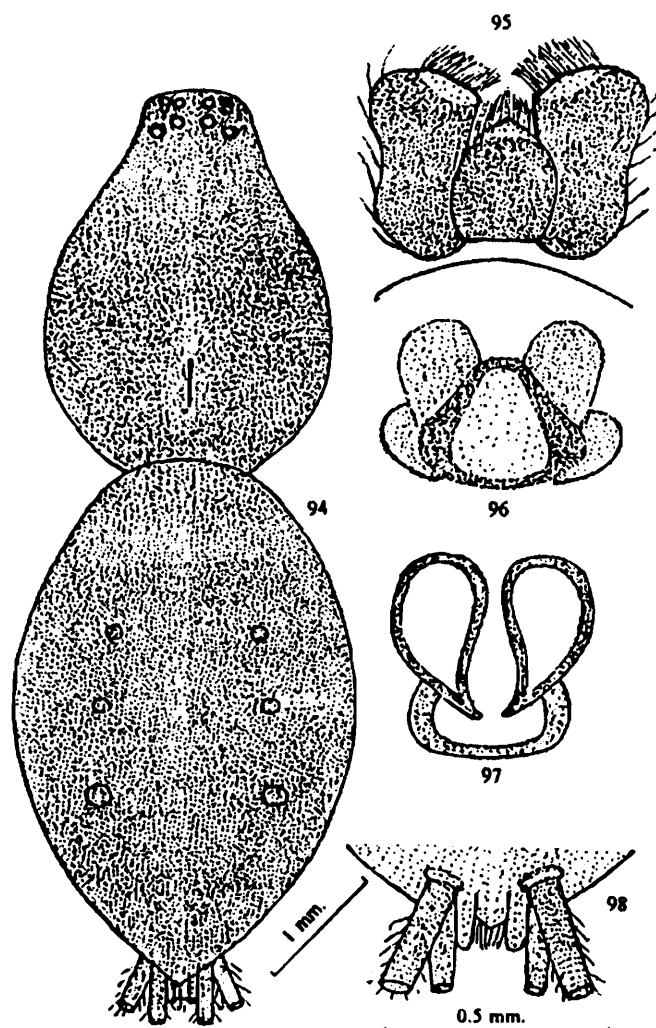
Type species : *Sergiolus variegates* Hentz

Distribution : America, India.

68. *Sergiolus lamhetaghatensis* Gajbe & Gajbe, 1999
(Figs. 94-98; pl. 6a)

1999. *Sergiolus lamhetaghatensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, 97(4) : 99.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5517/18).



Figs. 94-98. *Sergiolus lamhetaghatensis* Gajbe & Gajbe : 94. Dorsal view of female, legs omitted. 95. Labium and maxillae. 96. Epigyne. 97. Internal genitalia. 98. Spinnerets.

General : Cephalothorax and legs brownish-black, abdomen deep brown. Total length 7.5 mm. Carapace 3.1 mm. long, 2.2 mm. wide; abdomen 4.5 mm. long, 2.8 mm. wide.

Cephalothorax : Longer than wide, narrow in front, clothed with pubescence, thoracic region with an inconspicuous fovea, as in fig. 94. Eyes pearly white except the anterior medians; posterior eye row slightly longer than the anterior row, which is slightly recurved (as seen from in front), antero-medians slightly larger than antero-laterals and closer to adjacent laterals than to each other; posterior eye row recurved, medians more or less round, smaller than the laterals and equally spaced; ocular quadrangle longer than wide, and wider behind than in front. Sternum deep brown, oval, widest at the middle, pointed at the posterior end and clothed with hairs. Labium and maxillae longer than wide, deep brown, anterior end provided with conspicuous scopulae, as in fig. 95. Chelicerae moderately strong, inner margin with one small tooth and outer margin with two large teeth. Legs relatively long and strong, clothed with hairs and spines, tibia III with a median dorsal spine.

Abdomen : Longer than wide, nearly elliptical, thickly clothed with fine hairs and provided with three pairs of sigilla on dorsum. Ventral side lighter than dorsal, yellowish-green, clothed with hairs, as in fig. 94. Epigyne, as in fig. 96. Internal genitalia, as in fig. 97. Spinnerets prominent, anterior spinnerets longer than others, as in fig. 98.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Remarks : This species is an ant-mimicking spider. The body of the spider is narrow and dark in colour, resembling that of a black ant. It walks around with its first pair of legs raised upward, which resemble insect antennae.

Genus 40. *Sosticus* Chamberlin, 1922

1922. *Sosticus* Chamberlin, *Proc. Bio. Soc. Wash.*, **35** : 160.

1982. *Sosticus* : Tikader, *Fauna of India, Spiders*, **2(2)** : 431.

Diagnostic characters : Eye rows distinctly separated, posterior row of eyes in a straight line, the anterior median eyes slightly smaller than the anterior laterals. The median ocular quadrangle somewhat longer than broad, and the front eyes as large as, or larger than the posterior median eyes. The inner margin of the cheliceral furrow ordinarily armed with two teeth, but sometimes three present. Two spines present on the dorsal surface of the IV tibiae.

Type species : *Sosticus insularis* Banks

Distribution : America, India.

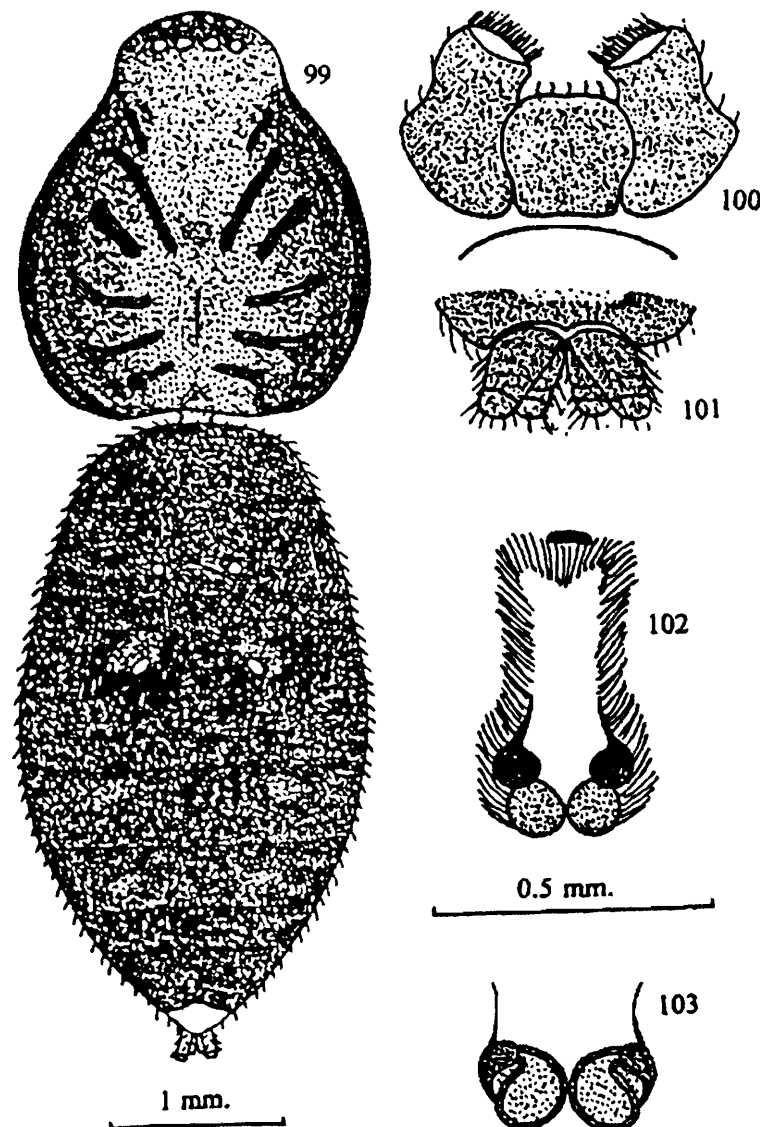
69. *Sosticus jabalpurensis* Bhandari & Gajbe, 2001
(Figs. 99-103)

2001c. *Sosticus jabalpurensis* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 89.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5519/18).

General : Cephalothorax and legs deep brown, abdomen black. Total length 6.5 mm. Carapace 2.5 mm. long, 2.1 mm. wide; abdomen 3.9 mm. long, 2.1 mm. wide.

Cephalothorax : Longer than wide, oval, convex, clothed with pubescence, posterior middle of cephalothorax provided with an inconspicuous short fovea; blackish streaks radiate from around fovea to the sides, as in fig. 99. Eye rows distinctly separated, eyes pearly white except anterior medians, posterior row slightly longer than the anterior row. The anterior row slightly recurved, medians closer to adjacent laterals than to each other. Posterior eye row



Figs. 99-103. *Sosticus jabalpurensis* Bhandari & Gajbe : 99. Dorsal view of female, legs omitted. 100. Labium and maxillae. 101. Spinnerets. 102. Epigyne. 103. Internal genitalia.

straight, medians irregular in shape and slightly larger than the laterals, both the medians and laterals equidistant to each other. Ocular quad longer than broad. Sternum heart-shaped, pointed behind, brown in colour and clothed with black hairs. Labium and maxillae, as in fig. 100. Chelicerae moderately strong, vertical, margins provided with hairs. Legs relatively long, thin, clothed with hairs and spines, femora I with two dorsal spines, tibiae III with three pairs of ventral spines.

Abdomen : Longer than wide, nearly elliptical, clothed with thick pubescence, dorsally provided with four light brown dots and six dark brown patches, posterior end provided with a chalk white patch, as in fig. 99. Epigyne, as in fig. 102. Internal genitalia, as in fig. 103. Spinnerets prominent, posterior spinnerets longer than others, as in fig. 101.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 41. *Zelotes* Gistel, 1848

1848. *Zelotes* Gistel, *Nat. Thierr.*, 11.

1982. *Zelotes* : Tikader, *Fauna of India, Spiders*, 2(2) : 470.

Diagnostic characters : Cephalothorax oval, narrowed markedly in front, covered with fine hairs. Generally, the pattern of widening streaks diverging from short fovea. Eyes rather closely grouped, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes more or less procurved (as seen from in front), lateral eyes larger than medians. Posterior row of eyes straight, medians often irregular in shape, sometimes larger than laterals and further from adjacent laterals than from each other or equally spaced. Chelicerae not very strong, vertical, with a number of hairs on inner part of anterior surface. Sternum oval, pointed behind. Legs relatively long, tibia and metatarsi III and IV may bear ventral spines. Scopulae reach between mid-point and base of metatarsi I and II and to apices of metatarsi III and IV. Abdomen dark black, covered with fine hairs. Dorsally there may occur three pairs of spots or impressions.

Type species : *Zelotes subterranean* Koch

Distribution : Oriental and temperate regions of the world.

70. *Zelotes jabalpurensis* Tikader & Gajbe, 1976

1976b. *Zelotes jabalpurensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, 83(3) : 114.

1982. *Zelotes* : Tikader, *Fauna of India, Spiders*, 2(2) : 506.

Specimens examined : Specimens not seen, description based on previous record by Tikader & Gajbe (1976b).

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

XVI. Family HETEROPODIDAE (Giant Crab Spiders)

Characters : Cephalothorax as long as wide. Posterior row of eyes recurved, anterior row straight or procurved, lateral eyes larger. Apex of metatarsus without a soft trilobate membrane. Peculiar crab-like appearance.

Genus 42. *Heteropoda* Latreille, 1804

1804b. *Heteropoda* Latreille, *Hist. Nat. gen., Paris*, 7 : 135.

1977. *Heteropoda* : Tikader, *Rec. zool. Surv. India*, 72 : 189.

Diagnostic characters : Large spiders, body flat, eyes pearly white, ocular quad longer than wide and narrow in front, legs long and stout.

Type species : *Heteropoda venatoria* Linnaeus

Distribution : Asia, Australia, Europe, India.

71. *Heteropoda* sp.

Specimens examined : 1 ♀, Garha, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 31-VIII-1999.

XVII. Family PHILODROMIDAE (Running Crab Spiders)

Characters : These spiders have a peculiar crab-like appearance. Spiders of small to medium size (2.5 to 8.0 mm. body length), the body generally flattened and coloured with subdued red-browns, yellows, or shades of grey; body covering of soft, recumbent hair, through which longer, scattered, erect, filiform setae emerge. Carapace as wide as long, or nearly so, with the sides smoothly narrowed towards the front; eyes in two recurved rows, the posterior row wider and less curved than the anterior, and posterior median eyes situated closer to the posterior laterals than to each other, eye tubercles small or absent. Legs moderately laterigrade, long and slender, longer and more slender in males than in females; legs II longest, and both I and II slightly longer than III and IV; legs often speckled and ringed with dark pigment, and sometimes with longitudinal blackish bands; tibiae I with 1-5 pairs of ventral macrosetae, usually 3 pairs. Abdomen slender to broad, usually smoothly rounded at sides but sometimes distinctly angular, widest in posterior half and tapered to blunt posteriorly. Tibiae of male palpus as long as wide, or longer nearly always bearing a retrolateral apophysis with 1, 2 or 3 points, and in most cases also a ventral apophysis, which may be free or be closely appressed to the ventral point of the retrolateral apophysis. Epigyne usually with broad, flat median

septum, beside which the copulatory openings are located; copulatory tubes usually visible in dorsal view often bearing spermathecal organ at point of junction with spermatheca, variable in shape, well sclerotized.

Key to the genera of Family PHILODROMIDAE

1. Cephalothorax longer than wide 2
- Cephalothorax nearly as long as wide, eyes on conspicuous tubercles *Philodromus* Walckenaer
2. Eyes not on conspicuous tubercles 3
- Eyes present on conspicuous tubercles *Dieta* Simon
3. Posterior lateral eyes more removed behind *Tibellus* Simon
- Posterior lateral eyes less removed behind *Thanatus* Koch

Genus 43. *Dieta* Simon, 1880

1880. *Dieta* : Simon, *Ann. Soc. Ent. Fr.*, 10(5) : 108.

1980. *Dieta* : Tikader, *Fauna of India, Spiders*, 1(1) : 233.

Diagnostic characters : Cephalothorax flat, longer than wide and abruptly narrowing anteriorly on the ocular area. Eyes prominently tuberculated, lateral eyes larger than medians, both rows recurved but anterior row more recurved than the posterior row, the four median eyes form a rectangular area as wide behind as in front. Legs I and II remarkably long and spinnerets situated at the posterior end of the abdomen.

Type species : *Dieta parnassia* Simon

Distribution : Africa, Asia, Oriental region and Japan.

72. *Dieta elongata* Tikader, 1980

1980. *Dieta elongata* Tikader, *Fauna of India, Spiders*, 1(1) : 234.

Specimens examined : 1 ♀, Lamhetaghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 27-IX-1997 (Z.S.I., Jabalpur, Reg. No. A/5247).

Distribution : India : Madhya Pradesh (Betul, Chhindwara, Jabalpur, Mandsaur, Ratlam), Maharashtra (Pune).

Genus 44. *Philodromus* Walckenaer, 1826

1826. *Philodromus* Walckenaer, *Ent. Fr. Ar.* : 86.

1980. *Philodromus* : Tikader, *Fauna of India, Spiders*, 1(1) : 181.

Diagnostic characters : Cephalothorax broader than long, relatively narrow in front. Eyes small and uniform in size and in a smaller crescent-shaped group with the anterior row shortest, posterior row strongly recurved, the medians further from each other than from the laterals. Abdomen usually oval, not appreciably widened or truncated behind. Legs relatively long, II pair of legs generally longer than I pair, III and IV pairs a little shorter than I and II pairs.

Type species : *Philodromus aureolus* Clerck

Distribution : All over the world.

Key to species of Genus *Philodromus* Walckenaer

1. Femora provided with four conspicuous dorsal spines *durvei* Tikader
- Femora with more or less than four dorsal spines 2
2. Eyes ringed with whitish tubercles 3
- Eyes not ringed with whitish tubercles 4
3. Tibiae I and II with three pairs of ventral spines *jabalpurensis* Gajbe & Gajbe
- Tibiae I and II with one and two pairs of ventral spines, respectively
..... *ashae* Gajbe & Gajbe
4. Femur I with five dorsal spines *pali* Gajbe & Gajbe
- Tarsus with three pairs of spines *sanjeevi* sp. nov.

73. *Philodromus ashae* Gajbe & Gajbe, 1999 (Figs. 104-106)

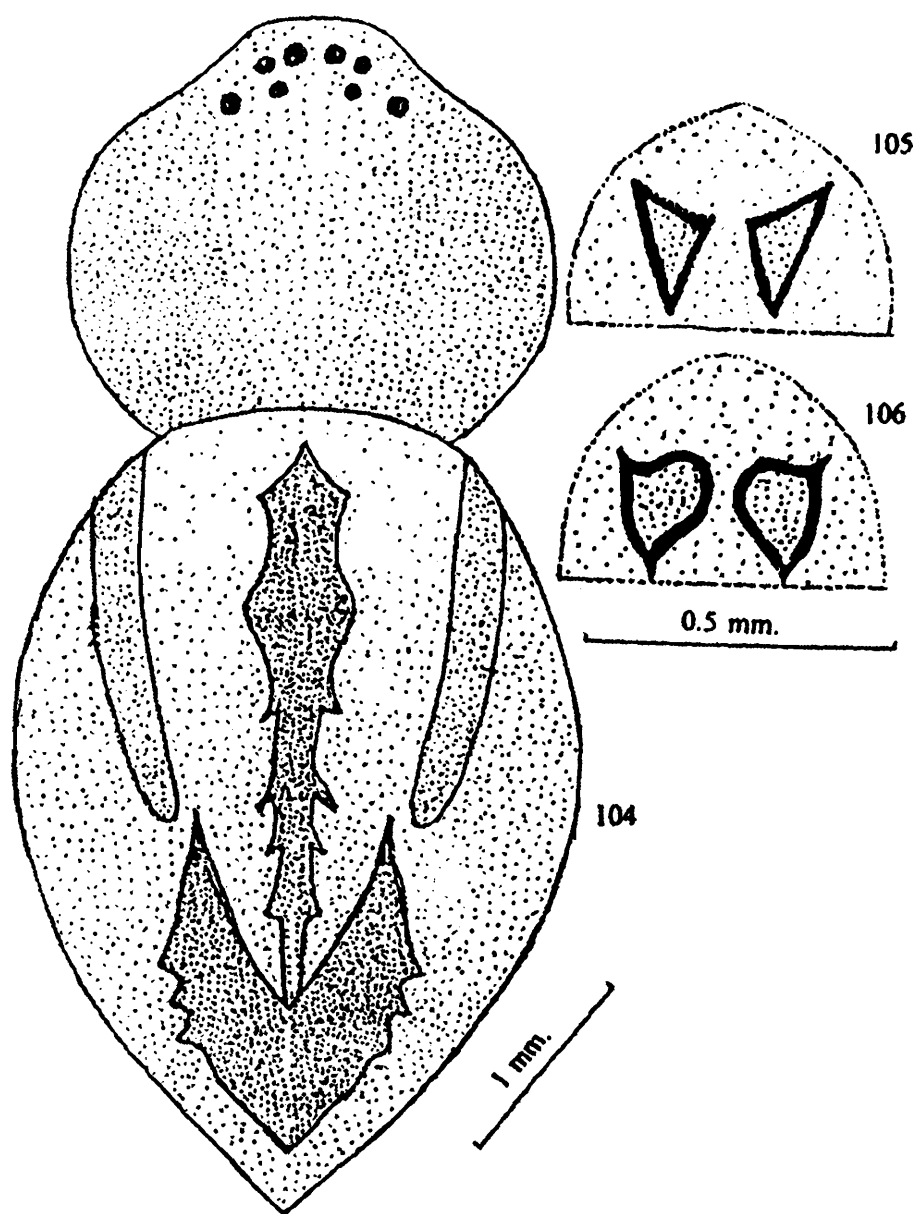
1999f. *Philodromus ashae* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(3) : 195.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5531/18).

General : Cephalothorax and legs light yellowish-green, abdomen light brownish green. Total length 5.8 mm. Cephalothorax 2.0 mm. long, 2.4 mm. wide; abdomen 3.8 mm. long, 2.7 mm. wide.

Cephalothorax : Wider than long, depressed, uniform in colour, posterior region slightly overlapped by the abdomen. Clypeus narrow, margin provided with small hairs directed forward. Eyes round and black, ringed with white tubercles, anterior row slightly recurved, eyes almost equal in size and equally spaced; posterior row longer and somewhat more recurved than the anterior row, posterior laterals larger than other eyes, posterior medians

further from each other than from the adjacent laterals, ocular quad longer than wide. Legs relatively long, II slightly longer than I, clothed with fine pubescence, dorsal side of femur I with three pairs of spines directed forward, tibiae I and II with one and two pairs of ventral spines, respectively, metatarsi provided with two pairs of ventral spines, tarsal scopulae well developed and claw tuft prominent.



Figs. 104-106. *Philodromus ashae* Gajbe & Gajbe : 104. Dorsal view of female, legs omitted. 105. Epigyne. 106. Internal genitalia.

Abdomen : Longer than wide, depressed, clothed with very fine pubescence, posterior region narrow, dorsum with a spear-shaped light brown patch and a V-shaped light brown patch, as in fig. 104. Ventral side lighter than dorsal, with a broad light brown band extending from the base of epigastric furrow to the spinnerets. Epigyne, as in fig. 105. Internal genitalia, as in fig. 106.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

74. *Philodromus durvei* Tikader, 1980

1980. *Philodromus durvei* Tikader, *Fauna of India, Spiders*, 1(1) : 204.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 4603/18).

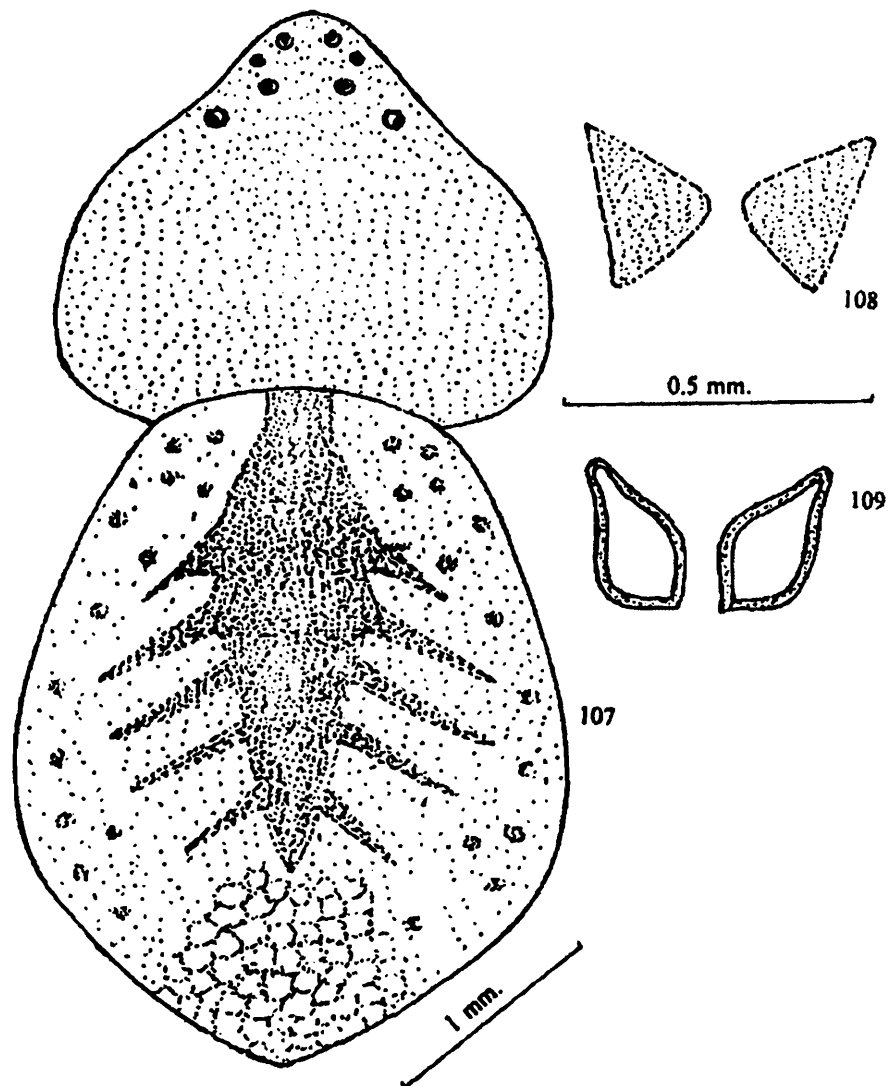
Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

75. *Philodromus jabalpurensis* Gajbe & Gajbe, 1999
(Figs. 107-109)

1999j. *Philodromus jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, 97(4) : 91.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5532/18).

General : Cephalothorax and legs light yellowish-green, abdomen dirty chalk white. Total length 5.0 mm. Carapace 2.0 mm. long, 2.2 mm. wide; abdomen 3.2 mm. long, 2.6 mm. wide.



Figs. 107-109. *Philodromus jabalpurensis* Gajbe & Gajbe : 107. Dorsal view of female, legs omitted. 108. Epigyne. 109. Internal genitalia.

Cephalothorax : Wider than long, uniform in colour, posterior region slightly overlapped by the abdomen. Eyes round, black, ringed with whitish tubercles, both eye rows recurved, ocular quad longer than broad and wider behind than in front. Clypeus narrow, margin provided with small hairs directed forward. Sternum oval, clothed with fine hairs. Legs I and II longer than III and IV, clothed with hairs and spines, dorsal side of femur I with one pair of spines directed outward, tibiae I and II with three pairs of ventral spines, metatarsi with two pairs of ventral spines, tarsal scopulae well developed and claw tufts prominent.

Abdomen : Longer than wide, depressed, clothed with pubescence, mid-dorsal region with a light brown patch, posterior region with light brown reticulations and dots, as in fig. 107. Ventral side same in colour as dorsal. Epigyne, as in fig. 108. Internal genitalia, as in fig. 109.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

76. *Philodromus pali* Gajbe & Gajbe, 2000

(Figs. 110-112)

2000a. *Philodromus pali* Gajbe & Gajbe, Rec. zool. Surv. India, 98(2) : 51.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5530/18).

General : Cephalothorax, legs and abdomen brown. Total length 6.9 mm. Carapace 2.1 mm. long, 2.2 mm. wide; abdomen 4.8 mm. long, 3.3 mm. wide.

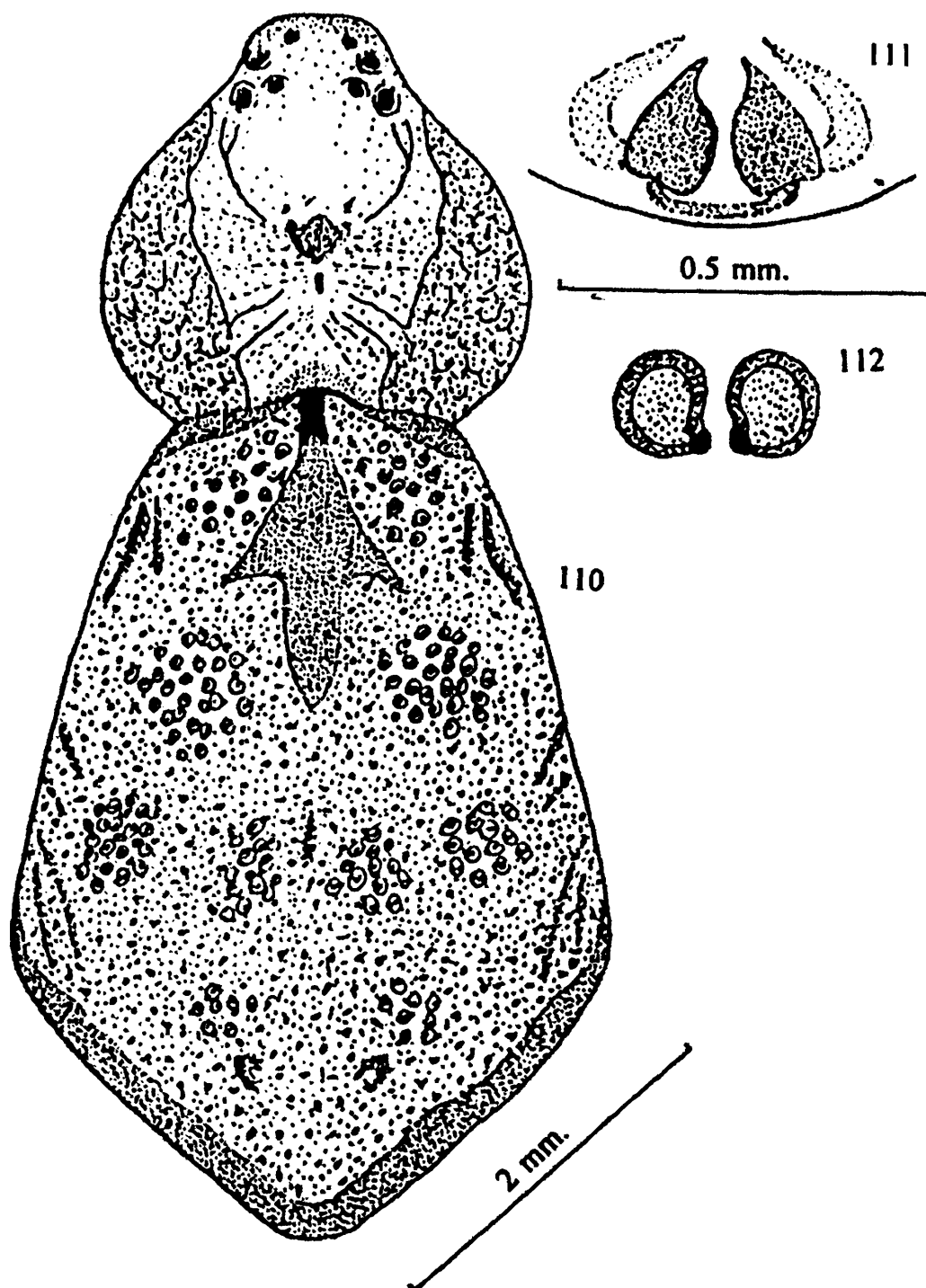
Cephalothorax : Slightly wider than long, narrowing anteriorly, depressed but cephalic region slightly high, laterally with dark brown patches, as in fig. 110. Eyes round and black, posterior medians further from each other than laterals, ocular quad longer than wide and narrow in front, lateral eyes ringed with prominent tubercles. Clypeus narrow, margin provided with hairs. Sternum heart-shaped, pointed behind, pale and clothed with pubescence and hairs. Legs relatively long, II leg slightly longer than I, clothed with fine hairs and spines and provided with brownish dots, femur I with five dorsal spines.

Abdomen : Long, narrowing behind, clothed with thick pubescence; provided with three V-shaped dark brown patches in the posterior half and irregular dark brown patches on the entire dorsum, as in fig. 181. Ventral side dark brown with a longitudinal broad light brown patch between the epigastric furrow and spinnerets. Epigyne, as in fig. 182. Internal genitalia, as in fig. 183.

Type specimen : Holotype ♀, in spirit; collected from *Lantana* bushes.

Type locality : Tilwaraghat, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 7-VIII-1998.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. J. B. S. Haldane.



Figs. 110-112. *Philodromus pali* Gajbe & Gajbe : 110. Dorsal view of female, legs omitted. 111. Epigyne. 112. Internal genitalia.

Remarks : This species resembles *Rhene decoratus* Tikader but can be distinguished from it as follows : (i) Cephalothorax with blackish patches but in *R. decoratus* cephalothorax with two pairs of inconspicuous light brownish patches. (ii) Epigyne and internal genitalia also structurally different.

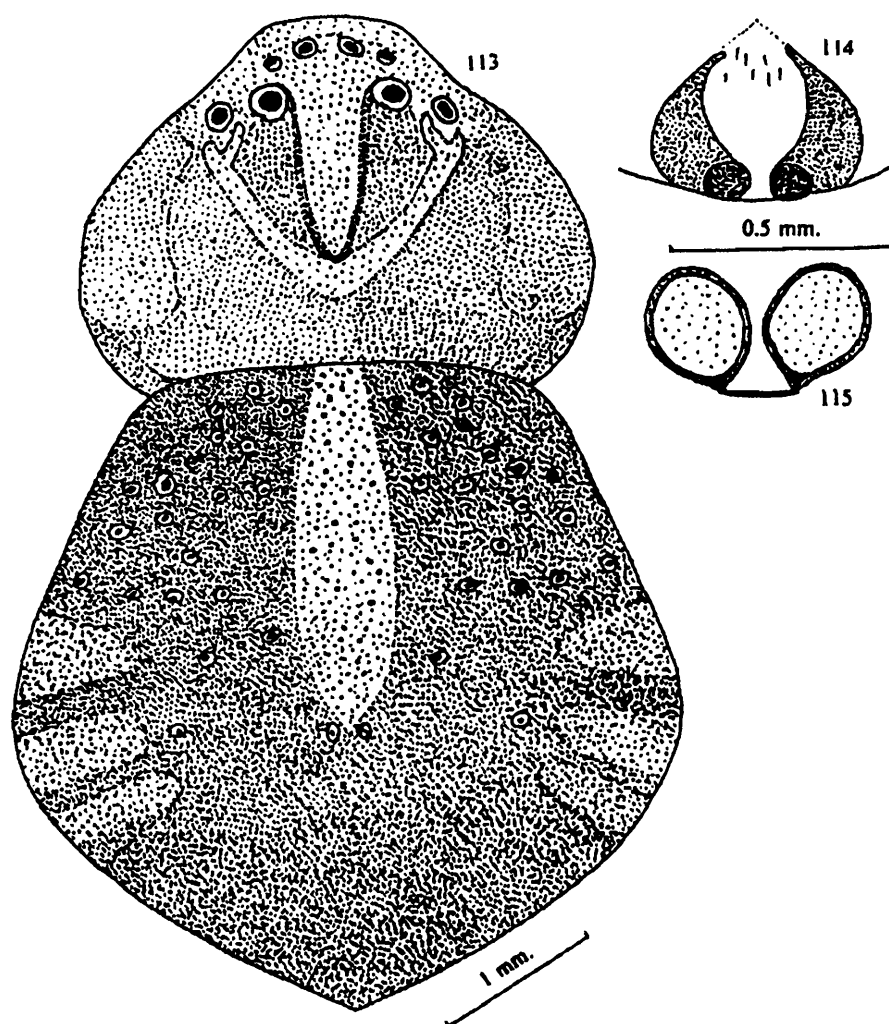
77. *Philodromus sanjeevi* sp. nov.

(Figs. 113-115)

General : Cephalothorax blackish-brown, legs light brown, abdomen blackish-brown. Total length 6.2 mm. Carapace 2.4 mm. long, 3.0 mm. wide; abdomen 4.0 mm. long, 4.0 mm. wide.

Cephalothorax : Wider than long, depressed but cephalic region slightly high, wider than long; narrowing in front, a V-shaped light brown patch present below the eyes, lateral sides having a lighter shade. Eyes round and black, both rows recurved, posterior medians largest and further from each other than from adjacent laterals, ocular quad wider than long and narrowing in front. Clypeus narrow, margin provided with hairs. Sternum heart-shaped, pale and clothed with hairs. Legs relatively long, clothed with fine hairs and provided with brownish dots, tarsi provided with three pairs of spines.

Abdomen : As long as wide, broad, depressed, covered with brownish dots, wider near the posterior end, anterior region covered with round dots, mid-dorsal region and the lateral sides having a lighter shade, as in fig. 113. Ventral side lighter in colour. Epigyne, as in fig. 114. Internal genitalia, as in fig. 115.



Figs. 113-115. *Philodromus sanjeevi* sp. nov. : 113. Dorsal view of female, legs omitted. 114. Epigyne. 115. Internal genitalia.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Sanjivani Nagar, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 8-X-1997.

Etymology : The specific name refers to the type locality.

Remarks : This species resembles *Philodromus durvei* Tikader but differs from it as follows :

- (i) A V-shaped light brown patch present below the eyes but in *P. durvei* such a patch is absent.
- (ii) Anterior region of abdomen covered with round dots but in *P. durvei* such dots are absent.
- (iii) Epigyne and internal genitalia also structurally different.

Genus 45. *Thanatus* Koch, 1837

1837. *Thanatus* Koch, *Ueb. Ar. Syst.*, **1** : 25.

1980. *Thanatus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 224.

Diagnostic characters : This genus differs from *Philodromus* in the relative position of the eyes and in the relative length of the legs. Carapace longer than wide, anterior row of eyes close together and both rows recurved and form together a crescent-shaped area, posterior eyes equidistant. Abdomen oval, not appreciably enlarged or truncated behind and abdomen marked with a lens shaped band. Tarsi and metatarsi armed with scopulae.

These spiders live on the ground or lower plants and grass.

Type species : *Thanatus formicinus* (Clerck)

Distribution : Europe, America, Africa and Asia.

Key to species of Genus *Thanatus* Koch

- 1. Abdomen mid-dorsally with dark brown band, laterally with two silvery bands
..... *jabalpurensis* Gajbe & Gajbe
- Abdomen mid-dorsally with dark brown bands extending laterally
..... *ketani* Bhandari & Gajbe

78. *Thanatus jabalpurensis* Gajbe & Gajbe, 1999

(Figs. 116-119)

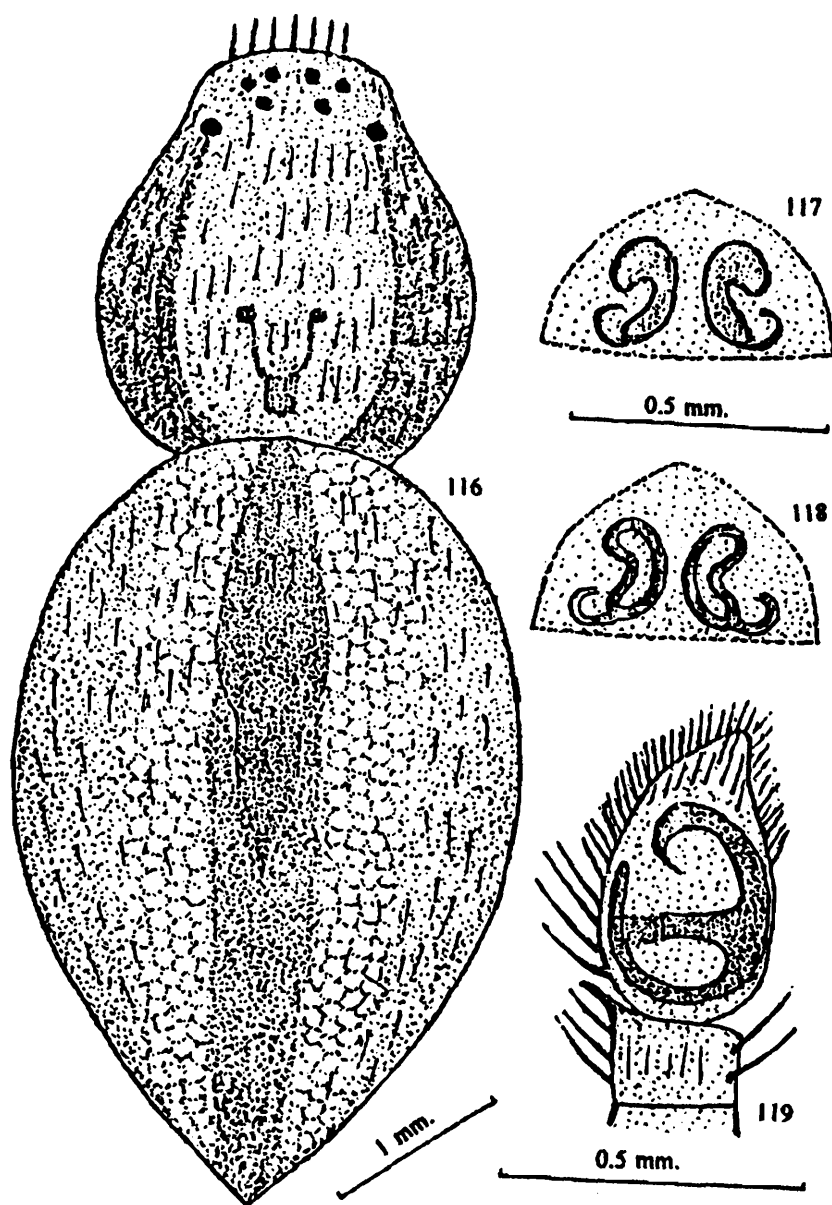
1999g. *Thanatus jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(3) : 199.

Specimens examined : Description based on ♀ Holotype and ♂ Allotype, deposited with Z.S.I., Kolkata (Reg. No. 5533/18 and 5534/18, respectively).

General : Cephalothorax dark brownish-green, abdomen and legs light brownish green. Total length 6.8 mm. Cephalothorax 2.4 mm. long, 2.0 mm. wide; abdomen 4.5 mm. long, 2.8 mm. wide.

Cephalothorax : Longer than wide, broadest behind, narrow in front and clothed with hairs and few spines, two deep brown bands starting from the postero-lateral eyes and extending to base of cephalothorax; laterally provided with conspicuous deep brown patches; posterior middle region with a U-shaped deep brown marking, as in fig. 116. Eyes black, in two rows, both rows recurved but the posterior row longer and more recurved than the anterior row, posterior lateral eyes larger than others, both rows of eyes together form a crescent-shaped area. Clypeus long, margin with seven spines directed forward. Sternum heart-shaped, pointed behind, clothed with hairs and some spines. Legs long and stout, provided with spines, metatarsi I and II with two pairs of ventral spines, tarsal scopulae well developed and claw-tufts prominent. Male palp, as in fig. 119.

Abdomen : Longer than wide, broadest in the middle and narrowing behind, clothed with hairs and few spines, mid-dorsally provided with a deep brown band up to the middle of



Figs. 116-119. *Thanatus jabalpurensis* Gajbe & Gajbe : 116. Dorsal view of female, legs omitted. 117. Epigyne. 118. Internal genitalia. 119. Right male palp, ventral view.

abdomen and laterally with two silvery longitudinal bands, as in fig. 116. Ventral side lighter than dorsal, clothed with hairs. Epigyne, as in fig. 117. Internal genitalia, as in fig. 118. Male appears same as female but smaller in size.

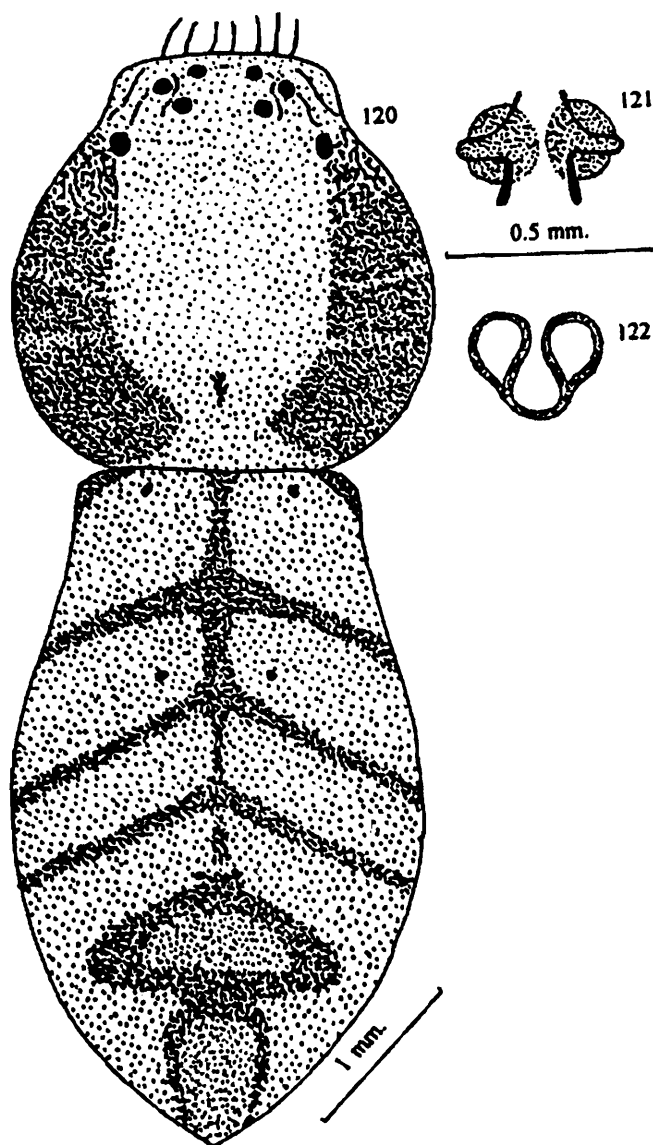
Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

79. *Thanatus ketani* Bhandari & Gajbe, 2001
(Figs. 120-122)

2001c. *Thanatus ketani* Bhandari & Gajbe, *Rec. zool. Surv. India*, **99**(1-4) : 89.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5518/18).

General : Cephalothorax and legs brownish-grey, abdomen dark brown. Total length 6.7 mm. Carapace 2.6 mm. long, 2.5 mm. wide; abdomen 4.2 mm. long, 2.5 mm. wide.



Figs. 120-122. *Thanatus ketani* Bhandari & Gajbe : 120. Dorsal view of female, legs omitted. 121. Epigyne. 122. Internal genitalia.

Cephalothorax : Longer than wide, broadest behind, narrow in front, laterally provided with conspicuous longitudinal deep brown patches, as in fig. 120. Eyes black, eight, in two rows, both rows recurved but the posterior row longer and more recurved than the anterior row, postero-lateral eyes larger than others, both eye rows form together a crescent-shaped area. Ocular quad longer than wide and narrowing in front. Clypeus long, margin provided with seven spines directed forward. Sternum heart-shaped, pointed behind, clothed with fine hairs. Legs long and stout, provided with spines and brownish dots, metatarsus I with twelve strong spines, tarsi I and II with seven spines each.

Abdomen : Longer than wide, widest in the middle, with the posterior end tapering, clothed with hairs and few spines and brown pigmented dots, mid-dorsally provided with dark brown bands reaching up to the lateral sides, as in fig. 120. Ventral side lighter in colour and provided with few brownish dots. Epigyne, as in fig. 121. Internal genitalia, as in fig. 122.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 46. *Tibellus* Simon, 1875

1875. *Tibellus* Simon, *Ar. Fr.*, 2 : 307.

1980. *Tibellus* : Tikader, *Fauna of India, Spiders*, 1(1) : 213.

Diagnostic characters : Cephalothorax appreciably longer than wide. The change in the position of the eyes have gone further than in the genus *Thanatus*, and the eyes of the anterior row, with the posterior median pair, form a small compact hexagonal group from which the posterior laterals are conspicuously removed. Abdomen long and cylindrical or cigar-shaped. Legs relatively long, bearing scopulae on both tarsi and metatarsi.

These spiders are found in grass and on bushes, when at rest the legs are stretched out longitudinally, two pairs forward and two pairs backward.

Type species : *Tibellus oblongus* (Walckenaer)

Distribution : Europe, America, Africa and Asia.

80. *Tibellus jabalpurensis* Gajbe & Gajbe, 1999 (Figs. 123-125)

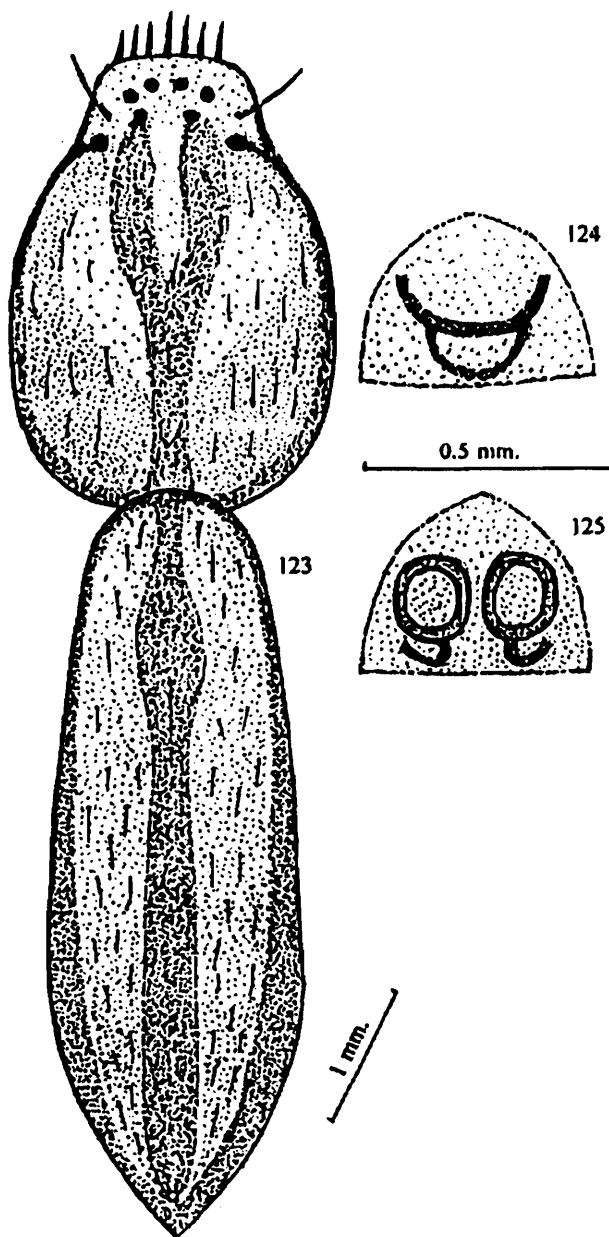
1999e. *Tibellus jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, 97(3) : 191.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5529/18).

General : Cephalothorax and legs brownish-green, abdomen light brownish-green. Total length 9.0 mm. Carapace 3.6 mm. long, 2.3 mm. wide; abdomen 5.7 mm. long, 1.9 mm. wide.

Cephalothorax : Longer than wide, with few spines, two longitudinal dark brown bands extending from postero-lateral eyes to the base of cephalothorax and two wide dark brown bands extending from postero-median eyes, uniting in the mid-dorsal region and reaching the base of cephalothorax, as in fig. 123. Margin of clypeus with seven spines directed forward. Anterior eye row recurved, anterior eyes and posterior medians forming a hexagon, postero-lateral eyes largest and further from the other eyes. Sternum heart-shaped, pointed behind, clothed with fine hairs. Legs long, provided with spines, tibiae and metatarsi I and II with two pairs of ventral spines, well developed claw-tufts and scopulae present on tarsi and extend to the end of metatarsi.

Abdomen : Longer than wide, cylindrical, clothed with spines, narrow behind, slightly overlapping the posterior region of cephalothorax, dorsum with irregular tufts of blackish



Figs. 123-125. *Tibellus jabalpurensis* Gajbe & Gajbe : 123. Dorsal view of female, legs omitted. 124. Epigyne. 125. Internal genitalia.

hairs, one mid-dorsal and two lateral deep brown bands extending from the anterior end of abdomen to the posterior end, as in fig. 123. Ventral side slightly lighter than dorsal, provided with a broad deep brown band extending from epigastric furrow to the base of spinnerets. Epigyne, as in fig. 124. Internal genitalia, as in fig. 125.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

XVIII. Family THOMISIDAE (Crab Spiders)

Characters : These spiders have a typical crab-like appearance. Carapace and abdomen usually short and broad. Eyes small, particularly the posterior usually circled with black, both rows being recurved. First two pairs of legs long and stout and frequently move sideways as done by a crab.

Key to the genera of Family THOMISIDAE

1. Lateral eyes on strong conical protuberance 2
- Lateral eyes not on conical protuberance 3
2. Abdomen widened and truncated behind *Thomisus* Walckenaer
- Abdomen long, laterally with longitudinal muscular corrugations *Runcinia* Simon
3. Integument clothed with some clavate setae *Oxyptila* Simon
- Integument not clothed with clavate setae 4
4. Anterior median eyes closer to lateral eyes than to each other *Xysticus* Koch
- Anterior median eyes not closer to lateral eyes 5
5. Tarsal claw of leg I with 6-12 teeth *Synaema* Simon
- Tarsal claw of leg I without teeth 6
6. Abdomen produced well beyond the spinnerets *Monaeses* Thorell
- Abdomen not produced beyond the spinnerets 7
7. Abdomen high with caudal tubercle *Tmarus* Simon
- Abdomen not high, without a caudal tubercle, clypeus with a distinct white carina, carapace flat *Misumenoides* Cambridge

Genus 47. *Misumenoides* Cambridge, 1900

1900. *Misumenoides* Cambridge, *Biol. Centr. Amer. Zool.*, 2 : 136.

1980. *Misumenoides* : Tikader, *Fauna of India, Spiders*, 1(1) : 150.

Diagnostic characters : Cephalothorax relatively flatter; clypeus vertical, with a white anterior carina curving to allatum; lateral eyes situated on common and strongly projecting processes; abdomen oval, wider behind the middle.

Type species : *Misumenoides magna* Keyserling

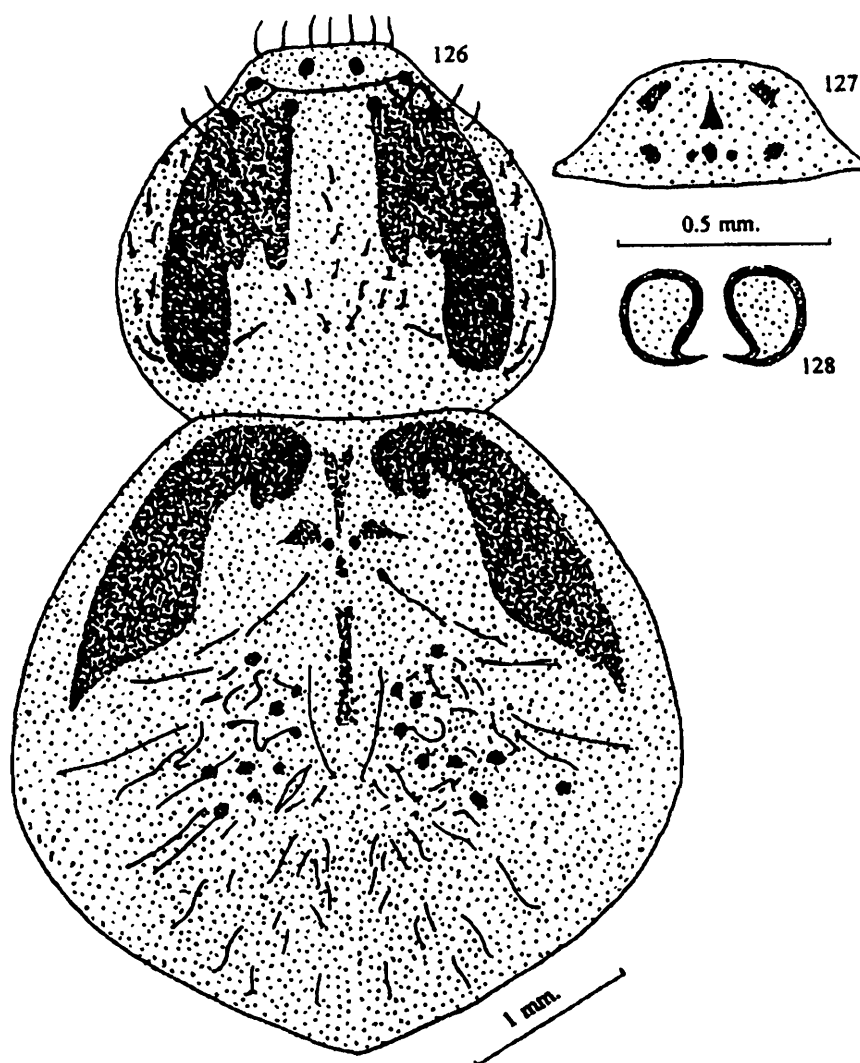
Distribution : Asia, N. America, and S. America.

81. *Misumenoides gwarighatensis* sp. nov.

(Figs. 126-128)

General : Cephalothorax and legs brownish-yellow, legs greenish-yellow. Total length 6.5 mm. Carapace 2.5 mm. long, 2.5 mm. wide; abdomen 4.0 mm. long, 4.0 mm. wide.

Cephalothorax : As long as wide, cephalic region high, clothed with few spines; clypeus moderately high with seven spines directed forward; lateral region with two conspicuous dark brown patches, as in fig. 126. Eyes round, black, both eye rows recurved; lateral eyes larger than the others and ringed with greenish tubercles; ocular quad wider than long.



Figs. 126-128. *Misumenoides gwarighatensis* sp. nov. : 126. Dorsal view of female, legs omitted. 127. Epigyne. 128. Internal genitalia.

Sternum heart-shaped, pointed behind, clothed with fine hairs and few spines. Legs I and II longer than III and IV, clothed with hairs and spines; tibiae I and II with four pairs of ventral spines, metatarsi I and II with seven and six pairs of ventral spines, respectively.

Abdomen : As long as broad, wider posteromedially, high and pointed behind, provided with two conspicuous dark brown patches, as in fig. 126. Mid-dorsal and posterior region covered with light brown reticulation. Epigyne, as in fig. 127. Internal genitalia, as in fig. 128.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Gwarighat, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 6-X-1997.

Etymology : The specific name refers to the type locality.

Remarks : This species resembles *Misumenoides shulli* Tikader but can be distinguished from it as follows : (i) Metatarsi I and II with seven and six pairs of ventral spines, respectively but in *M. shulli* the same with eight pairs of ventral spines each. (ii) Abdomen provided with two conspicuous dark brown patches but in *M. shulli* such patches are absent. (iii) Epigyne also structurally different.

Genus 48. *Monaeses* Thorell, 1870

1870. *Monaeses* Thorell, *Eur. Spiders* : 182.

1980. *Monaeses* : Tikader, *Fauna of India, Spiders*, 1(1) : 143.

Diagnostic characters : Cephalothorax longer than wide, slightly wider in front. Eyes black and round, both rows nearly straight or slightly recurved, lateral eyes with prominent tubercles. Legs I and II conspicuously long and strong. Abdomen very long and narrowing posteriorly, clothed with conspicuous spines.

Type species : *Monaeses paradoxus* Lucas

Distribution : Asia, India, Japan, Myanmar, Holland and Africa.

82. *Monaeses jabalpurensis* Gajbe & Rane, 1992

1992. *Monaeses jabalpurensis* Gajbe & Rane, *Rec. zool. Surv. India*, 91(3-4) : 395.

Specimens examined : Specimens not seen, description based on previous record by Gajbe & Rane (1992).

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 49. *Oxyptila* Simon, 1864

1864. *Oxyptila* Simon, *Hist. Nat. Ar.*, 1 : 439.

1980. *Oxyptila* : Tikader, *Fauna of India, Spiders*, 1(1) : 79.

Diagnostic characters : Cephalothorax, abdomen and legs clothed with some clavate or spatulate hairs; clypeus with a row of clavate hairs. The number of clavate hairs varies somewhat from species to species. Eyes black, median ocular trapezium longer than broad; posterior medians closer to one another than to laterals. Legs stout and short; tibiae I and II armed ventrally with two pairs of spines. The cuticle clothed with setae of various types, some of them pointed while others clavate or spatulate.

Type species : *Oxyptila brevipes* Hahn

Distribution : All tropical and sub-tropical countries and north temperate regions of the world.

Key to species of Genus *Oxyptila* Simon

1. Lateral margins of cephalothorax with deep brown patch, middle region with vertical light patches *amkhasensis* Tikader
- Lateral margins of cephalothorax with deep brown patches, posterior region with six blackish spots *jabalpurensis* Bhandari & Gajbe

83. *Oxyptila amkhasensis* Tikader, 1980

1980. *Oxyptila amkhasensis* Tikader, *Fauna of India, Spiders*, 1(1) : 86.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 4589/18).

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

84. *Oxyptila jabalpurensis* Bhandari & Gajbe, 2001

(Figs. 129-132)

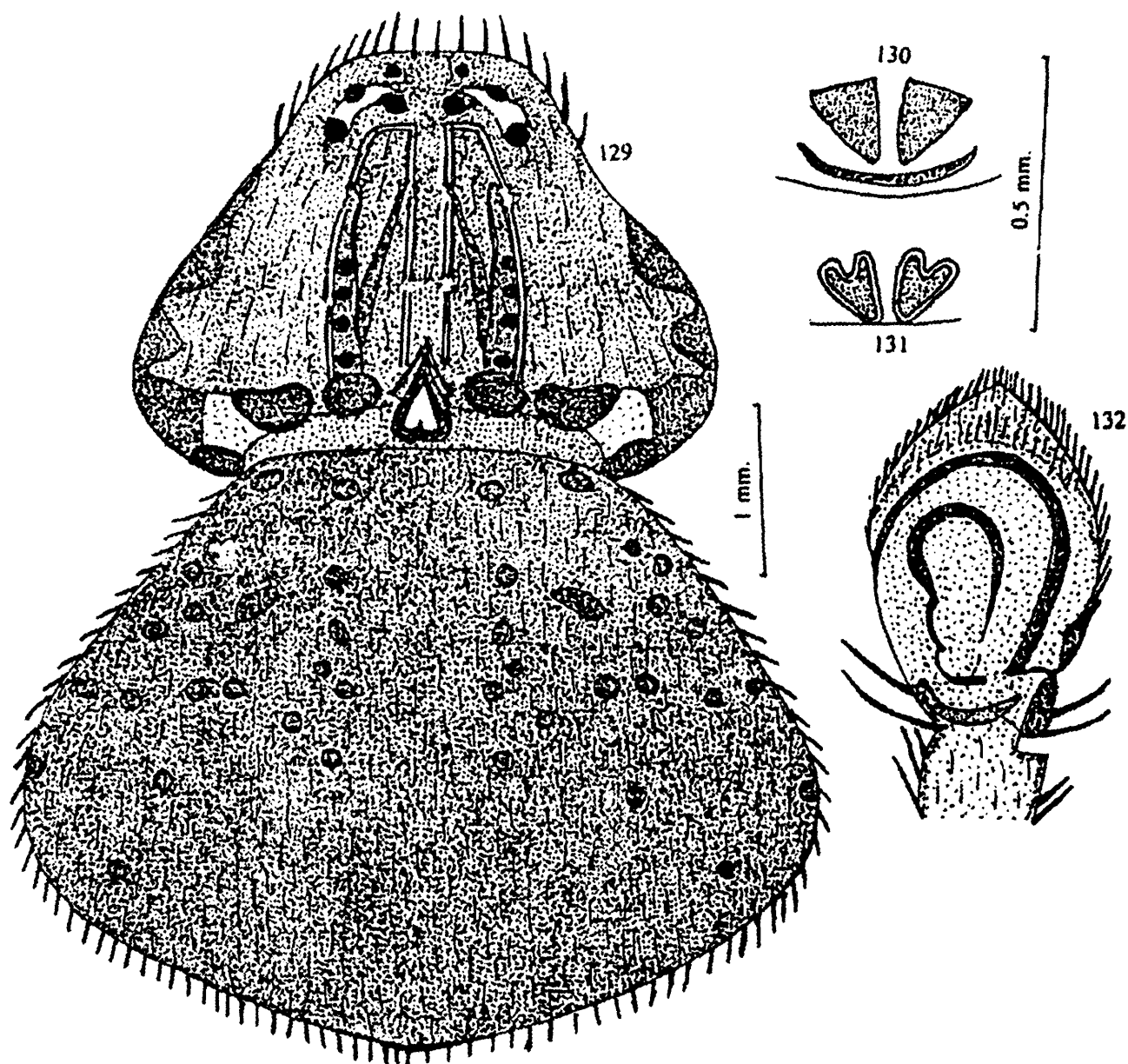
2001b. *Oxyptila jabalpurensis* Bhandari & Gajbe, *Rec. zool. Surv. India*, 99(1-4) : 83.

Specimens examined : Description based on ♀ Holotype, ♀ Paratype, and ♂ Allotype, deposited with Z.S.I., Kolkata (Reg. No. 5522/18, 5512/18 and 5513/18, respectively).

General : Cephalothorax and legs deep brown, abdomen light brown in colour. Total length 6.4 mm. Carapace 2.8 mm. long, 3.6 mm. wide; abdomen 3.9 mm. long, 4.8 mm. wide.

Cephalothorax : Wider than long, bearing spatulate hairs on the cephalic region, lateral margin of cephalothorax provided with blackish patches and posterior portion lighter in colour and provided with six blackish spots, as in fig. 129. Anterior and posterior lateral eyes

ringed with yellowish tubercles. Ocular quad square shaped, both eye rows recurved but anterior row more strongly recurved. Clypeus high, margin bearing nine clavate hairs directed forward but middle one directed upward. Sternum heart-shaped, slightly pointed behind, lighter in colour and provided with eight blackish spots. Legs I and II robust and longer than III and IV, some blackish patches on the legs, all legs covered with spatulate hairs and few spines. Male same in colour and size. Male palp, as in fig. 132.



Figs. 129-132. *Oxyptila jabalpurensis* Bhandari & Gajbe : 129. Dorsal view of female, legs omitted. 130. Epigyne. 131. Internal genitalia. 132. Left male palp, ventral view.

Abdomen : Ovate, slightly broader than long, broadest behind the middle, densely clothed with spatulate hairs, provided with few blackish spots, as in fig. 129. Ventral side slightly lighter than dorsal. Epigyne, as in fig. 130. Internal genitalia, as in fig. 131.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 50. *Runcinia* Simon, 18751875. *Runcinia* Simon, *Ar. Fr.*, 2 : 254.1980. *Runcinia* : Tikader, *Fauna of India, Spiders*, 1(1) : 58.

Diagnostic characters : Cephalothorax with lateral margins rounded, cephalic region with prominent ocular tubercle. Legs long and stout, I and II longer than III and IV. Abdomen long, narrowing behind, provided with spines; lateral margins with longitudinal muscular corrugations.

Type species : *Runcinia lateralis* Koch

Distribution : Asia, Africa, Europe and Australia.

Key to species of Genus *Runcinia* Simon

1. Abdomen with two small E-shaped blackish spots anteriorly, mid-dorsally with longitudinal whitish patch bordered by two big and two tiny blackish sigilla
..... *khandari* sp. nov.
- Abdomen with muscular corrugations, blackish and whitish lines and spots
..... *yogeshi* Gajbe & Gajbe

85. *Runcinia khandari* sp. nov.

(Figs. 133-134)

General : Cephalothorax, legs and abdomen yellowish-brown. Total length 4.0 mm. Carapace 1.3 mm. long, 1.4 mm. wide; abdomen 2.7 mm. long, 1.6 mm. wide.

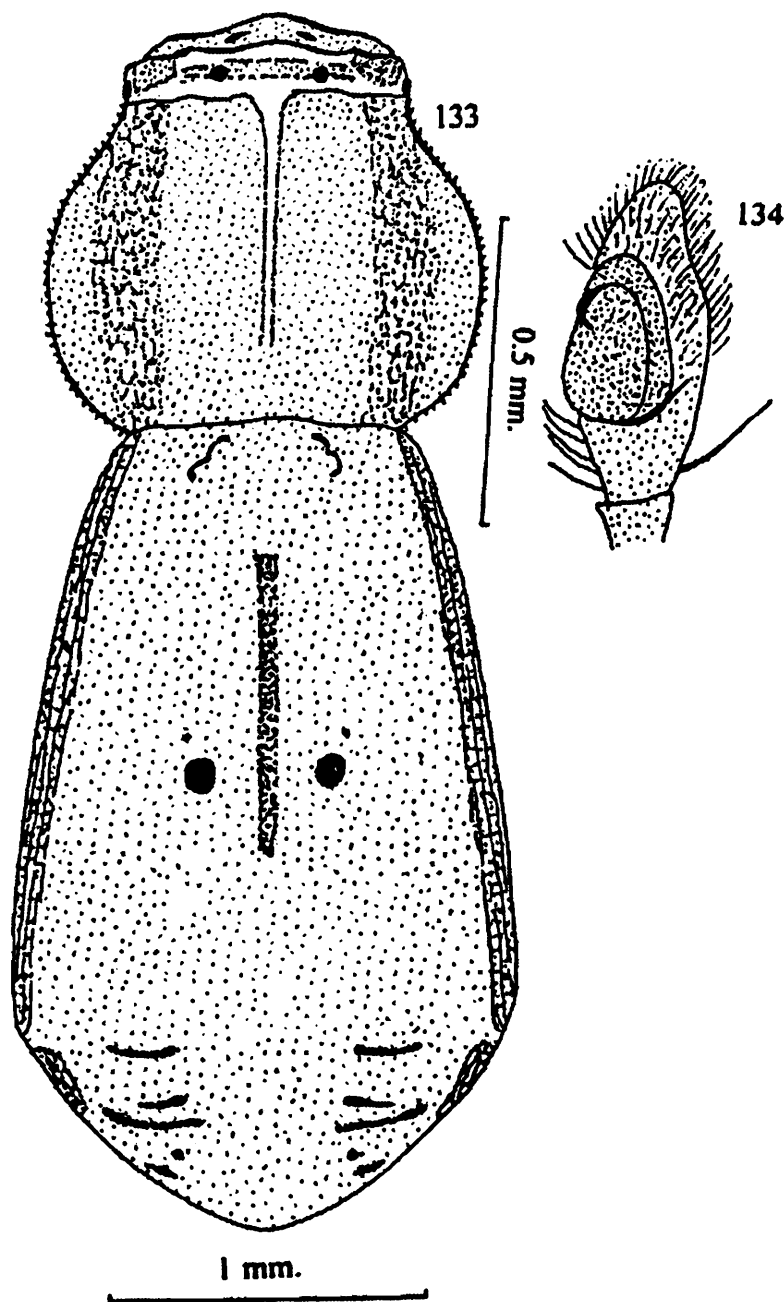
Cephalothorax : Slightly wider than long, narrowing anteriorly, with rounded lateral edges, truncated in front, clothed with fine pubescence and provided with two narrow longitudinal brownish bands, as in fig. 133. Both eye rows recurved, anterior median eyes larger than posterior medians but smaller than anterior laterals, posterior medians smaller than posterior laterals. Two lines starting below the posterior medians and ending in the thoracic region. Clypeus greenish-brown, sub-rectangular, narrowing anteriorly and with stout spines pointing forward. Sternum heart-shaped, pointed behind, pale yellow, clothed with pubescence and hairs. Legs I and II much longer than III and IV; femora I and II with four and three dorsal spines, respectively. Male palp, as in fig. 134.

Abdomen : Longer than wide, broadest posteriorly, clothed with fine pubescence. Anterior end provided with two E-shaped small blackish spots, mid-dorsally provided with a longitudinal whitish patch bordered by two big and two tiny blackish spots; lateral margins with longitudinal blackish bands; posterior end with some transverse blackish lines, as in fig. 133. Ventral side pale yellow, without any coloured spots or patches. Female unknown.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Khandari, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 11-VIII-1998.

Etymology : The specific name is a noun taken in appropriation from the type locality.



Figs. 133-134. *Runcinia khandari* sp. nov. : 133. Dorsal view of male, legs omitted. 134. Left male palp, ventral view.

Remarks : This species resembles *Runcinia chauhani* Sen & Basu but differs from it as follows : (i) Cephalothorax laterally provided with two narrow longitudinal brownish bands but in *R. chauhani* cephalothorax provided with two broad dark brown bands. (ii) Dorsum of abdomen provided with a longitudinal whitish patch bordered by two big and two tiny blackish spots but in *R. chauhani* such a pattern is absent on dorsum.

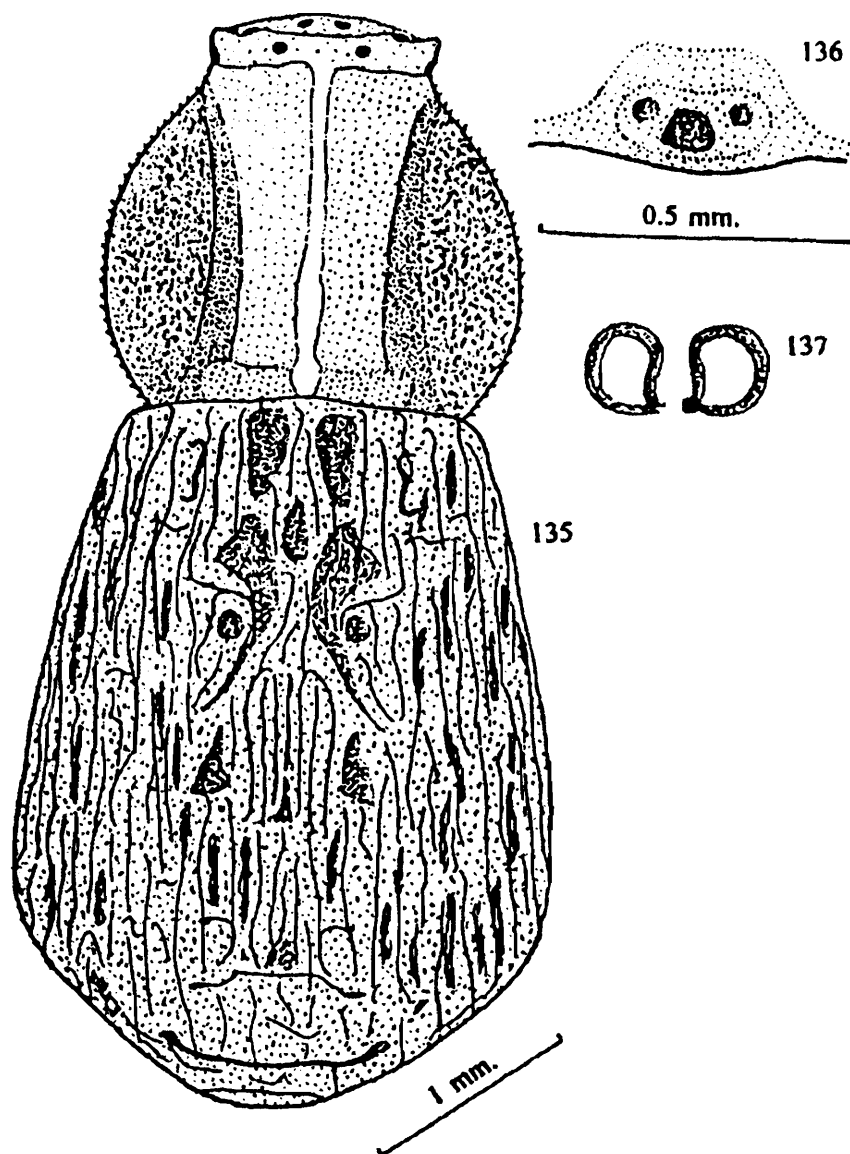
86. *Runcinia yogeshi* Gajbe & Gajbe, 2000
(Figs. 135-137)

2000e. *Runcinia yogeshi* Gajbe & Gajbe, *Rec. zool. Surv. India*, **98**(2) : 155.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5524/18).

General : Cephalothorax and legs dark brown, abdomen blackish-brown with whitish patches. Total length 5.2 mm. Carapace 1.9 mm. long, 1.9 mm. wide; abdomen 3.4 mm. long, 2.4 mm. wide.

Cephalothorax : As long as wide, narrowing anteriorly, truncated in front, clothed with fine pubescence, thoracic region darker in colour, laterally, as in fig. 135. Both eye rows recurved, antero-median eyes slightly larger than postero-medians, but smaller than antero-laterals, a double line starting below the postero-medians and ending at the posterior end of cephalothorax.



Figs. 135-137. *Runcinia yogeshi* Gajbe & Gajbe : 135. Dorsal view of female, legs omitted. 136. Epigyne. 137. Internal genitalia.

Clypeus dark brown, subrectangular, narrowing anteriorly, with stout spines pointing forward. Sternum heart-shaped, pointed behind, dark brown and clothed with fine pubescence. Legs II and I much longer and more spiny than III and IV, tibiae I and II with five and four pairs of ventral spines respectively.

Abdomen : Longer than wide, cylindrical, broadest posteriorly, entire dorsum with muscular corrugations, and blackish and whitish lines and spots, as in fig. 135. Ventral side same in colour and texture as dorsal, a longitudinal blackish band running from the epigastric furrow to the spinnerets. Epigyne, as in fig. 136. Internal genitalia, as in fig. 137.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 51. *Synaema* Simon, 1864

1864. *Synaema* Simon, *Hist. Nat. Ar.*, 1 : 70.

1980. *Synaema* : Tikader, *Fauna of India, Spiders*, 1(1) : 134.

Diagnostic characters : The median ocular area is a little more narrow in front than behind, the anterior eyes equidistant or even with the medians nearer to each other than to the lateral eyes; the tarsal claws of the first two pairs of legs furnished with more than five or six teeth, and the teeth extend beyond the middle of the claw, the cuticle smooth. Abdomen dorso-ventrally compressed.

These spiders are found on the folding of leaves of lower plants and bushes.

Type species : *Synaema globosum* (Fabr.)

Distribution : Asia, America and Africa.

87. *Synaema decorata* Tikader, 1960

1960. *Synaema decorata* Tikader, *J. Bombay nat. Hist. Soc.*, 57(1) : 174.

1980. *Synaema decorata* : Tikader, *Fauna of India, Spiders*, 1(1) : 136.

Specimens examined : 2 ♀♀, Khamaria, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 10-VII-1997 (Z.S.I., Jabalpur, Reg. No. A/5244).

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Panna, Shahdol), West Bengal, Karnataka, Maharashtra.

Genus 52. *Thomisus* Walckenaer, 1805

1805. *Thomisus* Walckenaer, *Tabl. Aron.* : 28.

1980. *Thomisus* : Tikader, *Fauna of India, Spiders*, 1(1) : 30.

Diagnostic characters : Typical crab-like appearance. Cephalothorax truncated in front with the upper fore corners strongly and conically protuberant and diverging, bearing the

lateral eyes. Eyes very small, black in colour. Abdomen narrow and truncated in front, enlarging to a considerable width behind, where at either corners of the dorsal side is a short blunt conical protuberance. Legs long, I and II much longer than III and IV

Type species : *Thomisus onustus* Walckenaer.

Distribution : All over the world.

Key to species of Genus *Thomisus* Walckenaer

1. Cephalothorax provided with brownish patches 2
- Cephalothorax not provided with brownish patches 6
2. Abdomen yellowish or yellowish-green 3
- Abdomen whitish, greenish-white or whitish-yellow 4
3. Abdomen yellowish, carapace with two dark brown patches laterally and a whitish patch between them *sundari* Gajbe & Gajbe
- Abdomen yellowish-green, carapace with two deep brown patches but no whitish patch between them *whitakeri* sp. nov.
4. Abdomen greenish-white or whitish-yellow, carapace with four dark brown patches 5
- Abdomen dirty chalk white, metatarsi I with six pairs of ventral spines *pathaki* sp. nov.
5. Abdomen greenish-white, tibia and metatarsi I with three and six pairs of ventral spines, respectively *simoni* sp. nov.
- Abdomen whitish-yellow, both metatarsi I and II with five pairs of ventral spines *bargi* sp. nov.
6. Legs provided with coloured spots 7
- Legs not provided with coloured spots 8
7. Femora I and II with orange coloured spots, both tarsi I and II with five pairs of ventral spines *rajani* Bhandari & Gajbe
- Femur I with a brownish spot, both metatarsi I and II with five pairs of strong spines *pateli* sp. nov.
8. Ocular area with reddish and whitish patches, and spine-like hairs *danieli* sp. nov.
- Ocular area not provided with reddish and whitish patches and spine-like hairs *viveki* sp. nov.

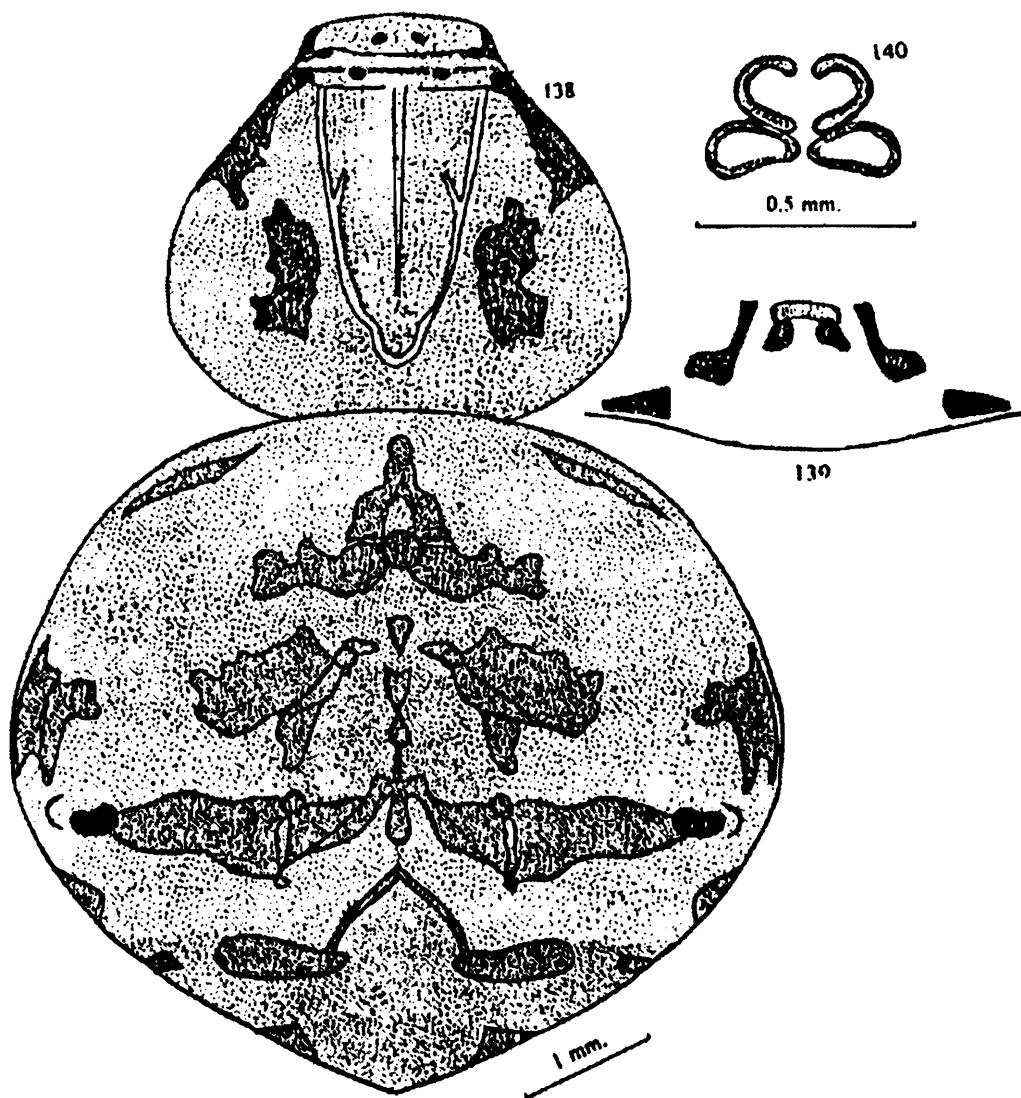
88. *Thomisus bargi* sp. nov.

(Figs. 138-140)

General : Cephalothorax and legs greenish-yellow, abdomen whitish-yellow. Total length 8.6 mm. Carapace 3.3 mm. long, 3.6 mm. wide; abdomen 5.4 mm. long, 5.8 mm. wide.

Cephalothorax : Slightly wider than long, antero-lateral sides with four conspicuous dark brown patches, as in fig. 138. Ocular area whitish, eyes round and black, anterior row strongly recurved, anterior median eyes slightly larger than posterior medians. Clypeus long, sub-rectangular, margin provided with spine like hairs. Legs long and stout; I and II longer than III and IV and also provided with brownish spots on femora and tibiae; metatarsi I and II with five pairs of ventral spines.

Abdomen : Oval, slightly wider than long, broadest just behind the middle, provided with conspicuous brownish patches, as in fig. 138. Ventral side same in colour as dorsal and provided with a brownish patch between the epigyne and the base of spinnerets. Epigyne, as in fig. 139. Internal genitalia, as in fig. 140.



Figs. 138-140. *Thomisus bargi* sp. nov. : 138. Dorsal view of female, legs omitted. 139. Epigyne. 140. Internal genitalia.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Bargi, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 8-VIII-1998.

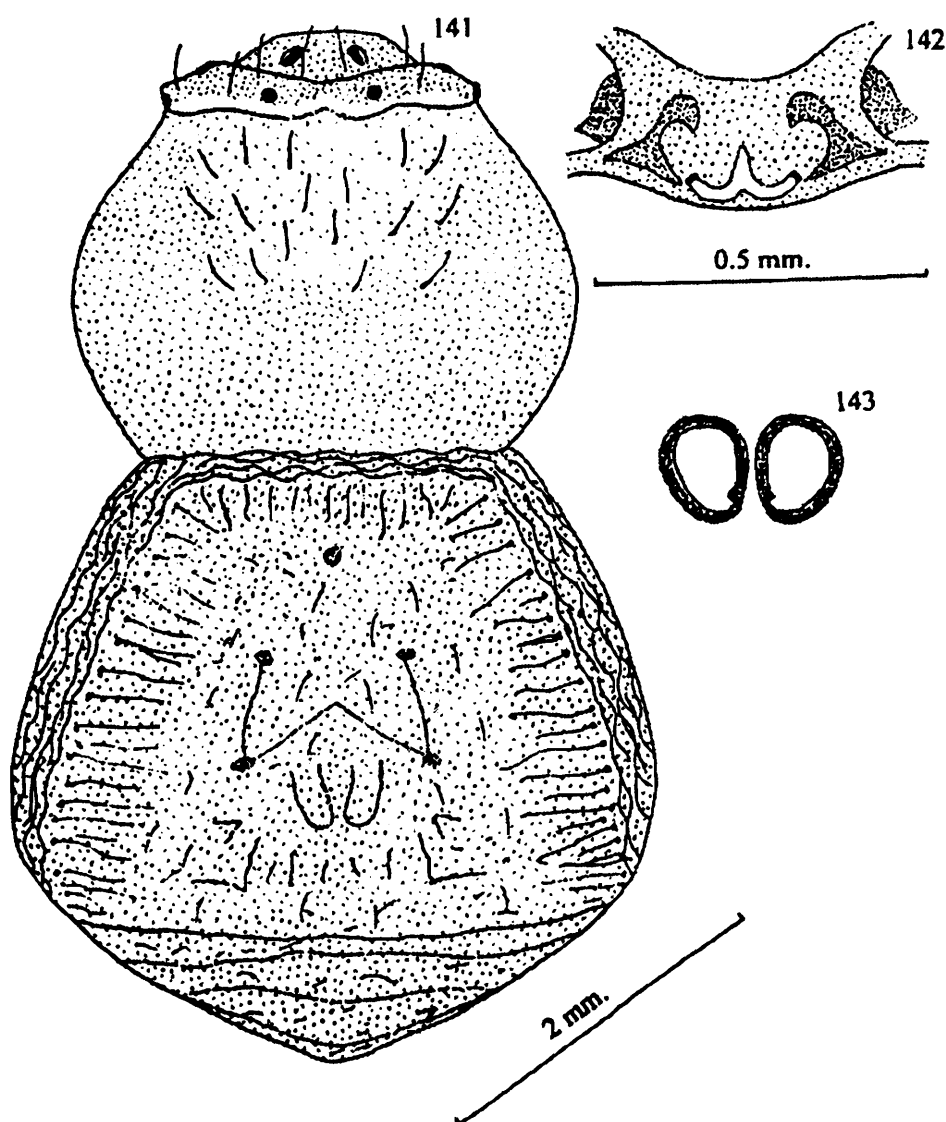
Etymology : The specific name is a noun taken in appropriation from the type locality.

Remarks : This species resembles *Thomisus pooneus* Tikader but can be distinguished from it as follows : (i) Antero-lateral sides of cephalothorax with four conspicuous dark brown patches but in *T pooneus* only two blackish patches are present. (ii) Arrangement of brownish patches on the dorsum of abdomen different in both species. (iii) Epigyne and internal genitalia also structurally different.

89. *Thomisus danieli* sp. nov.

(Figs. 141-143)

General : Cephalothorax, legs and abdomen light brown. Total length 6.2 mm. Carapace 2.6 mm. long, 3.0 mm. wide; abdomen 3.7 mm. long, 3.7 mm. wide.



Figs. 141-143. *Thomisus danieli* sp. nov. : 141. Dorsal view of female, legs omitted. 142. Epigyne. 143. Internal genitalia.

Cephalothorax : Slightly wider than long, narrowing anteriorly, clothed with fine pubescence and spine like hairs. Ocular area with reddish and whitish patches and spine like hairs, as in fig. 141. Eyes black, anterior medians slightly smaller than anterior laterals, both eye rows recurved (as seen from the front). Clypeus broad, sub-rectangular, dirty white with six spine like hairs on the anterior edge. Sternum heart-shaped, pointed behind, chalk white, clothed with fine pubescence. Legs I and II much longer than III and IV; femora I with three dorsal spines; tibiae and metatarsi I with three and five pairs of ventral spines, respectively.

Abdomen : Nearly as long as wide, pentagonal, broadest just behind the middle, clothed with spine like hairs; lateral margins and posterior region with longitudinal and transverse muscular corrugations, respectively. Dorsum provided with five inconspicuous sigilla and blackish lines, as in fig. 141. Ventral side lighter than dorsal. Epigyne, as in fig. 142. Internal genitalia, as in fig. 143.

Type specimen : Holotype ♀, in spirit; collected from *Lantana* bushes.

Type locality : Pachpedi, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 16-VIII-1998.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. J. C. Daniel.

Remarks : This species resembles *Thomisus andamanensis* Tikader but can be distinguished from it as follows : (i) Ocular area with reddish and whitish patches but in *T. andamanensis* ocular area with a transverse yellowish band. (ii) Abdomen not provided with tubercles but in *T. andamanensis* tubercles are present on dorsum. (iii) Epigyne and internal genitalia also structurally different.

90. *Thomisus pateli* sp. nov.

(Figs. 144-146)

General : Cephalothorax and legs reddish-orange, abdomen greenish-yellow. Total length 6.0 mm. Carapace 2.2 mm. long, 2.9 mm. wide; abdomen 3.8 mm. long, 3.1 mm. wide.

Cephalothorax : Slightly broader than long, produced forward into two lateral conical processes, pale white in colour. Eyes round and black, both eye rows recurved but posterior row very slightly recurved, anterior lateral eyes situated on the antero-lateral edges of the conical processes, ocular quad slightly wider than long and narrowing anteriorly. Clypeus high and a pair of white streaks extending up to the top of cephalic prominence. Sternum heart-shaped, pointed behind, clothed with hairs. Legs I and II sub-equal, III and IV shorter than I and II; femur I provided with a brownish spot and five spines; metatarsi I and II with five pairs of strong spines.

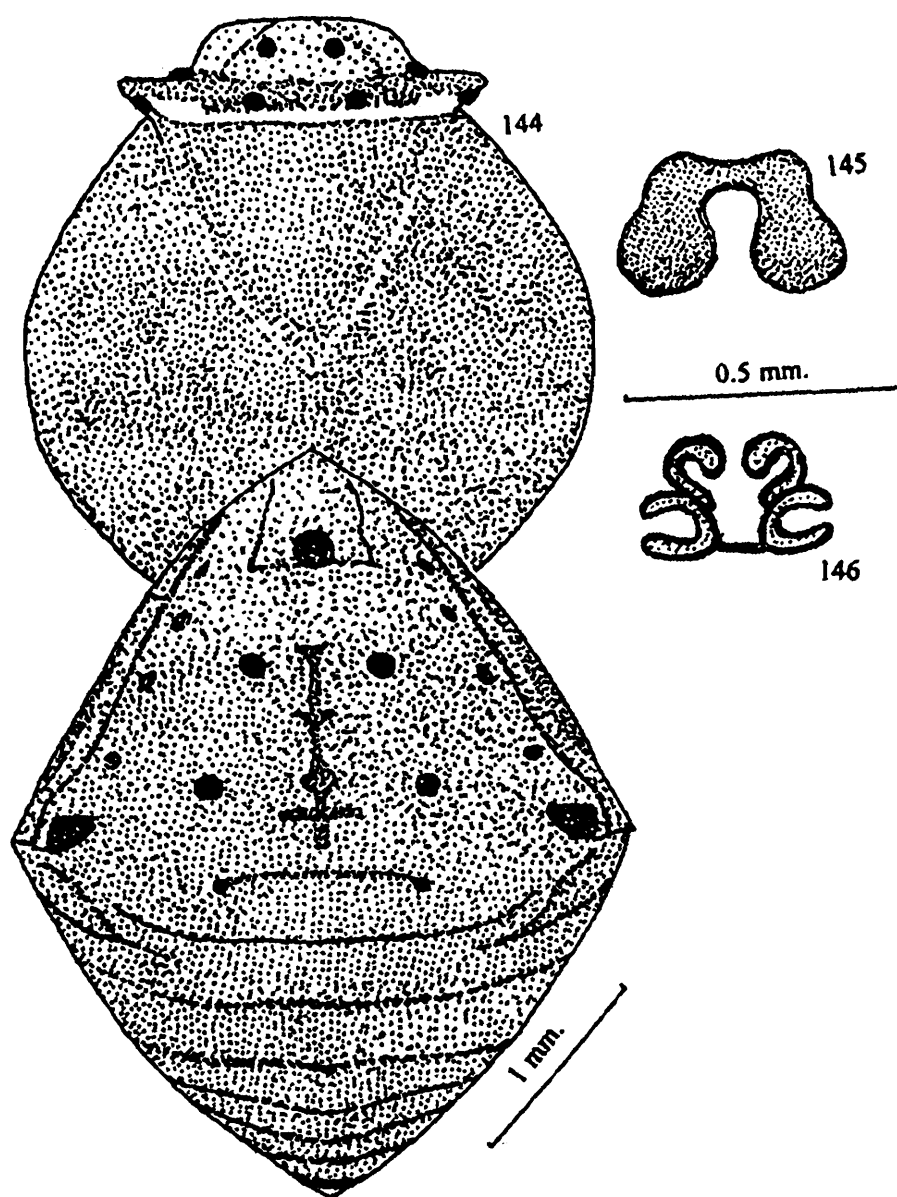
Abdomen : Subquadrate, longer than wide, covered with hairs and spines, each tubercle with a brownish spot; five prominent dark brown spots in the mid-dorsal region arranged in the manner of an inverted-V, four pairs of small brownish spots on the sides and a linear

brownish patch in the mid-dorsal region; provided with transverse grooves on lateral sides and posterior region, as in fig. 144. Epigyne, as in fig. 145. Internal genitalia, as in fig. 146.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Lamhetaghat, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 25-VII-1998.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. B. H. Patel.



Figs. 144-146. *Thomisus pateli* sp. nov. : 144. Dorsal view of female, legs omitted. 145. Epigyne. 146. Internal genitalia.

Remarks : This species resembles *Thomisus dhakuriensis* Tikader but can be distinguished from it as follows : (i) Femur I provided with a brownish spot and five spines but in *T. dhakuriensis* femur I with many blackish spots and three spines. (ii) Abdomen subquadrangle and greenish-yellow in colour but in *T. dhakuriensis* abdomen nearly pentagonal and chalk white in colour. (iii) Five prominent dark brown spots on the dorsum of abdomen but in *T. dhakuriensis* such spots are absent. (iv) Epigyne and internal genitalia also structurally different.

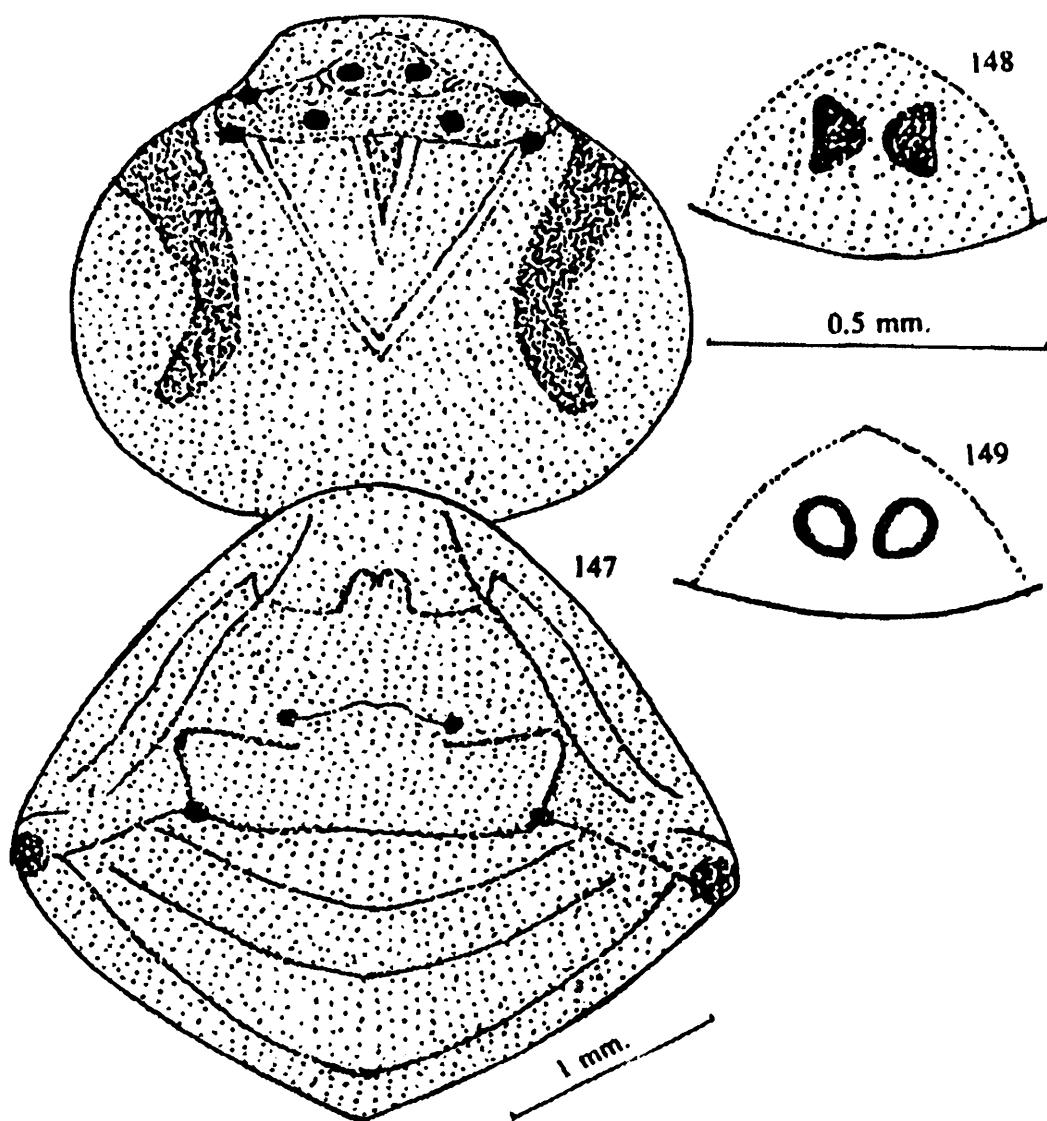
91. *Thomisus pathaki* sp. nov.

(Figs. 147-149)

General : Cephalothorax and legs light reddish-green, abdomen dirty chalk white. Total length 5.0 mm. Carapace 2.1 mm. long, 2.7 mm. wide; abdomen 2.9 mm. long, 3.2 mm. wide.

Cephalothorax : Wider than long, lateral sides provided with sickle-shaped deep brown patch, as in fig. 147. Eyes round and black. Anterior row of eyes recurved (as seen from in front), anterior medians larger and closer to each other than to anterior laterals. Clypeus long, sub-rectangular, clothed with spine like hairs. Legs I and II provided with brownish spots. Metatarsi I with six pairs of ventral spines. Legs III and IV without any coloured spots and spines.

Abdomen : Pentagonal, slightly overlapping the posterior region of cephalothorax, broadest in the middle, tuberculating laterally, each tubercle with a blackish spot, dorsum provided with blackish lines and spots, as in fig. 147. Ventral side slightly lighter than dorsal side, without any blackish lines or spots. Epigyne, as in fig. 148. Internal genitalia, as in fig. 149.



Figs. 147-149. *Thomisus pathaki* sp. nov. : 147. Dorsal view of female, legs omitted. 148. Epigyne. 149. Internal genitalia.

Type specimen : Holotype ♀, in spirit; collected from *Lantana camara* bushes.

Type locality : Sanjivani Nagar, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 8-X-1997.

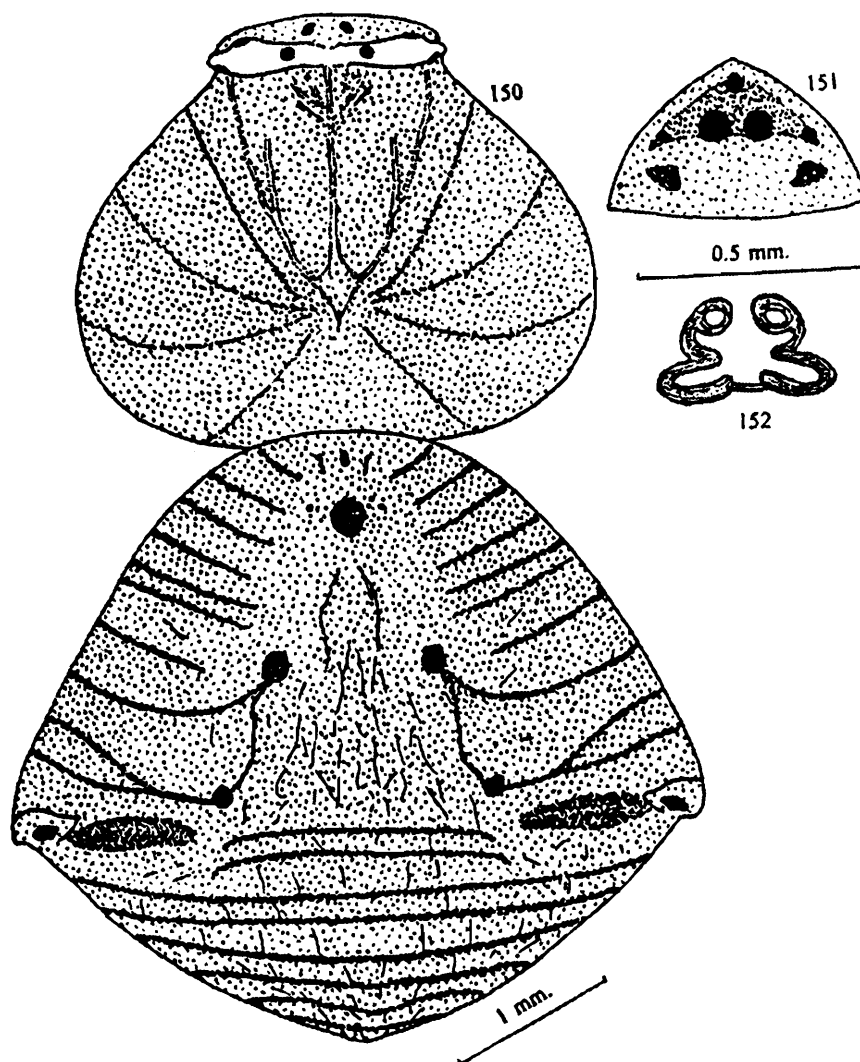
Etymology : The specific name is a patronym in honour of Prof. S. C. Pathak.

Remarks : This species resembles *Thomisus projectus* Tikader but can be distinguished from it as follows : (i) Cephalothorax antero-laterally provided with sickle-shaped deep brown patch but in *T. projectus* cephalothorax without such a patch. (ii) Dorsum of abdomen provided with blackish lines and spots but in *T. projectus* dorsum provided with transverse muscular corrugations. (iii) Epigyne and internal genitalia also structurally different.

92. *Thomisus rajani* Bhandari & Gajbe, 2001
(Figs. 150-152)

2001b. *Thomisus rajani* Bhandari & Gajbe, *Rec. zool. Surv. India*, 99(1-4) : 81.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5511/18).



Figs. 150-152. *Thomisus rajani* Bhandari & Gajbe : 150. Dorsal view of female, legs omitted. 151. Epigyne. 152. Internal genitalia.

General : Cephalothorax and legs yellowish-orange, abdomen greenish-yellow. Total length 6.6 mm. Carapace 2.9 mm. long, 3.2 mm. wide; abdomen 3.9 mm. long, 4.3 mm. wide.

Cephalothorax : Wider than long, broadest posteriorly, slightly narrowing in front. Eyes black, ocular area whitish, both rows recurved but posterior row only slightly recurved, three whitish lines below the conical processes converging together in the mid-thoracic region and from the same spot some dark lines running to the sides of the cephalothorax, as in fig. 150. Sternum heart-shaped, pointed behind, clothed with hairs. Legs long and stout, I and II longer than III and IV, femora I and II with orange spots, femur I with five dorsal spines, tarsi I and II with five pairs of ventral spines.

Abdomen : Longer than wide, roughly pentagonal, with a blackish spot on each tubercle, five greyish spots on the dorsum, a greyish patch below each tubercle, brownish stripes on the antero-lateral side; posterior region with black markings and conspicuous transverse muscular corrugations, as in fig. 150. Epigyne, as in fig. 151. Internal genitalia, as in fig. 152.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

93. *Thomisus simoni* sp. nov.
(Figs. 153-155)

General : Cephalothorax and legs reddish-brown, abdomen dirty greenish-white. Total length 5.6 mm. Carapace 2.3 mm. long, 2.5 mm. wide; abdomen 3.3 mm. long, 3.3 mm. wide.

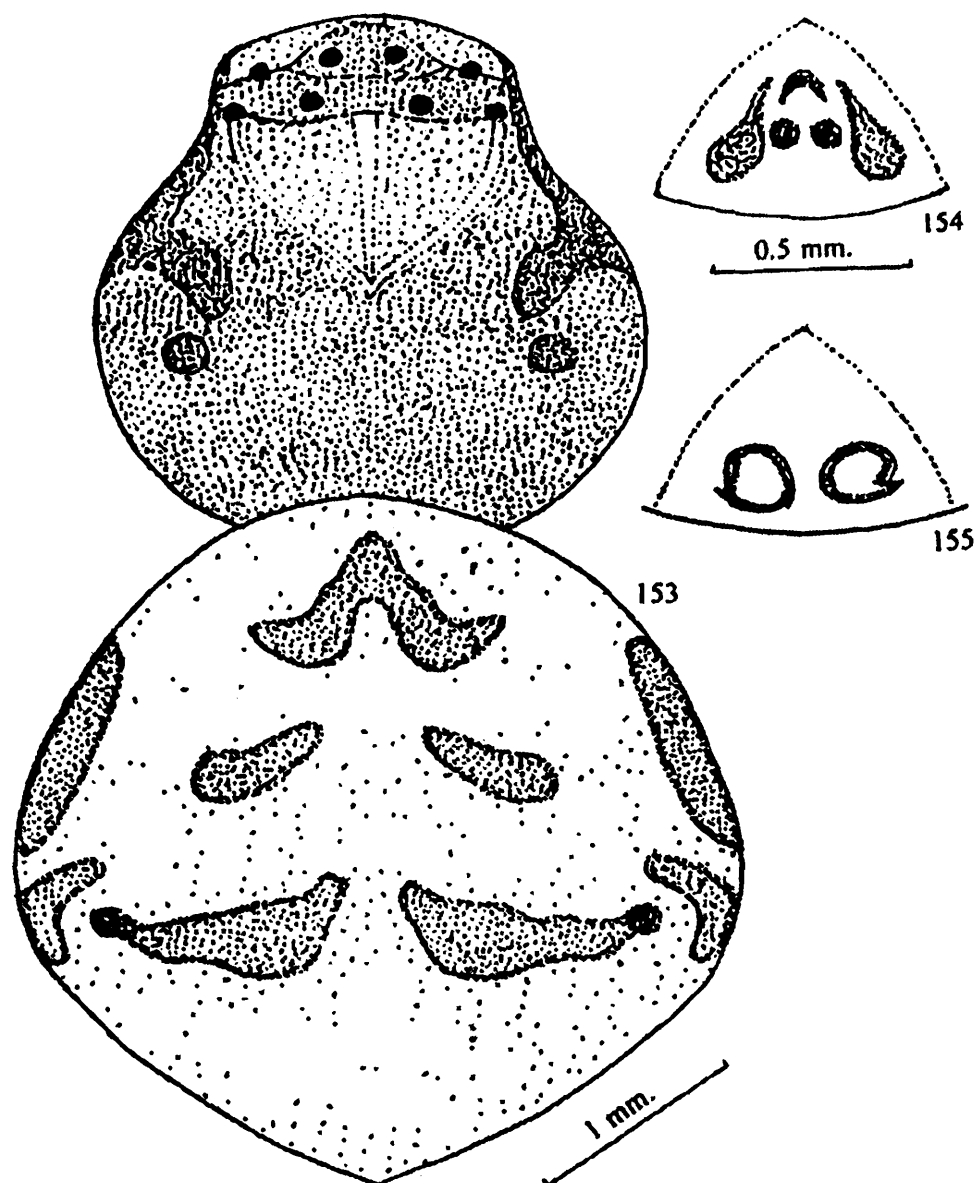
Cephalothorax : High, antero-lateral sides with conspicuous blackish patches, as in fig. 153. Eyes round, black, anterior row strongly recurved (as seen from in front), anterior median eyes slightly larger than anterior laterals; posterior row of eyes slightly recurved, posterior medians slightly larger than posterior laterals and equidistant to each other. Ocular area chalk-white. Clypeus long and high, sub-rectangular, margin provided with spine like hairs. Legs long and stout, I and II longer than III and IV, provided with blackish bands on patella and metatarsus. Tibiae and metatarsi of legs I provided with three and six pairs of ventral spines, respectively.

Abdomen : Pentagonal, slightly overlapping the posterior region of cephalothorax in front, broadest just behind the middle. Dorsum provided with deep brown patches, as in fig. 153. Ventral side lighter than dorsal, without any coloured patches. Epigyne, as in fig. 154. Internal genitalia, as in fig. 155.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Sanjivani Nagar, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 8-X-1997.

Etymology : The specific name is a patronym in honour of the naturalist, E. Simon.



Figs. 153-155. *Thomisus simoni* sp. nov. : 153. Dorsal view of female, legs omitted. 154. Epigyne. 155. Internal genitalia.

Remarks : This species resembles *Thomisus pooneus* Tikader but differs from it as follows : (i) Dorsum of abdomen provided with deep brown patches but in *T. pooneus* dorsum provided with a different pattern of patches. (ii) Epigyne and internal genitalia also structurally different.

94. *Thomisus sundari* Gajbe & Gajbe, 2000

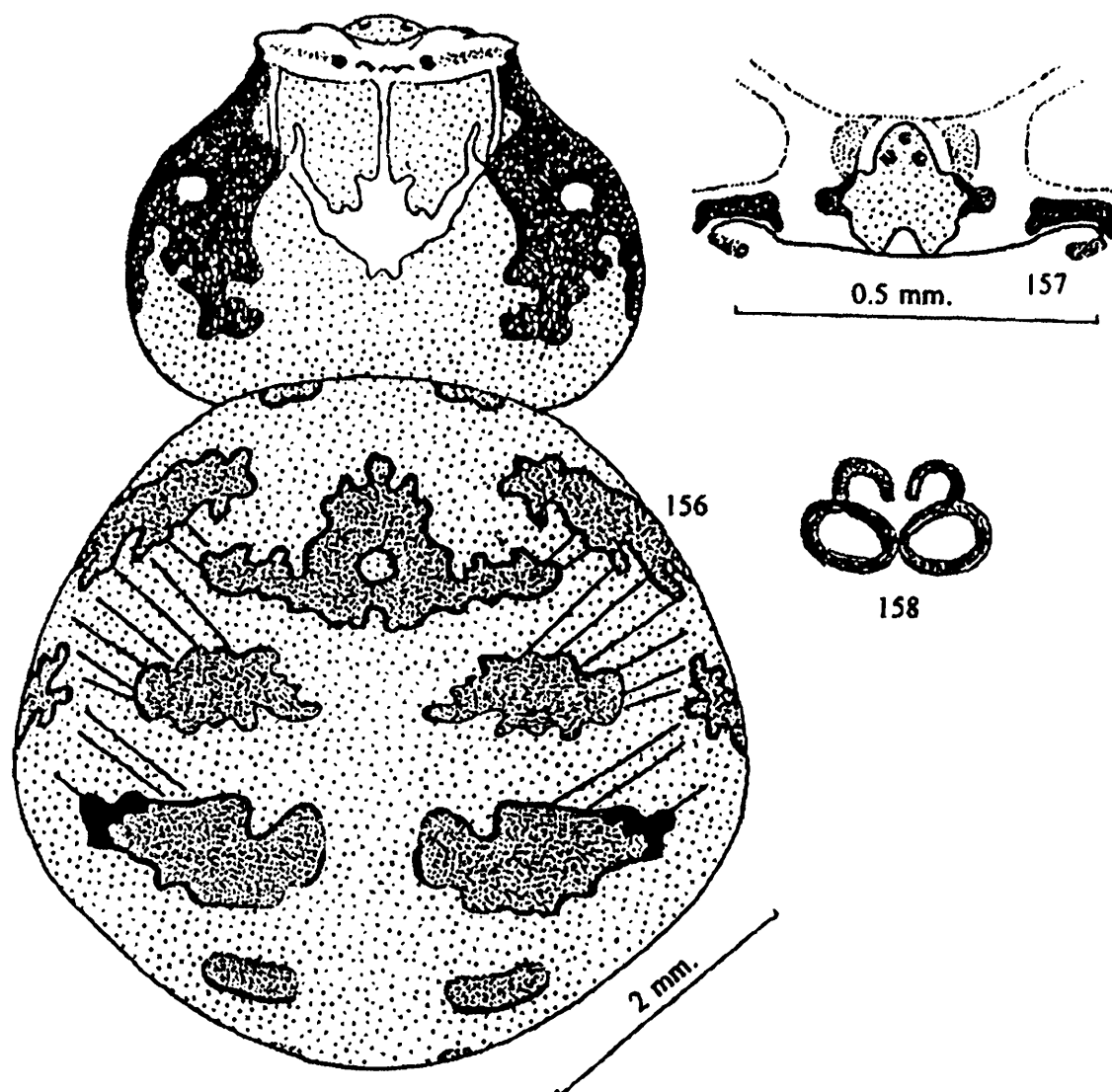
(Figs. 156-158)

2000b. *Thomisus sundari* Gajbe & Gajbe, *Rec. zool. Surv. India*, 98(2) : 55.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No..5525/18).

General : Cephalothorax, legs and abdomen yellowish with brownish patches. Total length 7.3 mm. Carapace 2.7 mm. long, 3.5 mm. wide; abdomen 4.8 mm. long, 5.0 mm. wide.

Cephalothorax : Wider than long, narrowing anteriorly, lateral region with conspicuous dark brown patches, three double lines starting just below the ocular tubercle and uniting in the mid-thoracic region making a whitish patch, as in fig. 156. Eyes round, black, anterior row strongly recurved, antero-medians slightly larger than postero-medians. Clypeus high, subrectangular. Sternum yellowish with brownish patches at the margins. Legs I and II much longer than III and IV and having transverse dark brown patches on coxae, trochanter, femora and tibiae, femora I and II with four and one dorsal spines, respectively.



Figs. 156-158. *Thomisus sundari* Gajbe & Gajbe : 156. Dorsal view of female, legs omitted. 157. Epigyne. 158. Internal genitalia.

Abdomen : Highly elevated, broadest in the middle, with two blackish spots on tubercles, dorsum bearing one light brown patch with a sigilla and six pairs of light brown patches (when seen from above), as in fig. 156. Ventral side same in colour and with light brown patches, one big dark brown patch between the epigastric furrow and spinnerets. Epigyne, as in fig. 157. Internal genitalia, as in fig. 158.

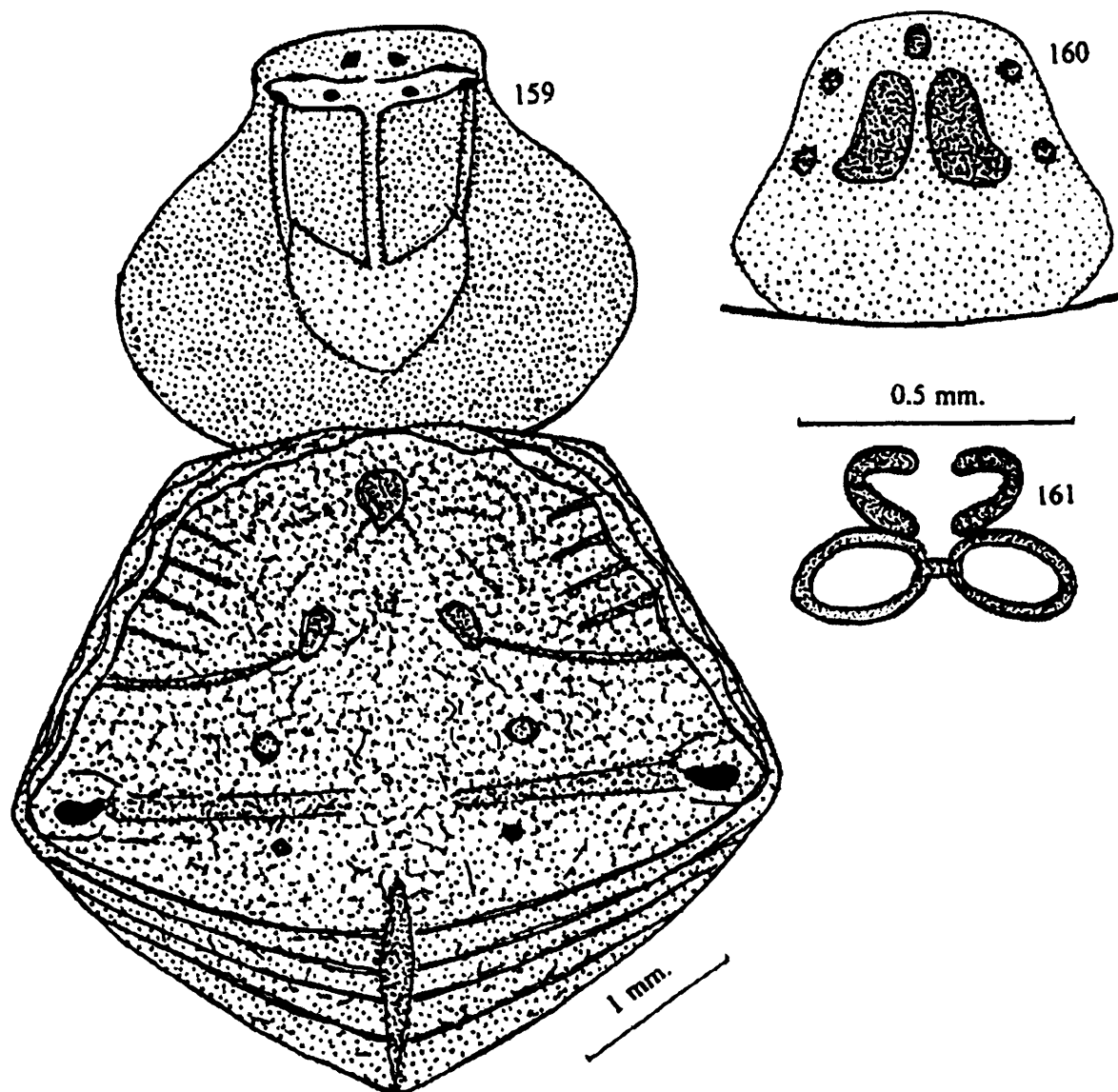
Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

95. *Thomisus viveki* sp. nov.
(Figs. 159-161)

General : Cephalothorax and legs whitish, abdomen dirty white. Total length 6.6 mm. Carapace 2.6 mm. long, 3.1 mm. wide; abdomen 4.2 mm. long, 4.7 mm. wide.

Cephalothorax : Slightly wider than long, provided mid-dorsally with a chalk white heart-shaped patch, as in fig. 159. Ocular area chalk white, eyes round and black. Anterior eye row strongly recurved, anterior medians slightly larger than anterior laterals. Clypeus long, subrectangular, margin provided with few spine like hairs. Legs long, without any coloured spots; I and II longer than III and IV; metatarsi I and II with five pairs of ventral spines.

Abdomen : Pentagonal, broader than long, broadest in the middle; lateral margins and posterior region with muscular grooves, as in fig. 159. Anteriorly provided with a few greyish spots and markings. Epigyne, as in fig. 160. Internal genitalia, as in fig. 161.



Figs. 159-161. *Thomisus viveki* sp. nov. : 159. Dorsal view of female, legs omitted. 160. Epigyne. 161. Internal genitalia.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Sehora, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 10-VIII-1998.

Etymology : The specific name is a patronym.

Remarks : This species resembles *Thomisus projectus* Tikader but can be distinguished from it as follows : (i) Cephalothorax mid-dorsally provided with a chalk white heart-shaped patch but in *T. projectus* such a patch is absent. (ii) Legs without any coloured spots but in *T. projectus* legs I and II provided with blackish spots. (iii) Epigyne and internal genitalia also structurally different.

96. *Thomisus whitakeri* sp. nov.

(Figs. 162-164; pl. 6b)

General : Cephalothorax light reddish-green, legs and abdomen yellowish-green. Total length 6.3 mm. Carapace 2.2 mm. long, 2.3 mm. wide; abdomen 4.1 mm. long, 4.2 mm. wide.

Cephalothorax : High, anterior lateral eyes provided with deep brown patches. Eyes round, black, in two rows; ocular area yellowish-green. Anterior row of eyes strongly recurved (as seen from in front), anterior medians larger and closer to each other than the adjacent laterals. Posterior row of eyes slightly recurved, posterior medians larger than posterior laterals and nearly equidistant to each other. Clypeus very high, rectangular, provided with hairs and spines, laterally with light reddish-green patch. Sternum heart-shaped, clothed with hairs, pointed behind, anteriorly and laterally provided with two light brownish patches. Legs long and stout, legs I and II provided with deep brownish patches. Metatarsi of legs I and II provided with six pairs of ventral spines. Legs III and IV without any patches and ventral spines.

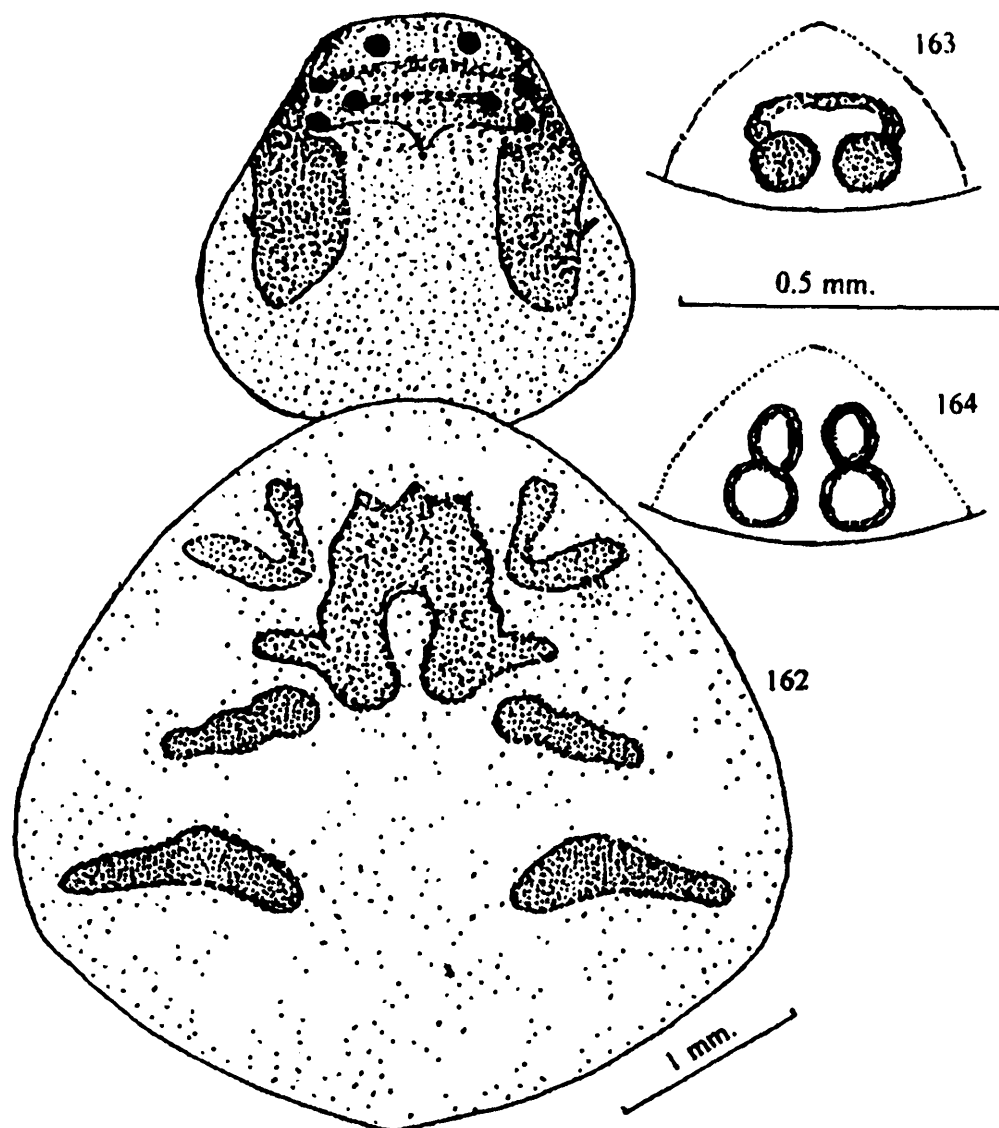
Abdomen : Triangular, broadest behind the middle, anteriorly pointed and slightly overlapping the posterior region of cephalothorax. Dorsum provided with conspicuous reddish-brown patches, as in fig. 162. Ventral side slightly lighter than dorsal, mid-ventrally provided with five pairs of light reddish-green spots starting from epigastric furrow to the base of spinnerets. Epigyne, as in fig. 163. Internal genitalia, as in fig. 164.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Sanjivani Nagar, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 6-X-1997.

Etymology : The specific name is a patronym in honour of Herpetologist, R. Whitaker.

This species resembles *Thomisus rishus* Tikader but differs from it as follows : (i) Cephalothorax, legs and abdomen yellowish-green but in *T. rishus* cephalothorax and



Figs. 162-164. *Thomisus whitakeri* sp. nov. : 162. Dorsal view of female, legs omitted. 163. Epigyne. 164. Internal genitalia.

legs deep brown. (ii) Dorsum of abdomen provided with conspicuous reddish-brown patches but in *T. rishus* abdomen provided with muscular corrugations. (iii) Metatarsi I and II provided with six pairs of ventral spines but in *T. rishus* metatarsi I and II provided with seven pairs of ventral spines. (iv) Epigyne and internal genitalia also structurally different.

Genus 53. *Tmarus* Simon, 1875

1875. *Tmarus* Simon, *Ar. Fr.*, 2 : 259.

1980. *Tmarus* : Tikader, *Fauna of India, Spiders*, 1(1) : 147.

Diagnostic characters : The members of this genus are easily distinguished from other crab spiders occurring in Indian fauna by the fact that the abdomen is elevated and pointed behind. The lateral eyes of each side are on two distinct tubercles, of which the posterior is the larger.

These spiders live on plants and can run with greater rapidity. Their colour is more or less protective. When one of these spiders is at rest upon a twig, it holds the twig closely with its legs, and the form of the body is such that the spider appears like a bud or a stump of a petiole.

Type species : *Tmarus piger* (Walckenaer)

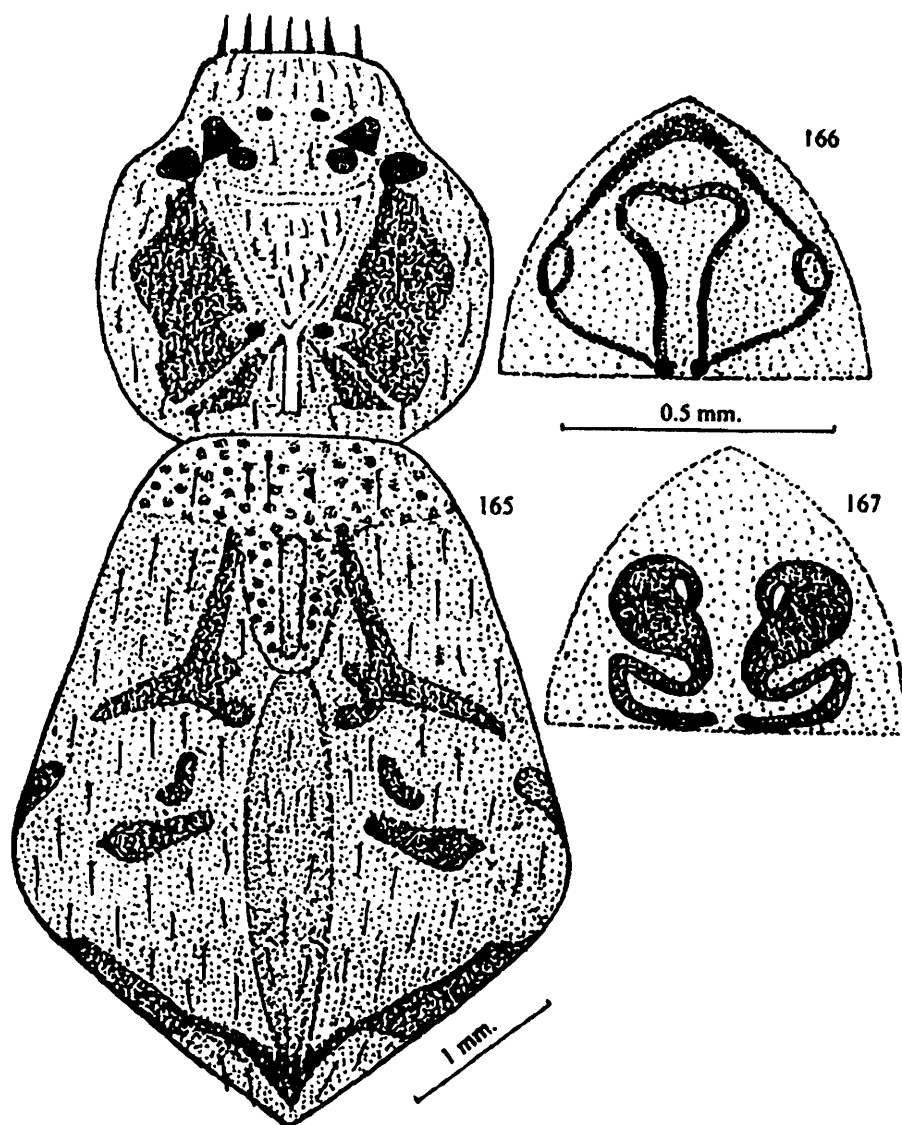
Distribution : Asia, America, Africa and Japan.

97. *Tmarus jabalpurensis* Gajbe & Gajbe, 1999
(Figs. 165-167)

1999c. *Tmarus jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(3) : 141.

Specimens examined : Description based on ♀ Holotype, deposited to Z.S.I., Kolkata (Reg. No. 5523/18).

General : Cephalothorax and legs reddish-green, abdomen brownish-green. Total length 7.4 mm. Cephalothorax 2.8 mm. long, 2.6 mm. wide; abdomen 4.8 mm. long, 3.7 mm. wide.



Figs. 165-167. *Tmarus jabalpurensis* Gajbe & Gajbe : 165. Dorsal view of female, legs omitted. 166. Epigyne. 167. Internal genitalia.

Cephalothorax : Longer than wide, cephalic region high, with spines. Clypeus moderately high, its margin with seven spines directed forward, sides with broad longitudinal dark brown patches. Eyes round, blackish, both rows recurved but the anterior row more recurved and the posterior row longer than the anterior row, lateral eyes larger than others and ringed with dark green tubercles, anterior median eyes smaller than posterior medians, median ocular area narrower in front than behind. Legs I and II longer than III and IV, clothed with hairs and spines, tibiae I and II with three pairs of ventral spines.

Abdomen : Longer than wide, high and pointed behind, broadest behind the middle, clothed with spines, provided with five pairs of dark brown patches, the fifth pair uniting at the high posterior end, as in fig. 165. Mid-ventral region provided with a broad U-shaped light brown band extending from the base of epigastric furrow to spinnerets, laterally provided with dark brown spots. Epigyne, as in fig. 166. Internal genitalia, as in fig. 167.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

Genus 54. *Xysticus* Koch, 1835

1835. *Xysticus* Koch, H. Schaeff. *Deutschl. Ins.* : 35.

1962. *Xysticus* : Tikader, J. Linn. Soc. Lon., 44(300) : 576.

Diagnostic characters : Cephalothorax rather square-fronted, clothed with simple isolated hairs and spines, which are usually pointed, rarely blunt, but never clavate. Posterior eyes nearly equidistant, medians smaller than laterals; the anterior medians usually a little further from each other than from the anterior laterals. The lateral eyes situated in low subconfluent tubercles. The tibiae and metatarsi of the anterior legs usually furnished with more than three pairs of inferior spines. Tarsal claws furnished with five or six isolated teeth. Abdomen much wider behind than in front, usually bearing a dentate band on its dorsal surface.

These spiders live under stones and leaves or under loose bark, a few live on small plants and bushes.

Type species : *Xysticus cristatus* Clerck

Distribution : Europe, Africa, Asia and America.

Key to species of Genus *Xysticus* Koch

1. Dorsum of abdomen with dentate bands, beautifully coloured with a mixture of white, dark brown and red *minutus* Tikader
- Dorsum of abdomen with no dentate bands and not coloured with a mixture of white, dark brown and red 2
2. Cephalothorax clothed with spine-like hairs *bengalensis* Tikader & Biswas
- Cephalothorax not clothed with spine-like hairs 3

3. Abdomen provided mid-dorsally with two pairs of blackish spots and two light brown patches *jabalpurensis* Gajbe & Gajbe
 — Abdomen provided mid-dorsally with different coloured patterns 4
 4. Eyes ringed with dark green tubercles *bharatae* Gajbe & Gajbe
 — Eyes ringed with bluish tubercles *tikaderi* Bhandari & Gajbe

98. *Xysticus bengalensis* Tikader & Biswas, 1974

1974. *Xysticus bengalensis* Tikader & Biswas, *Proc. Ind. Acad. Sci.*, **80**(6) : 262-263.

1980. *Xysticus bengalensis* : Tikader, *Fauna of India, Spiders*, **1**(1) : 127.

Specimen examined : 1 ♀, Pipariya Village, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 12-VIII-1997 (Z.S.I., Jabalpur, Reg. No. A/5246).

Distribution : India : West Bengal (Darjeeling), Madhya Pradesh (Betul, Jabalpur, Ujjain).

Remarks : This species is being reported here for the first time from Jabalpur district, Madhya Pradesh.

99. *Xysticus bharatae* Gajbe & Gajbe, 1999

(Figs. 168-171)

1999d. *Xysticus bharatae* Gajbe & Gajbe, *Rec. zool. Surv. India*, **97**(3) : 148.

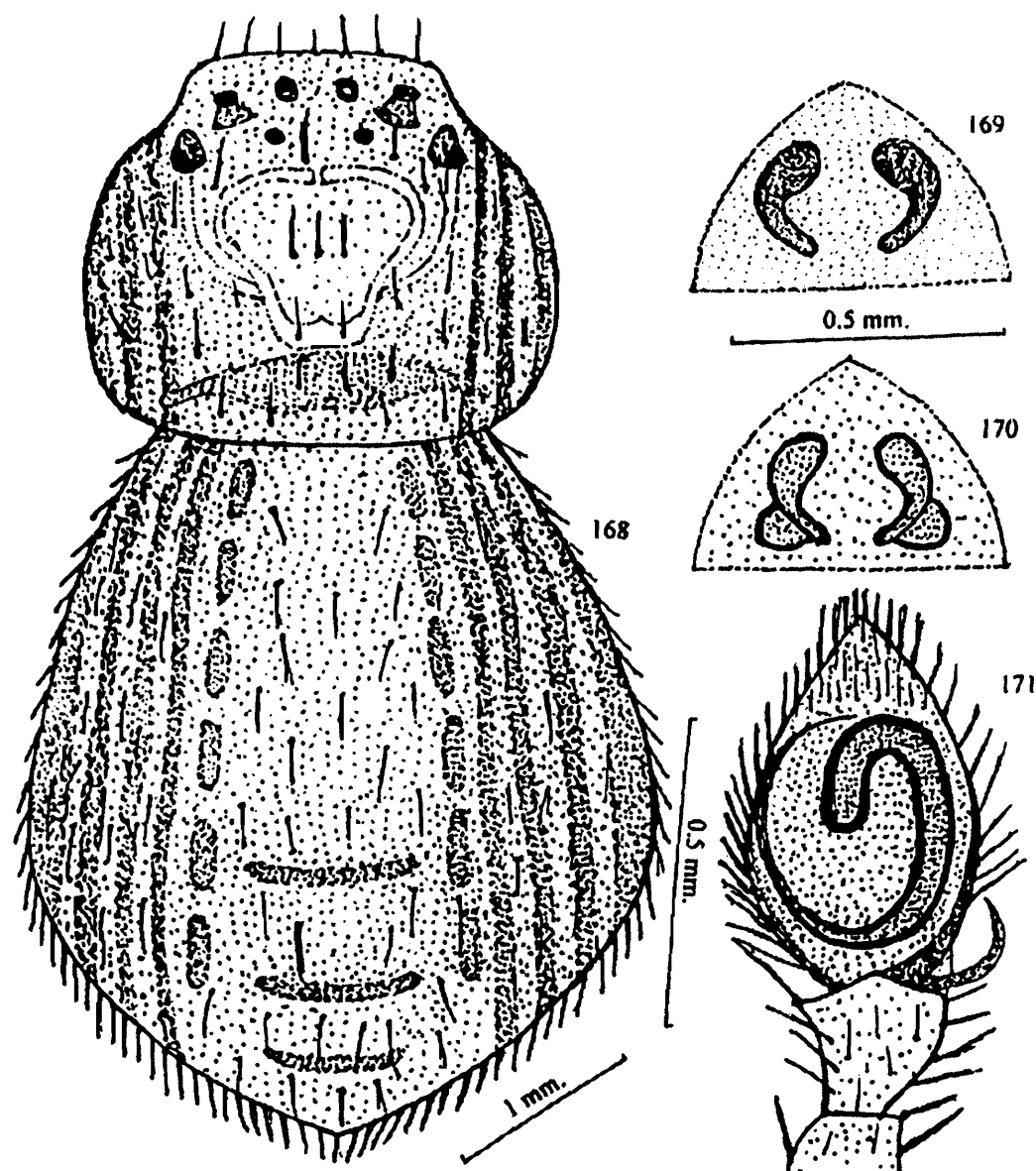
Specimens examined : Description based on ♀ Holotype, ♂ Allotype, deposited with Z.S.I., Kolkata (Reg. No. 5527/18 and 5528/18, respectively).

General : Cephalothorax and legs reddish-green, abdomen chalk white. Total length 6.0 mm. Cephalothorax 2.1 mm. long, 2.5 mm. wide; abdomen 3.8 mm. long, 3.5 mm. wide.

Cephalothorax : Wider than long, provided with spines, laterally with three pairs of longitudinal deep brown patches, middle region with pear-shaped marking and posterior region with transverse deep brown patch, as in fig. 168. Margin of clypeus with seven strong spines directed forward. Eyes black, round, ringed with dark green tubercles. Ocular quad slightly wider than long, lateral eyes larger than medians. Legs long and strong, clothed with spines and hairs. Male same in colour as female but smaller in size. Male palp, as in fig. 171.

Abdomen : Longer than wide, nearly pentagonal, overlapping the posterior region of cephalothorax, dorsum provided with four pairs of longitudinal brown bands extending from the anterior end to the posterior end, and three transverse bands, as in fig. 168. Ventral side slightly lighter than dorsal, clothed with hairs and spines. Epigyne, as in fig. 169. Internal genitalia, as in fig. 170.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).



Figs. 168-171. *Xysticus bharatae* Gajbe & Gajbe : 168. Dorsal view of female, legs omitted. 169. Epigyne. 170. Internal genitalia. 171. Left male palp, ventral view.

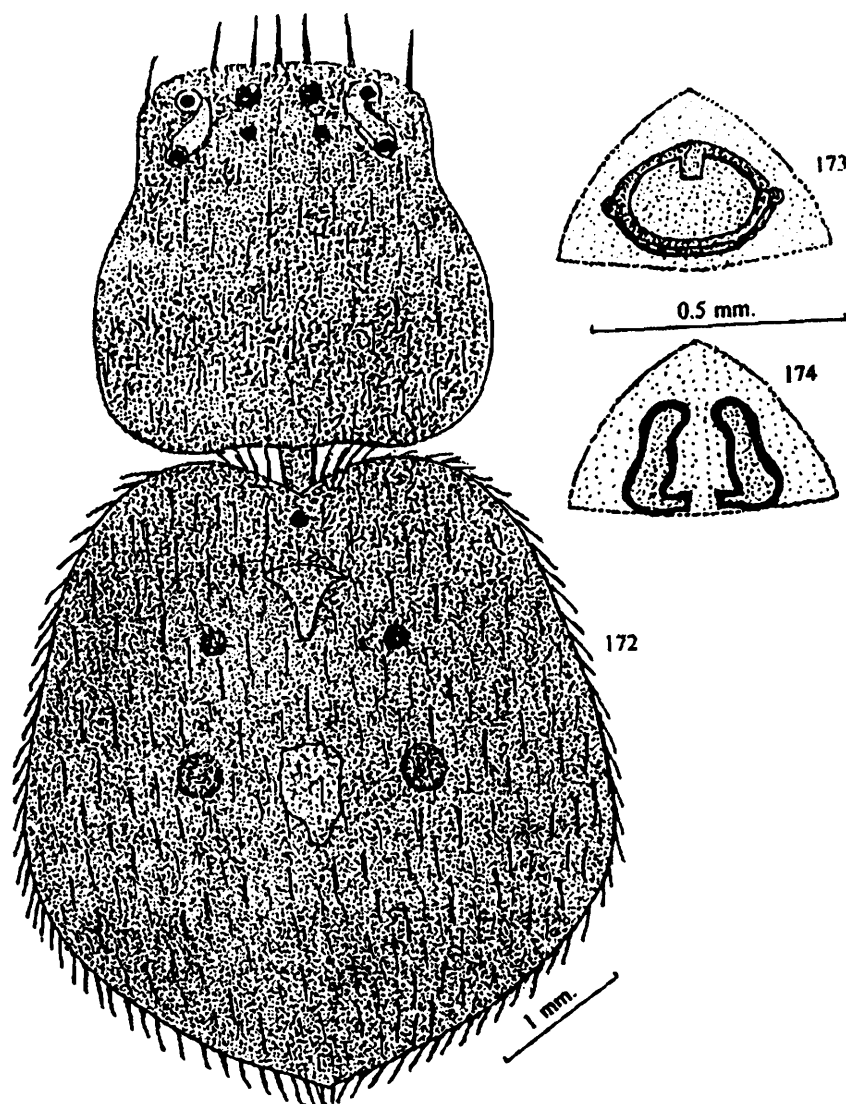
100. *Xysticus jabalpurensis* Gajbe & Gajbe, 1999
(Figs. 172-174)

1999d. *Xysticus jabalpurensis* Gajbe & Gajbe, *Rec. zool. Surv. India*, 97(3) : 145-148.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5526/18).

General : Cephalothorax, legs and abdomen deep brown. Total length 7.8 mm. Cephalothorax 2.8 mm. long, 2.9 mm. wide; abdomen 4.8 mm. long, 4.5 mm. wide.

Cephalothorax : Wider than long, clothed with fine hairs. Eyes black, both rows recurved, ocular quad nearly as long as wide, all eyes tuberculated. Sternum heart-shaped, pointed behind, dark brown, provided with fine hairs. Legs long and stout, clothed with spines and hairs. Tibiae and metatarsi I and II with spines.



Figs. 172-174. *Xysticus jabalpurensis* Gajbe & Gajbe : 172. Dorsal view of female, legs omitted. 173. Epigyne. 174. Internal genitalia.

Abdomen : Longer than wide, clothed with fine hairs, broadest in the posterior region, dorsum provided with two pairs of blackish spots and two light brown patches between them, as in fig. 172. Ventral side same in colour as dorsal, not provided with any bands. Epigyne, as in fig. 173. Internal genitalia, as in fig. 174.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

101. *Xysticus minutus* Tikader, 1960

1960. *Xysticus minutus* Tikader, *J. Bombay. nat. Hist. Soc.*, **57**(1) : 173.

1980. *Xysticus minutus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 120.

Specimens examined : 1 ♀ Panagar, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 12-VIII-1998 (Z.S.I., Jabalpur, Reg. No. A/5245).

Distribution : India : West Bengal, Maharashtra (Pune), Meghalaya (Shillong), Gujarat, Madhya Pradesh (Betul, Chhindwara, Jabalpur, Mandla, Mandsaur, Panna, Ujjain).

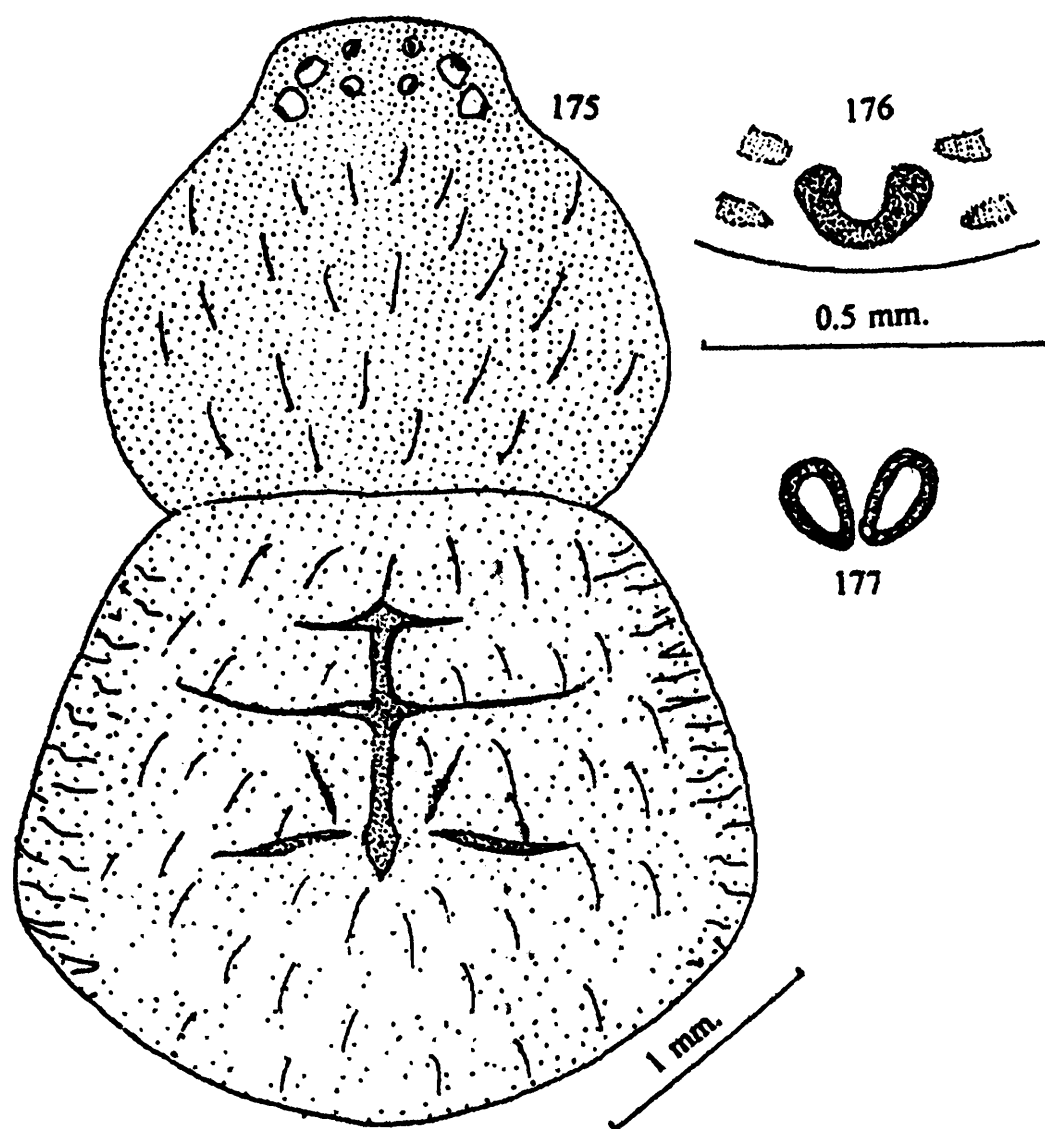
102. *Xysticus tikaderi* Bhandari & Gajbe, 2001
(Figs. 175-177)

2001b. *Xysticus tikaderi* Bhandari & Gajbe, *Rec. zool. Surv. India*, 99(1-4) : 84.

Specimens examined : Description based on ♀ Holotype, deposited with Z.S.I., Kolkata (Reg. No. 5514/18).

General : Cephalothorax and legs brownish, abdomen whitish-brown. Total length 4.6 mm. long. Carapace 2.0 mm. long, 2.3 mm. wide; abdomen 2.6 mm. long, 3.0 mm. wide.

Cephalothorax : Slightly wider than long, narrowing anteriorly, clothed with fine pubescence and spines. Eyes round, ringed with bluish tubercles, lateral eyes close to each other and situated on larger tubercles, posterior median eyes larger than anterior median eyes, both rows of eyes recurved. Clypeus broad, sub rectangular, with six spines directed forward. Legs I and II longer than III and IV, clothed with hairs and spines.



Figs. 175-177. *Xysticus tikaderi* Bhandari & Gajbe : 175. Dorsal view of female, legs omitted. 176. Epigyne. 177. Internal genitalia.

Abdomen : Slightly wider than long, pentagonal, broadest behind the middle, clothed with stout spines and provided with a conspicuous blackish patch on the dorsum, as in fig. 175. Ventral side chalk white. Epigyne, as in fig. 176. Internal genitalia, as in fig. 177.

Distribution : India : Madhya Pradesh, Jabalpur (Type locality).

XIX. Family SALTICIDAE (Jumping Spiders)

Characters : These spiders are characterized by their massive square-fronted carapace, bearing on its front the four large forward directed eyes; behind these, set well back, are two small eyes, and behind these again there are the last two posterior eyes of medium size, the whole forming a large quadrangle. Legs normally rather short, with two tarsal claws, and usually a claw tuft; tarsal scopulae sometimes present.

Key to the genera of Family SALTICIDAE

- 1 Posterior eyes situated near the posterior end of carapace *Rhene* Thorell
- Posterior eyes situated about the middle of carapace 2
- 2. Legs I conspicuously heavy *Phidippus* Koch
- Legs I of the usual type *Marpissa* Koch

Genus 55. *Marpissa* Koch, 1846

1846. *Marpissa* Koch, *Die. Arachn.*, **13** : 96.

1981. *Marpissa* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 93.

Diagnostic characters : Cephalothorax longer than wide, cephalic region flat and low, widest behind the dorsal eyes. Eye region occupying more than one third of the cephalothorax, ocular trapezium about 1.5 times broader than long. Chelicerae with one tooth on inner margin and two on outer margin. Sternum narrowing in front. Legs usually 1423 in the male and 4132 in the female. In both sexes, tibiae and metatarsi II and I provided with three and two pairs of ventral spines, respectively.

Type species : *Marpissa muscosa* Clerck

Distribution : Europe, Central Asia, America, Japan and oriental region.

Key to species of Genus *Marpissa* Koch

- 1. Ocular region darker in colour, abdomen with whitish bands *dhakuriensis* Tikader
- Cephalothorax with whitish patch, abdomen with longitudinal white patch and small whitish spots *mandali* Tikader

103. *Marpissa dhakuriensis* Tikader, 1974

1974. *Marpissa dhakuriensis* Tikader, *Proc. Indian Acad. Sci.*, **79**(5) : 207.

1981. *Marpissa dhakuriensis* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 94.

Specimens examined : 1 ♀, Lamhetaghat, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 27-IX-1997 (Z.S.I., Jabalpur, A/5226).

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal (Kolkata).

Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

104. *Marpissa mandali* Tikader, 1974

1974. *Marpissa mandali* Tikader, *Proc. Indian Acad. Sci.*, **79**(5) : 213.

Specimens examined : 1 ♀, Barela, Jabalpur, Madhya Pradesh. Coll. P. Gajbe, 20-IX-1997 (Z.S.I., Jabalpur, A/5227).

Distribution : India : Maharashtra (Pune), Madhya Pradesh (Jabalpur).

Remarks : This species is being reported here for the first time from Jabalpur district, M.P.

Genus 56. *Phidippus* Koch, 1846

1846. *Phidippus* Koch, *Die. Arachn.*, **13** : 125.

1974. *Phidippus* : Tikader, *Proc. Ind. Acad. Sci.*, **79**(3) : 120.

Diagnostic characters : Spiders above medium size, sometimes very large and hairy. The first eye row recurved, the second row about twice as far from the third as from the first row. Chelicerae with one moderate tooth on inner margin and two on outer margin. Legs I heavy, strong with hairs and few spines and often fringed, mainly in the male.

Type species : *Phidippus variegatus* Lucas

Distribution : All tropical and sub-tropical countries of the world.

105. *Phidippus bhimrakshiti* sp. nov.

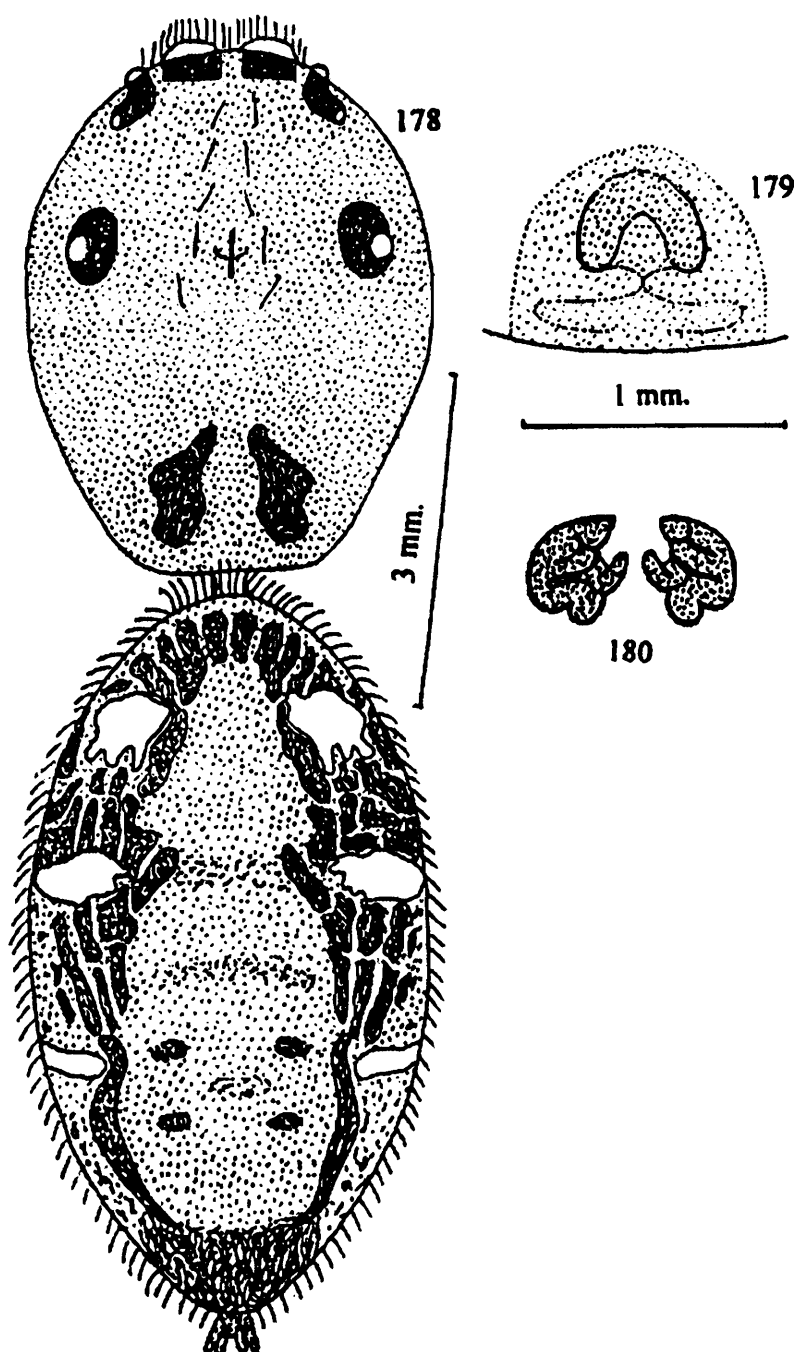
(Figs. 178-180)

General : Cephalothorax and legs brownish, abdomen light brown with dark brown patches. Total length 11.8 mm. Carapace 4.8 mm. long, 3.6 mm. wide; abdomen 6.7 mm. long, 3.6 mm. wide.

Cephalothorax : Longer than wide, oval, cephalic region with few hairs, posterior region with two conspicuous dark brown patches, as in fig. 178. Anterior median and lateral eyes milky white and other eyes pearly white; base of each eye provided with conspicuous black patch; second pair of eyes very small and nearer to anterior laterals than to posterior eyes.

Mid-dorsal region provided with a small and deep fovea. Sternum nearly oval, narrow in front, pale and clothed with fine hairs. Legs clothed with hairs and spines; I and II more robust than III and IV; tibiae and metatarsi I, and II provided with three and two pairs of ventral spines, respectively.

Abdomen : Longer than wide, oval, clothed with thick pubescence; mid-dorsal region light brown with four dark brown spots; lateral region decorated with three whitish and numerous dark brown patches, as in fig. 178. Ventral side greyish with a broad brownish band between epigastric furrow and spinnerets. Epigyne, as in fig. 179. Internal genitalia, as in fig. 180.



Figs. 178-180. *Phidippus bhimrakshiti* sp. nov. : 178. Dorsal view of female, legs omitted. 179. Epigyne. 180. Internal genitalia.

Type species : Holotype ♀, in spirit, collected from vegetation.

Type locality : Sanjivani Nagar, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 5-X-1997.

Etymology : The specific name is a patronym.

Remarks : This species resembles *Phidippus bengalensis* Tikader but can be distinguished from it as follows : (i) Posteriorly, cephalothorax with two dark brown patches but in *P. bengalensis* the patches are much broader. (ii) Epigyne and internal genitalia also structurally different.

Genus 57. *Rhene* Thorell, 1869

1869. *Rhene* Thorell, *Nat. Act. Reg. Soc. Sci.*, 7(3) : 37.

1981. *Rhene* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, 30 : 102.

Diagnostic characters : Small beetle like spiders. Cephalothorax wider than long, clothed with thick hairs; posterior eyes situated far behind the anterior row of eyes.

Type species : *Rhene flavigera* Koch

Distribution : Africa, Asia, Europe, South America.

Key to species of Genus *Rhene* Thorell

1. Abdomen with inverted V-shaped patch and irregular dark brown patches on entire dorsum *haldanei* sp. nov.
- Abdomen with four brownish sigilla, two U-shaped faint patches, posterior end with broad blackish patch *sanghrakshiti* sp. nov.

106. *Rhene haldanei* sp. nov.

(Figs. 181-183)

General : Cephalothorax blackish, legs and abdomen dark brown. Total length 9.2 mm. Carapace 2.8 mm. long, 3.0 mm. wide; abdomen 6.4 mm. long, 4.0 mm. wide.

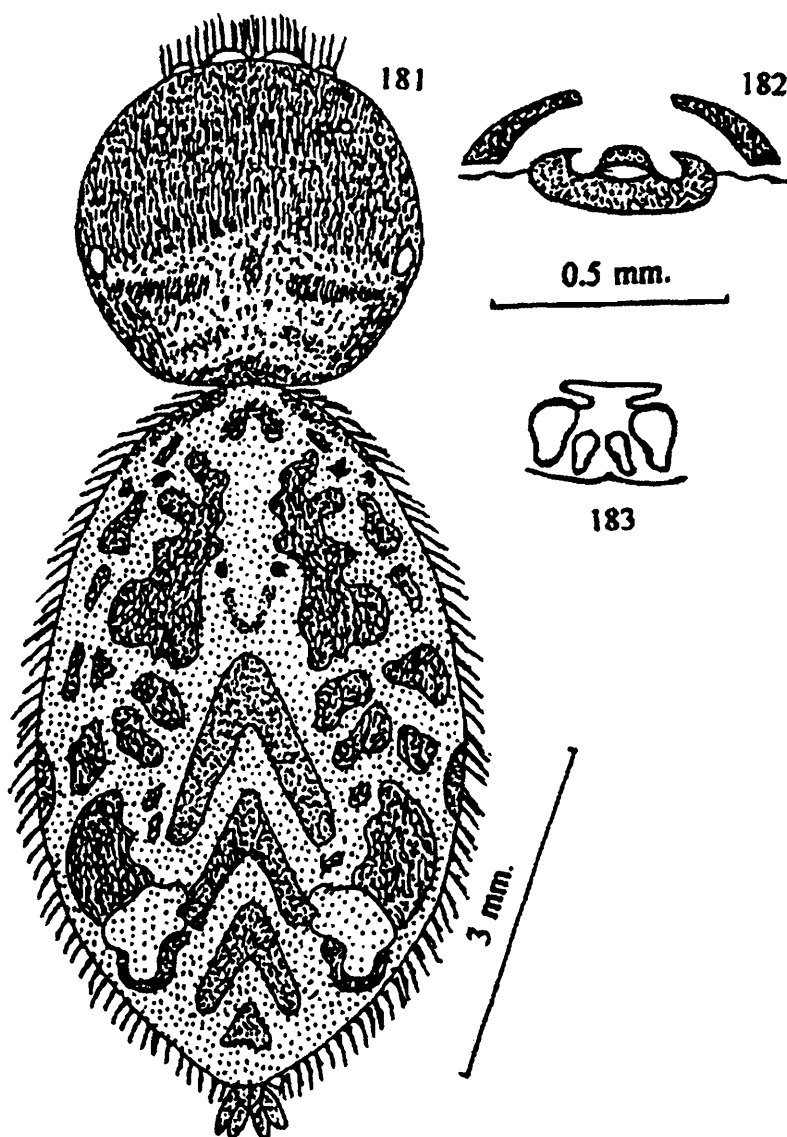
Cephalothorax : Slightly wider than long, clothed with thick blackish and greyish hairs; anterior half blackish and posterior half greyish with blackish patches, as in fig. 181. Anterior eyes milky white, other eyes black; anterior row slightly recurved, anterior laterals and posterior eyes of nearly the same size; second pair of eyes very small and situated close to the anterior laterals; posterior eyes situated far behind the second row. Sternum nearly oval, narrowing anteriorly, blackish-brown, clothed with fine hairs. Legs I conspicuously stout and dorsal side of femur bulging prominently; tibiae and metatarsi I with three and two pairs of ventral spines, respectively.

Abdomen : Long, narrowing behind, clothed with thick pubescence; provided with three V-shaped dark brown patches in the posterior half and irregular dark brown patches on the entire dorsum, as in fig. 181. Ventral side dark brown with a longitudinal broad light brown patch between the epigastric furrow and spinnerets. Epigyne, as in fig. 182. Internal genitalia, as in fig. 183.

Type specimen : Holotype ♀, in spirit; collected from *Lantana* bushes.

Type locality : Tilwaraghat, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 7-VIII-1998.

Etymology : The specific name is a patronym in honour of Zoologist, Dr. J. B. S. Haldane.



Figs. 181-183. *Rhene haldanei* sp. nov. : 181. Dorsal view of female, legs omitted. 182. Epigyne. 183. Internal genitalia.

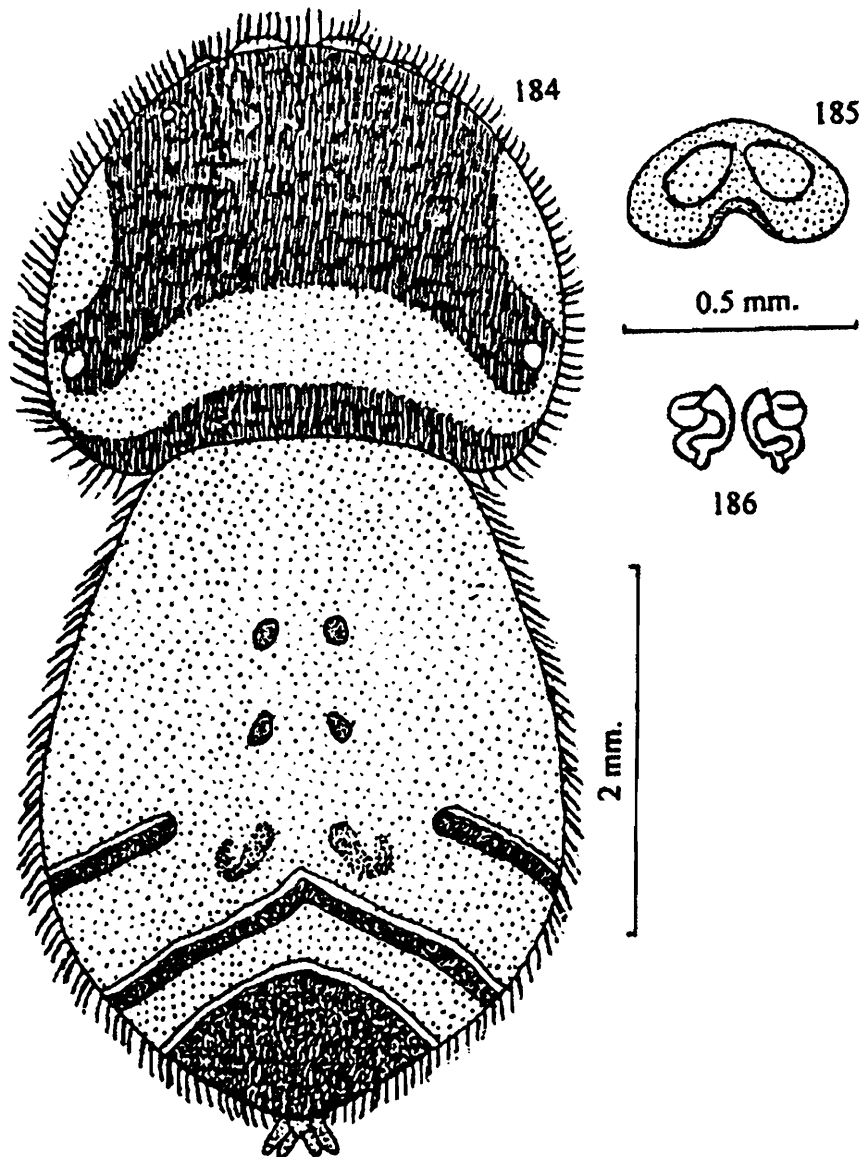
Remarks : This species resembles *Rhene decoratus* Tikader but can be distinguished from it as follows : (i) Cephalothorax with blackish patches but in *R. decoratus* cephalothorax with two pairs of inconspicuous light brownish patches. (ii) Epigyne and internal genitalia also structurally different.

107. *Rhene sanghrakshiti* sp. nov.

(Figs. 184-186)

General : Cephalothorax blackish-brown, legs brownish and abdomen greyish-brown. Total length 5.8 mm. Carapace 2.2 mm. long, 2.7 mm. wide; abdomen 3.8 mm. long, 2.8 mm. wide.

Cephalothorax : Wider than long, narrowing anteriorly, clothed with thick hairs, provided with a broad blackish patch from anterior row of eyes to the posterior row and a blackish stripe at the posterior end, as in fig. 184. Anterior eyes pearly white, others black; anterior eye row recurved, anterior lateral eyes and posterior eyes of nearly the same size; second pair of eyes smallest and situated near the anterior laterals; posterior eyes situated far behind the second row. Sternum nearly oval, narrowing in front, dark brown, clothed with fine hairs. Legs I conspicuously stout and dorsal side of femur bulging prominently; tibiae and metatarsi I provided with two pairs of ventral spines.



Figs. 184-186. *Rhene sanghrakshiti* sp. nov. : 184. Dorsal view of female, legs omitted. 185. Epigyne. 186. Internal genitalia.

Abdomen : Longer than wide, elliptical, narrowing behind, clothed with thick pubescence; provided with four brownish sigilla in mid-dorsal region, with two small U-shaped faint patches, two transverse blackish stripes on lateral sides and one V-shaped blackish band in the posterior region, as in fig. 184. Posterior end provided with a broad blackish patch. Ventral side lighter in colour than dorsal and provided with a longitudinal broad dark brown band between the epigastric furrow and spinnerets. Epigyne, as in fig. 185. Internal genitalia, as in fig. 186.

Type specimen : Holotype ♀, in spirit, collected from vegetation.

Type locality : Garha, Jabalpur, Madhya Pradesh, India. Coll. P. Gajbe, 14-VIII-1997.

Etymology : The specific name is a patronym.

Remarks : This species resembles *Rhene khandalensis* Tikader but can be distinguished from it as follows : (i) The shape of blackish patch on the cephalothorax different in both species. (ii) Epigyne and internal genitalia also structurally different.

DISCUSSION

The spider fauna of Jabalpur district is rich in number and types of species and represented by 107 species belonging to 57 genera under 19 families. Based on habit, these spiders are mainly of two types, web builders and hunting (wandering) spiders. The largest number of species belong to Family Araneidae, which is represented by 26 species in 10 genera. Second is family Thomisidae, represented by 22 species in 8 genera, followed by Family Gnaphosidae represented by 13 species in 12 genera. The number of genera and species representing each family are given in the following table.

The spiders were found to be living in different types of habitats. Spiders belonging to families-Thomisidae, Philodromidae, Salticidae, Dictynidae, Araneidae, Tetragnathidae, Oxyopidae, Scytodidae and Eresidae were mainly found in vegetation. The Tetragnathid spiders were found living on reeds overhanging ponds, while the Thomisid and Philodromid crab spiders were mainly found on flowering plants. The species *Hersilia savignyi* (Family Hersiliidae) was found either on barks of trees or on the walls of old houses.

Wolf spiders (except *Hippasa*) were mostly found running on the ground, their general grey-brown colouration giving them good cover. Wolf spiders in genus *Pardosa* were also found to be searching for insect prey near the edge of small water holes, while the *Hippasa* spiders were found living in funnel webs made over holes in the ground. Other ground dwellers included species belonging to the families Agelenidae, Gnaphosidae, and Thomisidae (*Xysticus* and *Oxyptila*).

Table 1. : Number of genera and species of spiders of Jabalpur.

S. No.	Families	Number of Genera	Number of Species
1.	Scytodidae	1	1
2.	Pholcidae (Cellar spiders)	2	2
3.	Oonopidae	1	1
4.	Eresidae	1	1
5.	Oecobiidae	1	1
6.	Uroctidae	1	1
7.	Hersiliidae	1	1
8.	Uloboridae	1	2
9.	Tetragnathidae (Long-jawed spiders)	2	2
10.	Araneidae (Orb-web spiders)	10	26
11.	Lycosidae (Wolf spiders)	4	12
12.	Oxyopidae (Lynx spiders)	2	5
13.	Agelenidae (Funnel web spiders)	1	1
14.	Dictynidae	1	1
15.	Gnaphosidae (Ground spiders)	12	13
16.	Heteropodidae (Giant crab spiders)	1	1
17.	Philodromidae (Running crab spiders)	4	9
18.	Thomisidae (Crab spiders)	8	22
19.	Salticidae (Jumping spiders)	3	5
	TOTAL	57	107

Spiders living in residential places included those belonging to the families Pholcidae, Oecobiidae, Uloboridae, Heteropodidae, and Salticidae. One species each of the families Oonopidae and Uroctidae were collected under stones, as were some wolf spiders and gnaphosid spiders. Lynx spiders, wolf spiders, jumping spiders, orb-web spiders and gnaphosid spiders were consistently found in agricultural fields.

Most spiders living on the ground or in vegetation exhibited some kind of protective colouration for camouflage. Some good examples of mimics among these species include an

ant-like gnaphosid spider *Sergiolus lamhetaghatensis* and a juvenile ant-like jumping spider (probably in genus *Myrmarachne*); species in genus *Thomisus*, which resemble bird-droppings; *Tmarus*, *Tetragnatha*, and *Eucta* species, which resemble tips of twigs or reeds and *Hersilia savignyi*, which resembles the bark of tree, it inhabits.

Among the araneids, the species *Nephila maculata* was found to be constructing the largest orb-web with a diameter of about 1 m. This web appeared golden in the sunlight. The species *Argiope aemula* was also found to construct a large orb-web with an X-shaped stabilimentum. However, the juveniles of this species were seen constructing X-shaped stabilimentum, with stripes not crossing at the centre.

Sociality among spiders is rare, as they are exclusively carnivorous and most are cannibalistic in nature. However, a single social species, *Stegodyphus sarasinorum* (Family Eresidae) is also represented in the spider fauna of Jabalpur. On one occasion, the male and female of a *Hippasa* sp. were also seen living in one web. No exceptionally poisonous spider was found among the species recorded from Jabalpur.

SUMMARY

Overall, 107 species of spiders belonging to 57 genera under 19 families, viz., Scytodidae, Pholcidae, Oonopidae, Eresidae, Oecobiidae, Urocteidae, Hersiliidae, Uloboridae, Tetragnathidae, Araneidae, Lycosidae, Oxyopidae, Agelenidae, Dictynidae, Gnaphosidae, Heteropodidae, Philodromidae, Thomisidae and Salticidae have been described from Jabalpur district in Madhya Pradesh. Of these, 21 species were described as new to science and 15 species were new record for the area. In addition to description and illustrations, key to families, genera and species have been added with synonymies and distributions, as well as photographs of some selected spider species. Families have been arranged according to taxonomic hierarchy and genera and species alphabetically.

ACKNOWLEDGEMENTS

My grateful thanks to Dr. J. R. B. Alfred, Director, Zoological Survey of India, Kolkata and Dr. K. Chandra, Scientist-E, Central Regional Station, Zoological Survey of India, Jabalpur, for providing facilities for carrying out the research study.

I am also highly indebted to Dr. R. Bhandari, Assistant Professor, Department of Zoology, Govt. Model Science College, Jabalpur and Dr. U. A. Gajbe, Scientist-'D', Zoological Survey of India, Kolkata, for suggesting this problem and providing invaluable guidance during the course of the research study.

No less I am indebted to Dr. S. C. Pathak (Retd. Prof. of Zoology), Rani Durgavati University, Jabalpur, for his invaluable suggestions and guidance and Dr. L. Oommachan, Head of Zoology Department (Retd.), Govt. Model Science College, Jabalpur, for providing research facilities. I am also thankful to Mr. M. Limje for taking the photographs.

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PLATES I–VI

PLATE I



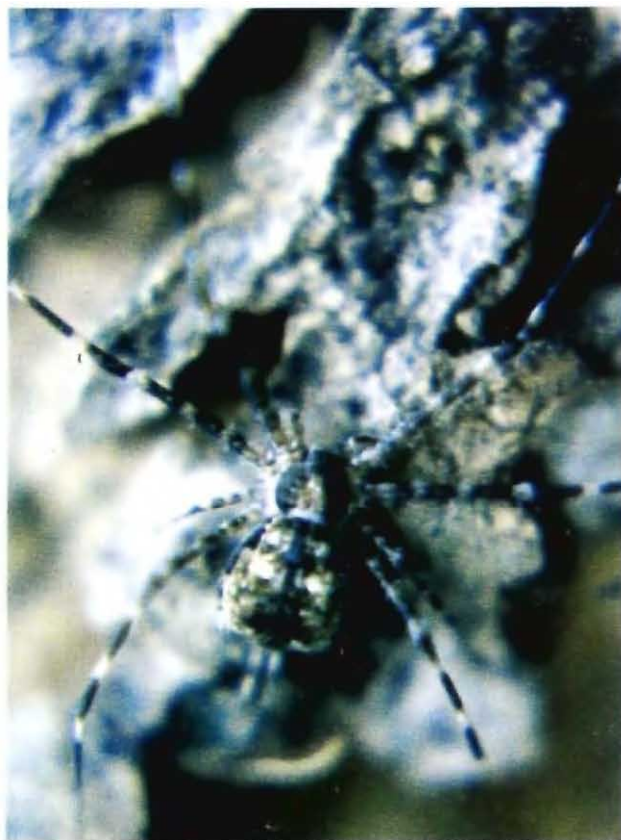
a



b

Fig. 1a. Web of *Stegodyphus sarasinorum*.
Fig. 1b. Two females of *Stegodyphus sarasinorum*.

PLATE II



a



b

Fig. 2a. *Hersilia savignyi*.

Fig. 2b. *Eucta chamberlini*.

PLATE III



a



b

Fig. 3a. *Argiope aemula*.
Fig. 3b. *Leucauge decorata*.

PLATE IV



a



b

Fig. 4a. *Neoscona dyali*.
Fig. 4b. *Neoscona nautica*.

PLATE V



a



b

Fig. 5a. *Nephila maculata*.

Fig. 5b. *Oxyopes pankaji*.

PLATE VI



a



b

Fig. 6a. *Sergiolus lamhetaghatensis*.

Fig. 6b. *Thomisus whitakeri*.