

STUDIES ON THE SOFT CORALS

(Octocorallia : Alcyonacea)
OF ANDAMAN ISLANDS, BAY OF BENGAL

D. V. RAO
KAMLA DEVI



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**Studies on the Soft Corals (Octocorallia :
Alcyonacea) of Andaman Islands, Bay of Bengal**

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CONTENTS

Introduction	1
Morphology of Alcyonarians	3
Glossary of morphological characters	4
Collection & preservation of Soft Corals	9
Preparation of Sclerites	9
Systematic Account	9
Ecology	84
Interaction with other organisms	84
Distribution	85
Biodiversity values	85
Acknowledgements	86
References	86
Annexure : Octocorals of Andaman & Nicobars Islands	90

INTRODUCTION

The Andaman & Nicobar Islands comprise more than 500 islands, islets and rock outcrops, emerged in the eastern region of Bay of Bengal. They lie between 6°45'N and 13°42'N lat. and between 92°12'E and 93°57'E long. These islands are well known to support one of the richest coral formations in the Indo-Pacific region. The reefs of these islands are of fringing type. At present, due to extensive damage of the habitats, the coral reefs are largely restricted to some scattered areas as patches around the islands. These reefs are supporting multi-coloured organisms including sessile, sedimentary and encrusted forms. Of these, the soft corals (Alcyonaceans) are the most common group of sessile macroinvertebrates conspicuous by their unusual encrusting colonies.

Even though the taxonomic and ecological works with reference to soft corals is scanty, the recent studies made around Indo-Pacific reefs Dinesen, 1983; Benayahu, 1985; Lasker, 1988; Yamazato *et al.* 1981; Alderslade and Shirwaiker, 1991; Ofwegen and Vennam, 1991; Ofwegen and Benayahu, 1992; Verseveldt and Ofwegen 1991 and Benayahu, 1990, 1993, 1995) have proved their abundance and ecological significance. Taxonomic revision of the major genera of the family Alcyoniidae (Verseveldt, 1980, 1982, 1983) significantly contributes to the soft coral studies. But the knowledge on soft corals occurring around Indian waters remained quite inadequate. Very few comprehensive works are available on the soft corals of Indian waters (Pratt, 1903, 1905; Ofwegen and Vennam, 1991; Alderslade and Shirwaiker, 1991; Hickson, 1903, 1905; Jayasree and Parulekar, 1997; Jayasree *et al.*, 1994) apart from the the studies on the collection of RIMS Investigator (Thomson & Henderson, 1906 and Thomson and Simpson, 1909). Jayasree *et al.* (1996) recorded 26 species of soft corals from A & N Islands belonging to the family Alcyoniidae. Rich populations of Alcyoniidae around A & N Islands and paucity of information on these animals encouraged the authors to initiate their study and update our knowledge of soft corals.

The rich collection comprising approximately 149 nos. of soft coral samples collected from the shallow reef regions of different localities of Andaman Islands (Fig. 1) revealed 45 species belonging to the families Alcyoniidae and Nephtheidae. The study established 30 new records for the islands that are marked with asterisk (*) in the taxonomic part. However, it is certain that more intensive collections around the islands would doubtless reveal the existence of a number of species hitherto unknown. The present report deals with a taxonomic account of these along with information on colour pattern, habitats and geographical distribution. In addition, glossaries of terms pertaining to external morphology and sclerites are added. A list of Octocorals of A & N Islands is appended at the end. All the material studied was deposited in the reference collections of the Zoological Survey of India, Port Blair.

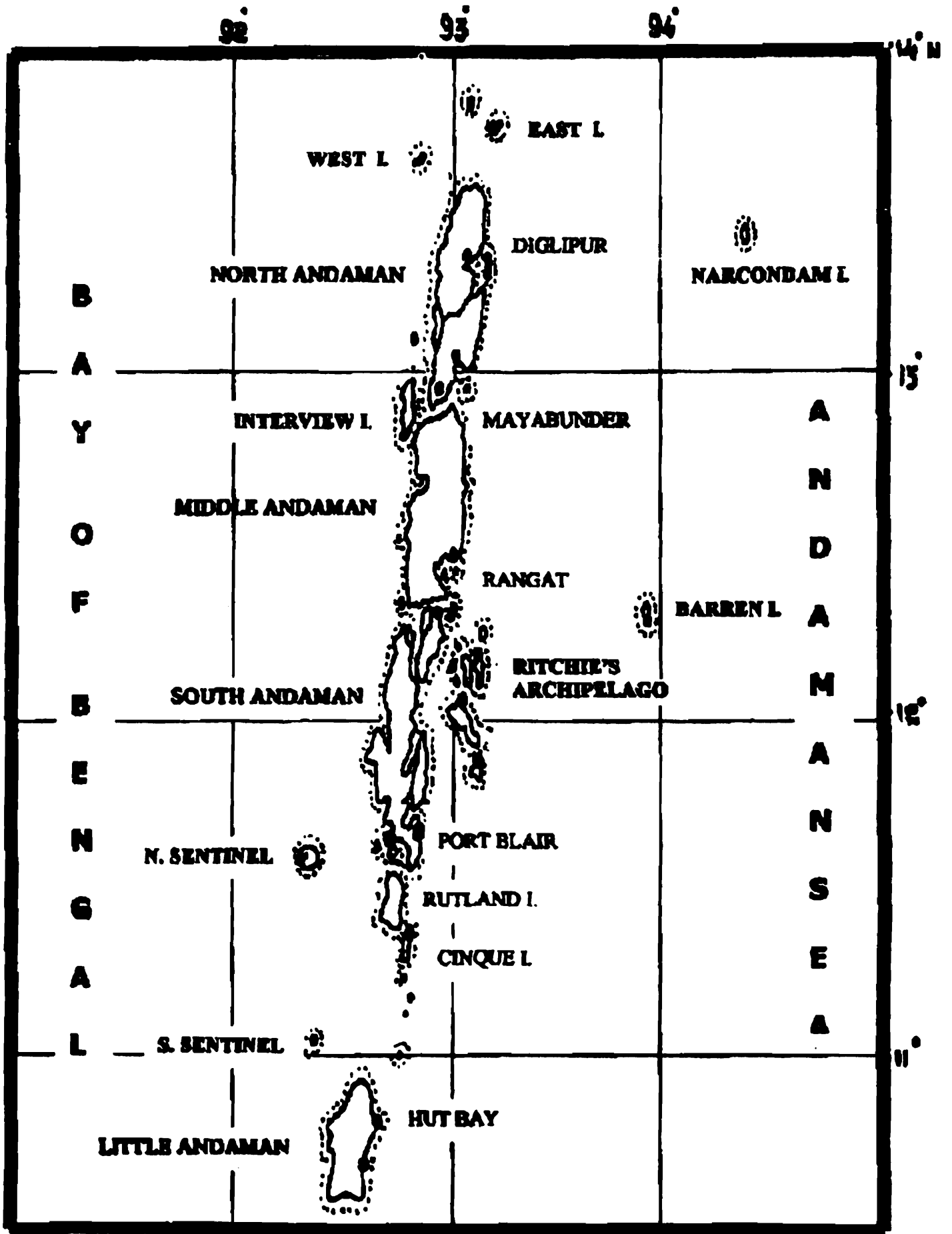


Fig. 1. Andaman Islands.

MORPHOLOGY OF ALCYONARIANS

Soft corals are colonial forms widely distributed in all tropical waters and occupy a great variety of ecological situations. Most of the species are found on the continental shelf and slope but a few are found at great depths. However, many of the species occur within the intertidal region where the waters are clean with a minimum constant sedimentation. All the alcyonaceans, except the members of Pennatulacea, are typically fixed by a basal attachment to hard substrata. The size and shape of the colony depend on the extent and the pattern of budding. Many of the alcyonarians grow into a linear or branching encrustation, tree-like with erect and branching projections or semi-erect linear or branching forms with a zone of substratum attachment particularly in the erect forms or tabular, funnel and mushroom like discs. The polyp bearing portion is usually restricted to the terminal parts of the colony i.e. capitulum, branches or lobes and lobules. Usually the base of the colony is a sterile stalk without polyps.

All the members of the sub-class Octocorallia are exclusively polypoid coelenterates with a mouth invaginated to form a tubular pharynx and gastro-vascular cavity partitioned by thin non-calcareous septa called mesenteries (Fig. 2). Alcyonarians with sheet like polyparies are usually monomorphic with all polyps identical and performing the same tasks called autozooids. In massive forms, the polyps are dimorphic, with autozooids and siphonozooids that are degenerated autozooids. There are eight tentacles pinnately branched around the upper end of the pharynx. This tentacle bearing region called anthocodia is usually retractile, either within the mesogloea or into the lower part of the polyp known as anthostele. In the former case the contracted polyps are visible as small pores or stellate apertures whereas in the later case a distinct calyx remains visible as a hillock on the surface. When the polyp withdraws, the tentacles are either folded over the oral disc or retracted into the gastrovascular cavity. The coenenchyme is penetrated by a complex system of tubules called solenia that interconnects neighboring polyps. The internal skeleton consists of sclerites more or less systematically arranged at the base of each tentacle and the body wall between septa and in the anthosteler region. The arrangements of spicules, their size, shape and distribution in polyps and in various layers of the coenenchyme have systematic importance. The basic spicule type found in all the groups, except in Helioporacea, is the simple spindle, which is a monaxial rod, more or less pointed at both the ends. In some groups these spindles are more or less strongly sculptured by warts or spines. Depending on the shape, these spindles are referred to as rods, needles, scales, plates, crosses, clubs, capstans, dumbbells etc.

Externally many species look alike and specimens of the same species may also often appear different. The appearance of a colony may change according to expanded or

contracted state. The most important aspect in taxonomic study is the preparation of specimens *i.e.* mounting of spicules. The skeletal structure of the soft corals primarily consists of calcareous spicules called sclerites, which form the most important single character in identification. The identification of the taxa to species level is based on the analysis of shape, size and arrangement of these small spicules. The spicules are not fused together and found in all parts of the colony both internally and externally. Since the characteristics of the spicules are different in different tissues of the colony, spicule samples have been extracted from different parts of the colony.

GLOSSARY OF MORPHOLOGICAL CHARACTERS (Bayer *et al.* 1983)

ANTHOCODIA : upper tentacular part of polyp, bearing mouth and tentacles, which in many cases retracted within calyx.

ANTHOSTELE : the proximal, rigid part of some polyps often stiffened by sclerites, and into which the anthocodia may be withdrawn.

ARBORESCENT : tree-like colonies having a definite stalk (Alcyonacea) or stem (Gorgonacea).

AUTOZOOID : polyp with eight well-developed tentacles and mesenteries (septa).

BACK OF A COLONY : the side of a colony that has few or no polyps, or the side away from which most of the anthocodia are directed.

BODY WALL : wall of polyp body enclosing the gastric cavity.

BRANCHED : erect colonies having branches; the branches may consist of either primary or subordinate polyps.

BUNDLE: a group of polyps arising from the tip of a twig in *Dendronephthya*.

BUSHY : colonies with many branches arising immediately from the holdfast.

CALYX : cylindrical or wart like projecting anthostele.

CAPITATE : unbranched colonies with a broad distal part on a distinctly narrow stalk.

CAPITULUM : more or less disk shaped or hemispherical, polypiferous part of an alcyonacean colony.

CATKIN : a number of polyps on a terminal branchlet forming an oblong body resembling in shape of the catkins of willow.

CENTRAL WART : the heads of the clubs of the surface layer consist of terminal central warts and a subterminal whorl of lateral warts (found in many *Sinularia* species).

CLAVATE BRANCH : terminally enlarged branch.

COENENCHYME : the colonial tissue between the polyps; consists of spiculiferous (sclerite) mesogloea and penetrated by the gastrodermal canals.

COLLARET : the ring of transversely placed, usually bow shaped, sclerites encircling the anthocodia below the tentacles.

COLONY : a group of interconnected and genetically identical polyps.

CONTRACTILE POLYP : a polyp that can shrink in size without introversion. The tentacles alone may be folded inward over the mouth.

CROWN : same as collaret.

DIGITATE : digitiform unbranched colonies consisting of several slender, finger-like lobes.

DIVARICATE : arborescent colonies that are profusely branched, with long, slender branches bearing separate bundles of polyps.

ENCRUSTED : colonies consisting of a thick fleshy layer covering the substrate.

FILIFORM : thin, thread-like unbranched colonies.

GASTROVASCULAR CAVITY : interior space of a polyp.

LOBATE : colonies consisting of several stout lobes.

MESENTERIAL FILAMENTS : the thickened convoluted edges of the mesenteries.

MESENTERIES : thin, radial, non-calcareous partitions joining the pharynx to the body wall and dividing the gastrovascular cavity of the polyp.

MESOGLOEA : the jelly like substance separating two epithelial layers and containing numerous cells, including scleroblasts and cell strings.

PINNATE TENTACLES : tentacles bearing pinnules, characteristic of the Octocorallia.

POLYP : Elementary functional unit of a colony.

POLYPARIUM or **POLYPARY** : the part of a colony bearing anthocodiae.

RETRACTILE POLYP : a polyp in which the anthocodia can invert into the anthostele or into the coenechyme.

SCLERITE : a calcareous skeletal element of mesogloea.

SIPHONOOZOOIDS : small polyps with reduced tentacles or none, usually much smaller than autozooids.

STALK : the barren or sterile basal part of the colony.

STERILE : not producing sex cells often used for parts of the colony without anthocodia.

Glossary of terms pertaining to Sclerites (Bayer *et al* 1983) (Fig. 3)

ANTLER : small sclerite with antler-like ramifications.

BARREL : short, wide sclerite with two thorny or warty heads and a short waist.

BRACKET : curved sclerite with two long rays and two median warts.

BRANCHED SPINDLE : a spindle, often crooked, with some of the processes much elongated and branch-like.

CAPSTON : rod with two whorls of tubercles or warts and terminal tufts.

CLUBS : monaxial sclerites with head at one end, and the other end tapering into a handle.

CRESCENT : spindle bent in the form of a 'C' and more or less regularly curved by prominences.

CROSSES : stellate sclerite with four rays in one plane.

CYLINDER : a blunt-ended, roller shaped sclerite.

DOUBLE HEADS : symmetrically developed sclerites with a narrow, smooth handle or 'waist' and terminal clusters of crowded processes not radially arranged.

DOUBLE SPHERE : same as Barrel.

DUMB-BELL : sclerite with two more or less spherical, warty heads and a distinct waist that is longer than in the double sphere.

FINGER-BISCUIT-LIKE FORM : minute flattened rod.

LEAF CLUB : club with head ornamented by foliate, sometimes unilaterally placed processes.

LEPTOCLADOS CLUB : small leaf club with a few foliate processes on the head and a girdle of spines just above the base of the handle.

NEEDLE : long, thin nearly smooth monaxial sclerite.

OBLONG : short, bluntly rounded rod.

OVAL : short flattened rod, having gently rounded outline.

ROD : straight or curved monaxial sclerite.

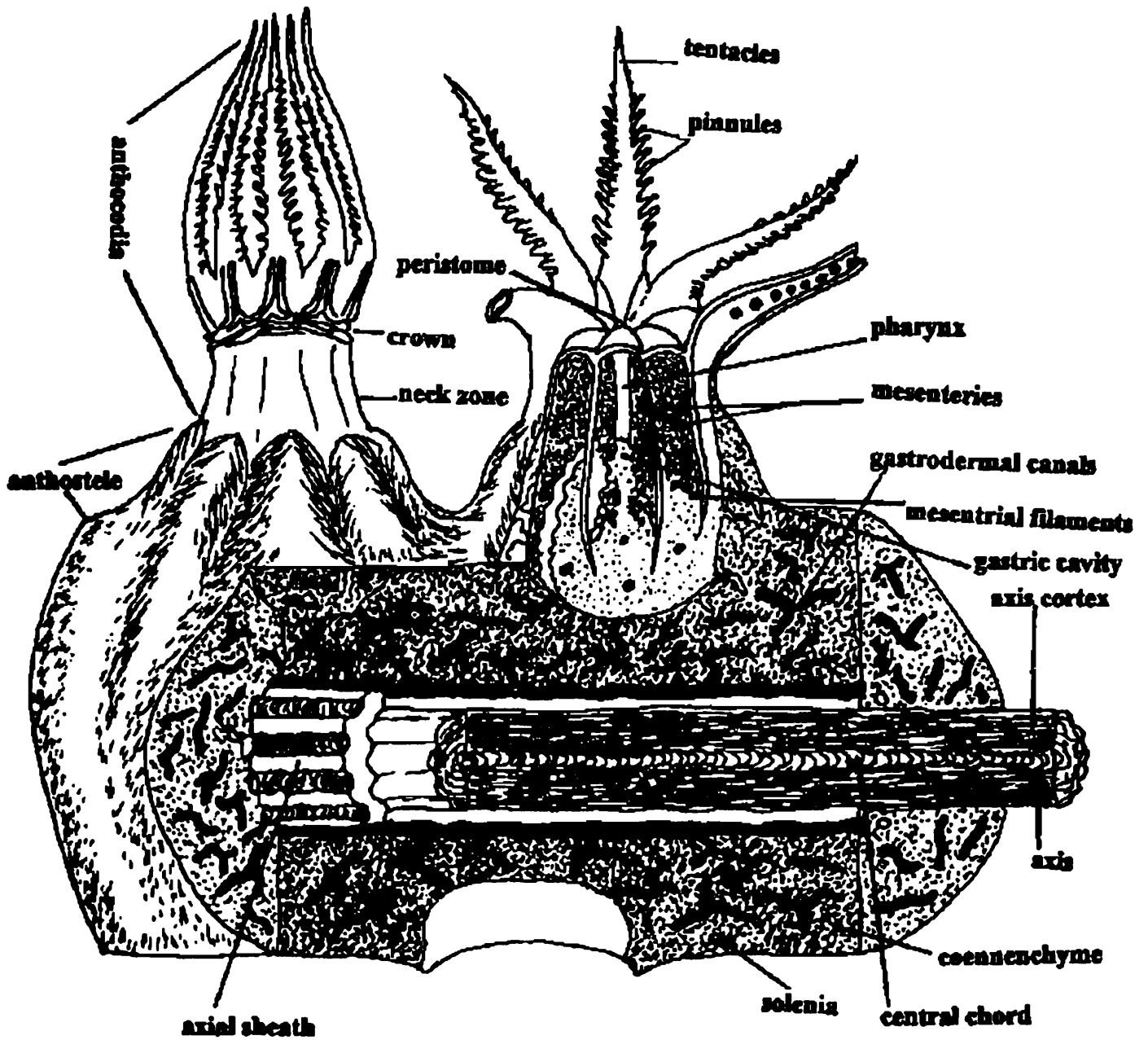


Fig. 2. Morphology of an Octocorallia (Source Bayer, 1956)

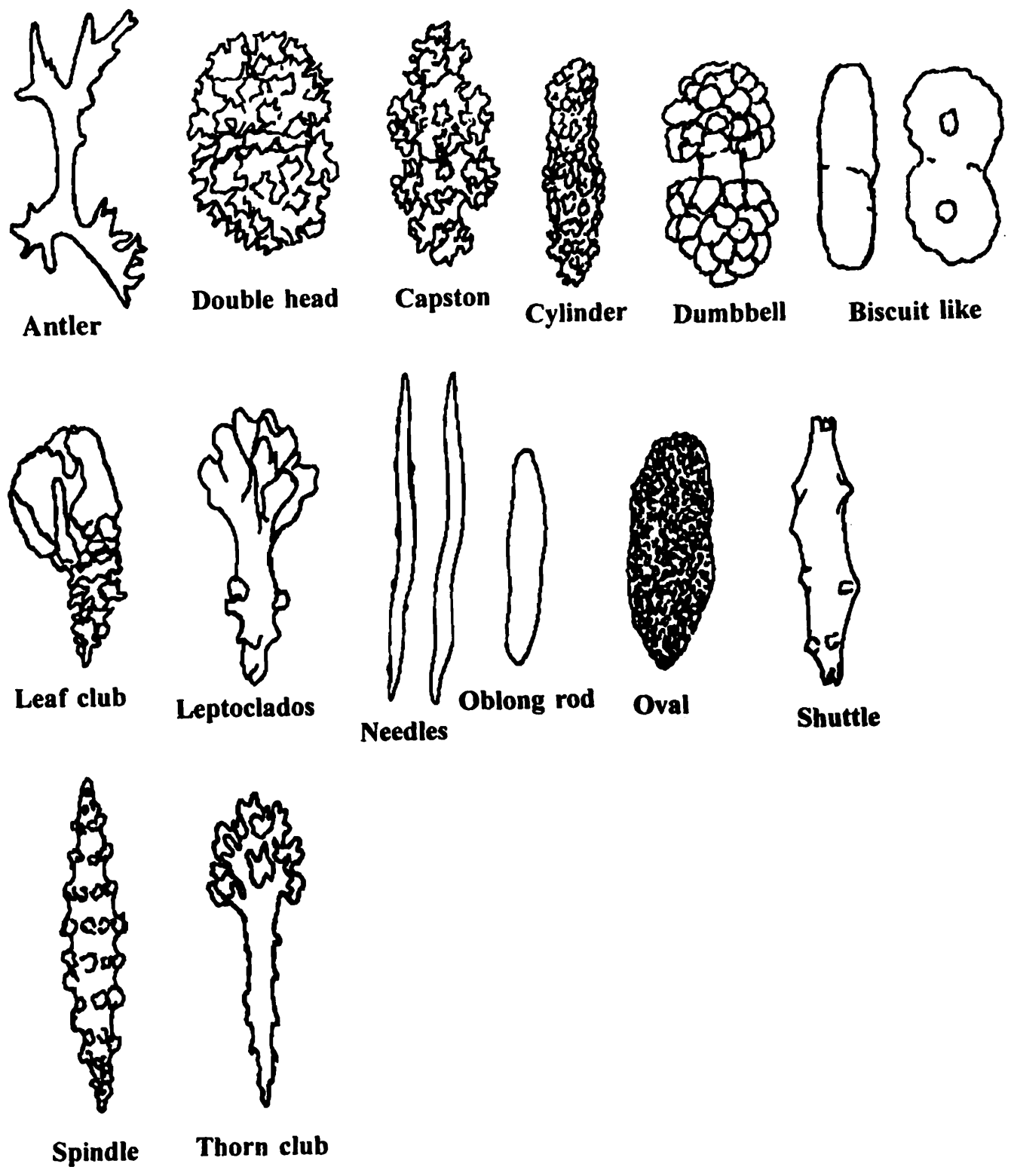


Fig. 3. Common sclerite forms.

SHUTTLE : smooth, fusiform sclerite ornamented by few low blunt, ridge-like longitudinal prominences.

SPINDLE : straight or curved monaxial sclerite pointed at both ends.

THORN-CLUB : a club with head ornamented by sharp thorn like processes.

TORCH : club with foliate process of the head strongly laciniate and slanted to one side, resembling a torch.

COLLECTION & PRESERVATION OF SOFT CORALS

Material was collected from the shallow reef regions of different localities of Andaman Islands. The locality details of the material collected and studied are given under each species. Field data such as depth from which the specimen is collected, colour of the colony, polyps expanded or contracted, any associations with other organisms and the availability of the species in the locality in terms of abundance are also noted. For taxonomic studies a small portion of the colony with its stalk or base was cut and removed. The samples were fixed in 4% formalin in seawater. After 24 hours they were washed with fresh water and then preserved in 70% ethyl alcohol.

PREPARATION OF SCLERITES

Sclerite preparations from surface and interior (coenchyme) of the capitulum or lobe and of the stalk or base have been made. A thin layer of tissue is removed and placed on a cavity slide. A few drops of 10% sodium hypochlorite solution were added and allowed for 3-8 minutes to dissolve the tissue and leave the spicules intact. The spicules were rinsed thoroughly with distilled water and transferred to an ordinary slide for study. Wet preparations are used for immediate examination. For permanent preparation, the sclerites are dried on a hotplate, treated with xylol and mounted in canadabalsam or DPX under a coverslip.

SYSTEMATIC ACCOUNT

Phylum CNIDARIA
Class ANTHOZOA
Subclass OCTOCORALLIA
Order ALCYONACEA
Family ALCYONIIDAE

*1. *Cladiella australis* (Macfadyen, 1936) (fig. 4 Plate II fig. 7)

1936. *Alcyonium austrae* Macfadyen, *Great Barrier Reef Expedition, Sci. Rep.*, 5(2): 31-32, fig. 1, pl. 4, fig. 4.

1976. *Cladiella australis* : Verseveldt, *Rev. Zool. afr.*, 90(3): 499-501, fig. 1, pl.1, fig. 5.

Material examined : Little Andaman, 15.iii.1995, D.V.Rao, Reg. No. 3539.

Description : Colony encrusted and rigid with broad and low stalk; flattened and compact due to pressing down of lobes by each other. Spicules in the coenenchyme of the stalk and surface layer of the lobes are similar with large warty dumbbells. Spicules of the lobe surface are dumbbells up to 0.11 mm long with long waist. Small dumbbells with few warts on heads are common. Coenenchyme spicules of the stalk are dumbbells with narrow waist and heavy warty heads. Small rod-like spicules, 0.04 to 0.06 mm long, are also present in polyp walls.

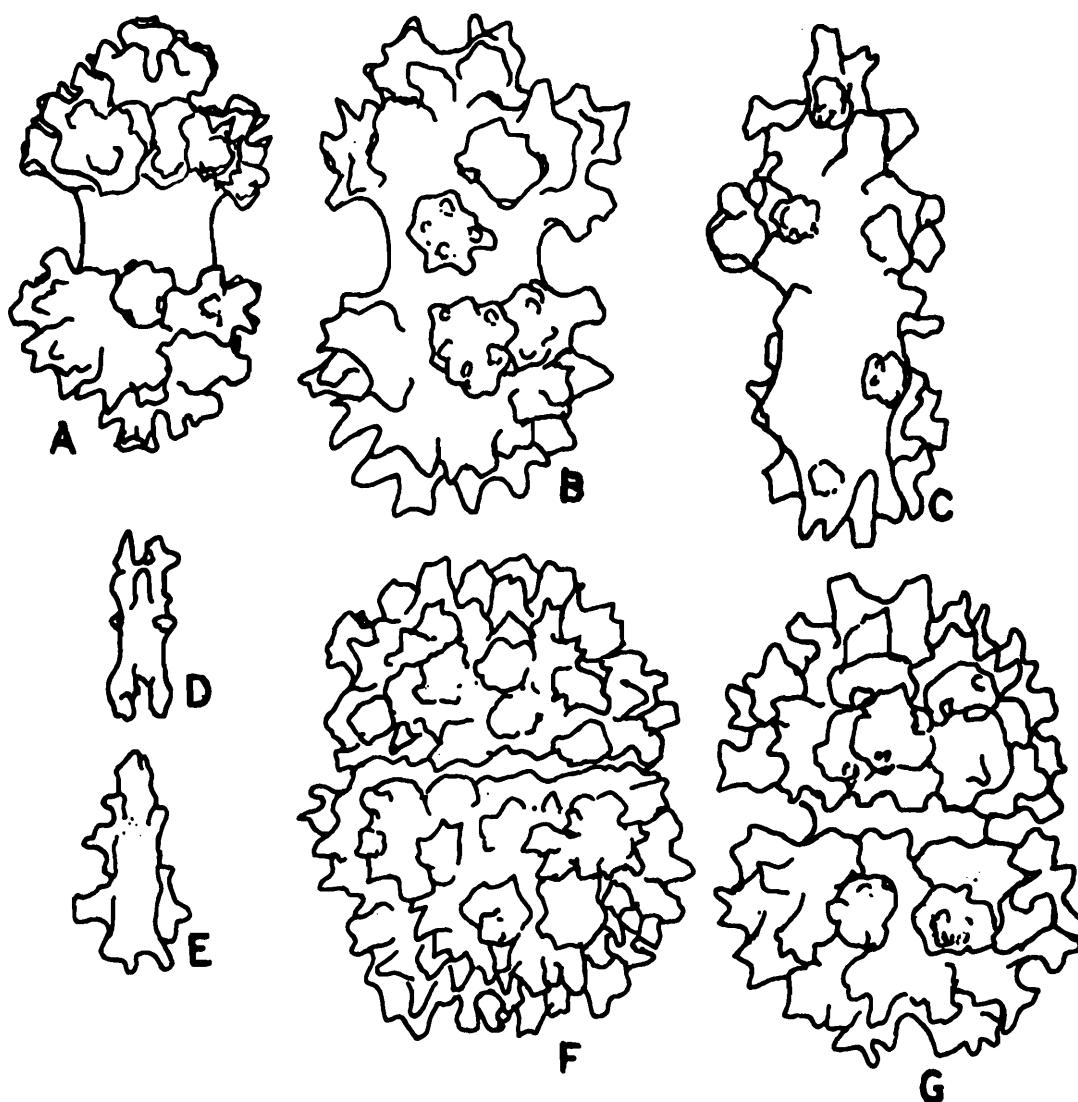


Fig. 4. *Cladiella australis* (Macfadyen) A-C, sclerites from surface layer of a lobe; D, E, anthocodial spicules; F, G, sclerites from interior of the stalk.

Colour : Colony creamy-white, turn to white on preservation in alcohol.

Habitat : Found in shallow reef areas.

Distribution : India (Little Andaman), Australia, Fiji Is. and Vietnam.

***2. *Cladiella krempfi* (Hickson, 1919) (fig. 5)**

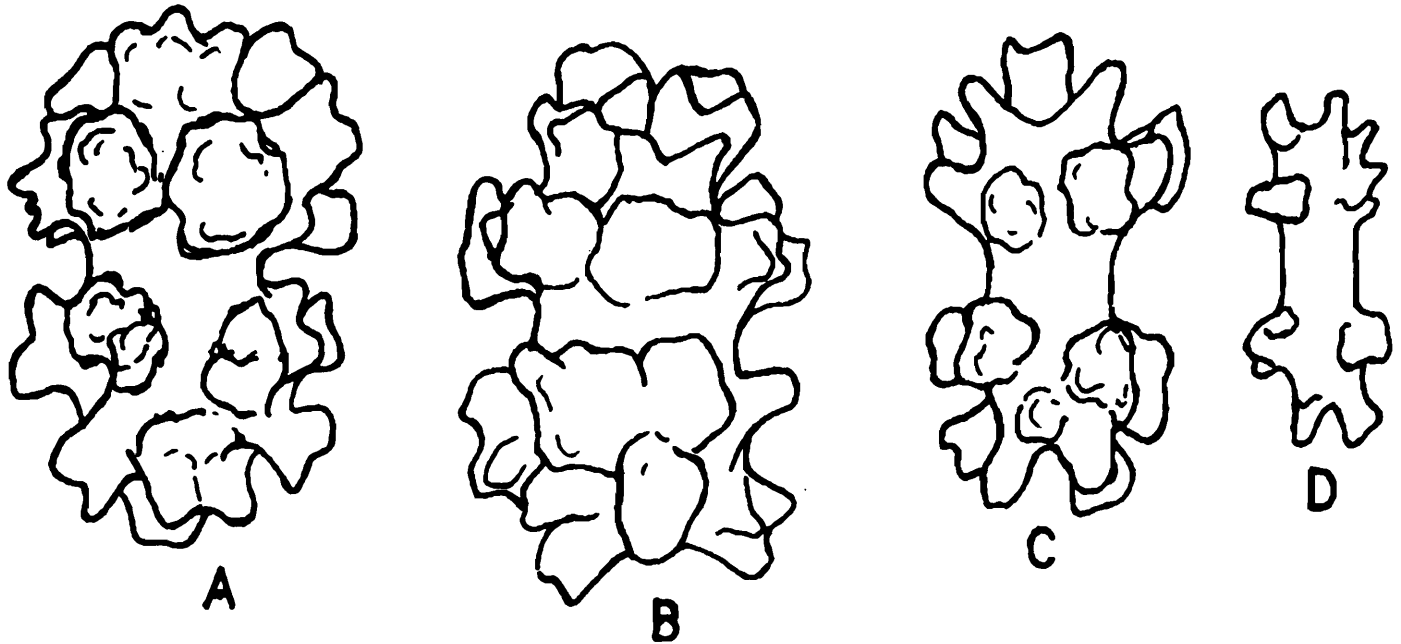


Fig. 5. *Cladiella krempfi* (Hickson) A-D, sclerites from the cortex of the stalk.

1919. *Alcyonium krempfi* Hickson, *Bull. Soc. zool. France.* 44: 411-424, figs.1,2.

1971. *Cladiella krempfi*: Verseveldt, *Zool. Verhand., Leiden.*(117): 10-12, fig.5, pl. 5 fig.1.

Material examined : Little Andaman, 21.iii.1995, D.V.Rao, Reg. No. 3535; Henry Lawrence (Ritchie's Archipelago), 4.iv.1996, D.R.K.Sastry, Reg.No. 3534; Peacock Is. (North Andaman), 13.xii.1997, D.V.Rao, Reg. No. 3536.

Description : Colonies almost semi-spherical; the capitulum with densely packed lobes and lobules; base of the colony flat and attached to the reef rocks. Surface of lobules have small flat pits, in which the zooids retracted. Surface layer of the lobes and sterile basal part of the colony contains double spheres measuring 0.08 mm to 0.11 mm long.

Colour : Colonies light brown to creamy. Alcohol preserved specimens white in colour.

Habitat : Found in shallow inter-tidal reefs and rocks, up to 4ms depth.

Distribution : India (Andaman Islands, Lakshadweep), Madagascar, Seychelles, Mauritius, Palau Is. and Vietnam.

***3. *Cladiella laciniosa* (Tixier-Durivault,1944) (fig. 6)**

1944. *Lobularis laciniosa* Tixier-Durivault, *Bull. Mus. Nat. hist. Nat.,* 16: 88.

1971. *Cladiella laciniosa*: Versveldt, *Zool. Verhand.*, Leiden. (177): 12-13, fig. 6, pl.5, fig.2.

Material examined : Little Andaman, 21.iii.1995, D.V.Rao, Reg. No. 3537.

Description : Colony is almost oval shaped and attached to the reef rocks with low sterile stalk. Capitulum protrudes beyond the stalk. Primary and small secondary lobes are numerous and densely arranged and flattened laterally. The lobes are 3 to 6 mm wide and 24 to 27 mm thick. Lobes on the out side of the capitulum are more rounded and larger than inner lobes. All the polyps are retracted into pits. The spicules of the surface layer and interior of the lobes and stalk are similar. They are dumbbell-shaped, 0.08 to 0.12 mm long. Surface layer of the lobes are also having large number of dumbbells with a long waist and few warts; small finger like forms and double spheres have crenate margins. The spicules in the tentacles are very small, granulated and biscuit like measuring 0.030 to 0.048 mm long.

Colour : Colonies whitish-gray. Preserved specimens in alcohol white.

Habitat : Found in inter-tidal reef flats, firmly attach to the substratum.

Distribution : India (Little Andaman), Red Sea, Madagascar and Mauritius.

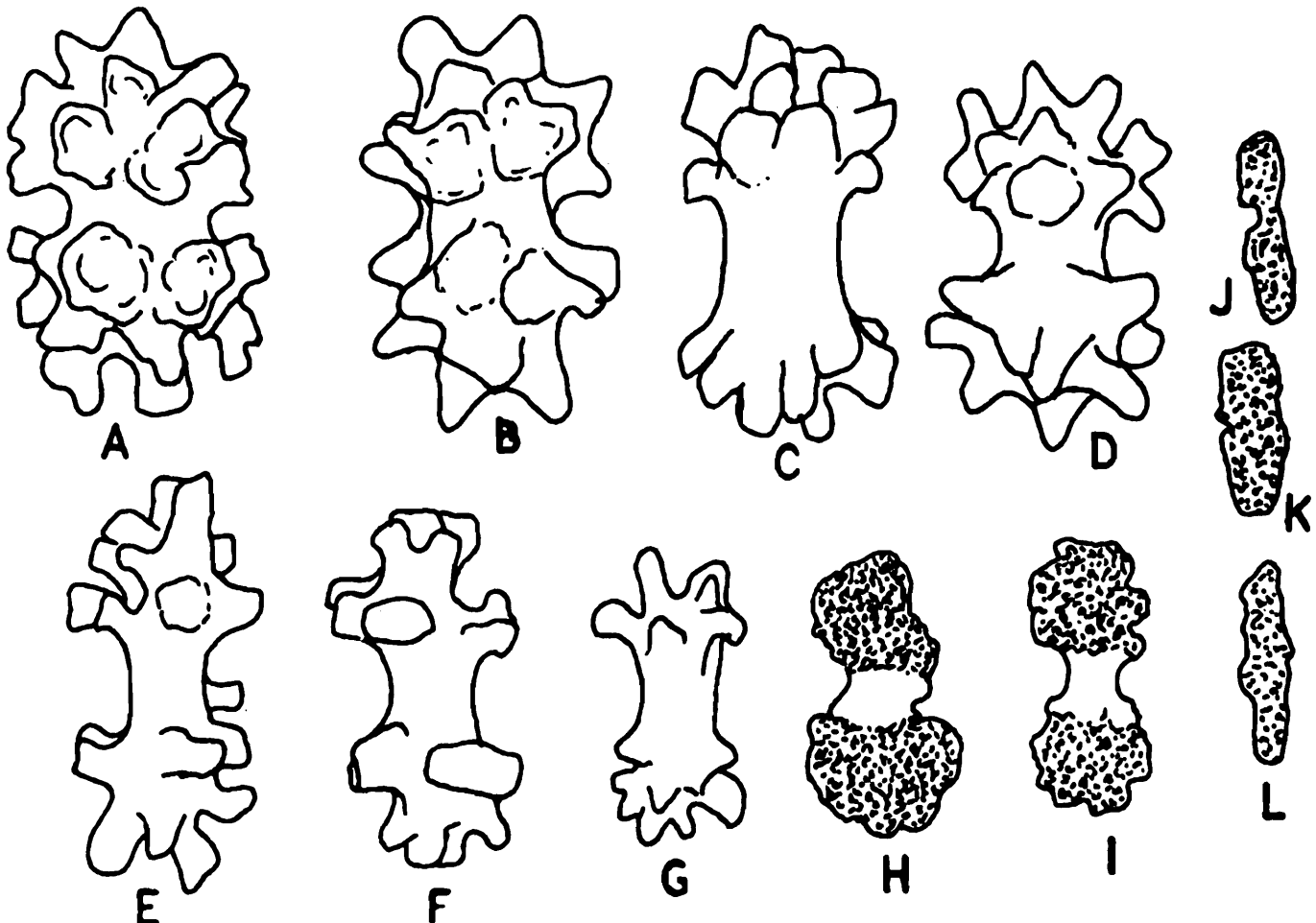


Fig. 6. *Cladiella laciniosa* (Tixier-Durivault) A-D, sclerites from interior of the stalk; E-I, sclerites from cortex of a lobe; J-L, sclerites from the tentacles.

4. *Cladiella pachyclados* (Klunzinger, 1877) (fig. 7)

1877. *Alcyonium pachyclados* klunzinger, *Die Korallthiere des Rothen Meeres.*, 1: 24-25, pl. 1, fig. 5.

1971. *Cladiella pachyclados*: Verseveldt, *Zool. Verhand.*, Leiden, (117): 9-10.

Material examined : Little Andaman, 15.iii.1995, D.V.Rao, Reg. No. 3538.

Description : Colony small, found attached to rocks with small stalk. Capitulum with rounded or slightly conical shaped lobes measuring 4 to 6 mm wide and densely packed. Most of the zooids are retracted. Surface and interior of the lobes and stalk with large dumbbell shaped spicules up to 0.10 mm long. The dumbbells have perfect narrow waist. Small biscuit-like forms, 0.05 to 0.07 mm long, are present in tentacles; some spicules have two transparent centers.

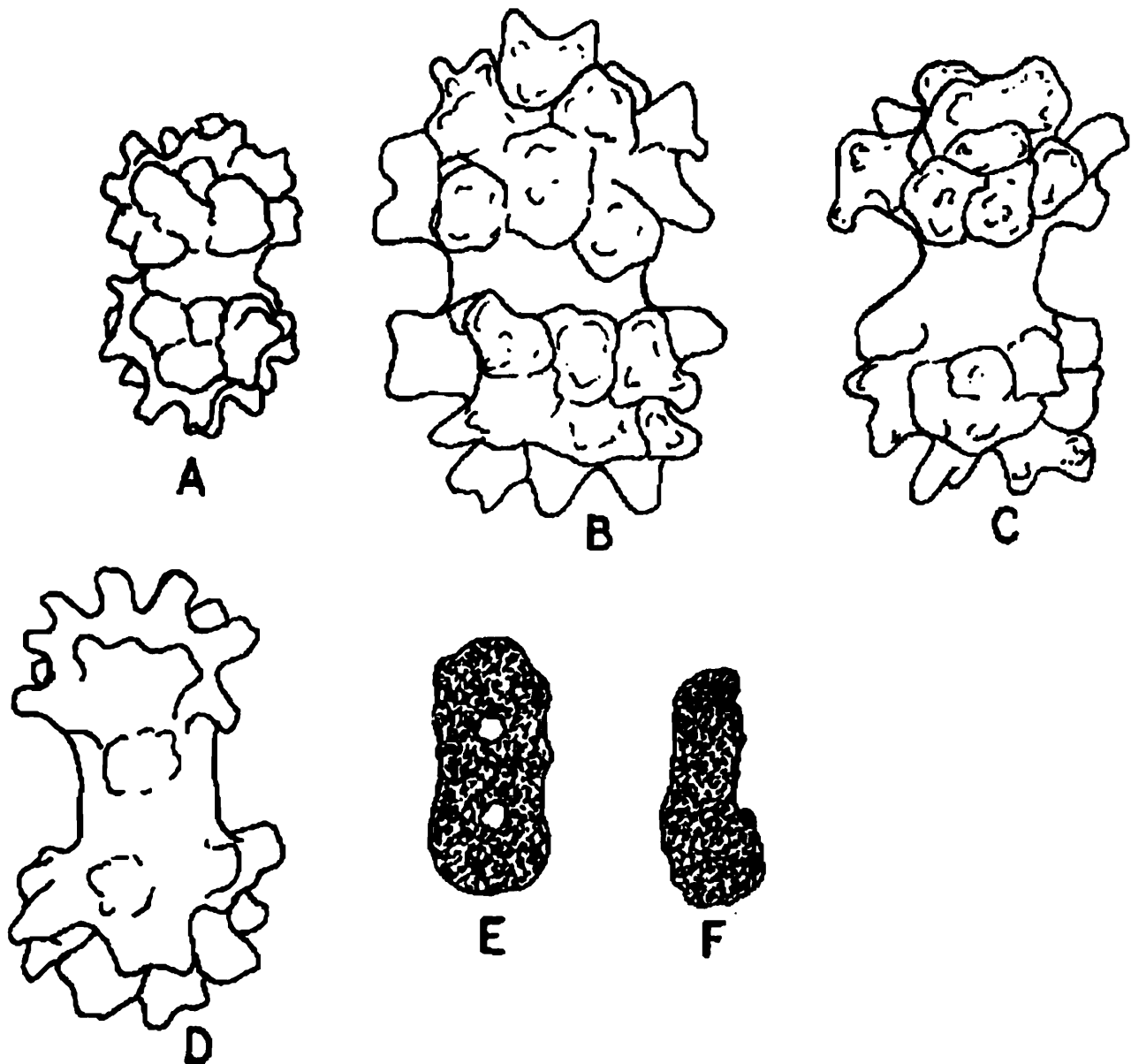


Fig. 7. *Cladiella pachyclados* (Klunzinger) A-D, sclerites from interior of the stalk; E-F, sclerites from the tentacles.

Colour : Colony brown, sterile stalk white. Entire colony becomes white when disturbed.

Habitat : Found in shallow reef regions of 1 to 2 ms depth.

Distribution : India (Little Andaman). Widely distributed in Red Sea, Pacific and Indian Oceans.

Family ALCYONIIDAE

*5. *Lobophytum altum* Tixier-Durivault, 1956 (fig. 8)

1956. *Lobophytum altum* Tixier-Durivault, *Bull. Nat. Hist. nat.*, Paris, 28(4): 476.

1983. *Lobophytum altum*: Verseveldt, *Zool. Verhand.*, Leiden. (200): 14-16 fig. 1, pl. 1, fig. 1.

Material : Hobday Island (South Andaman), 18.v.1996, D. R. K. Sastry, Reg. No. 3566.

Description : Colony has a small stalk; the lobes crest-like, erect and thick, not overlapping. Surface layer of the lobes have clubs, 0.11 to 0.26 mm long; the heads and handles are warty and zoned. Spindles of the lobe interior are 0.29 to 0.42 mm long have distinct median waist and the warts arranged in girdles; cylinder type sclerites have warts or low cone shaped processes; small crosses are also present. Surface layer of the stalk has small clubs and warty cylinders measuring 0.10 to 0.14 mm long and interior of the stalk has capstons, dumbbells, barrels and few cylinders measuring 0.22 to 0.28 mm long. Long spindles up to 0.42mm are also present.

Colour : Colony light greenish brown.

Habitat : Found in shallow intertidal reef flats.

Distribution : India (South Andaman, Lakshadweep), Seychelles and Rodrigues.

6. *Lobophytum batarum* Moser, 1919 (fig. 9)

1919. *Lobophytum batarum* Moser, *Mitt. Zool. Mus.*, Berlin, 9(2): 219-294, fig. 14, pl. 6, fig. 13.

1983. *Lobophytum batarum* Verseveldt, *Zool. Verhand.*, Leiden. (200): 16-18, figs. 2, 3, pl. 7, fig. 1.

Material : Little Andaman, 15.iii.1995, D.V.Rao, Reg. No. 3567.

Description : Colony flat and thick has high stalk; the disc has numerous radially directed erect lobes; some lobes are also divided into finger-like processes. Surface layer of the lobes contains clubs, cylinders and rods. The smaller clubs have central wart, warts on handles are arranged in two or more girdles. Heads of the longer clubs measuring 0.08 to 0.26 mm long

are wide and do not have central wart; the cylinders and rods measuring 0.16 to 0.26 mm long are warty and arranged in girdles. Interior of the lobes contains slender, pointed spindles, 0.32 to 0.42 mm long. Clubs of the surface layer of the stalk are 0.10 to 0.28 mm long, heavily warted and are similar to the clubs of lobe surface. Interior of the stalk contains warty pointed spindles of 0.32 to 0.55 mm long.

Colour : Colony light brownish green.

Habitat : Found on intertidal to sub-tidal reef flats.

Distribution : India (South and Little Andaman, Lakshadweep), Madagascar, Philippines, Vietnam and Okinawa.

7. *Lobophytum catalai* Tixier-Durivault, 1957 (fig. 10, Plate I, fig. 1)

1957. *Lobophytum catalai* Tixier-Durivault, *Bull. Mus. Nat. Hist. nat.*, Paris, 29(1):111.

1983. *Lobophytum catalai*: Verseveldt, *Zool. Verhand.*, Leiden, (200):22-25, figs. 5,6, pl.2, figs. 2,3.

Material : Twin Islands (South Andaman), 28.iv.1994, N.V.S.Rao and party, Reg. No. 3573; Henry Lawrence (South Andaman), 4.iv.1996, D.R.K.Sastry, Reg. No. 3574.

Description : Colony encrusted, capitulum disc-like has erect and finger-like lobes; some lobes are clavate. Surface layer of a lobe contains numerous small rods and clubs, 0.04 to 0.08 mm long. The rods have two terminal clusters of very small prominences and the clubs have single slightly thicker cluster; the longer clubs are up to 0.18 mm long with illdefined heads and their handles have zoned warts. Lobe interior contains oval shaped capstans, cylinders and spindles, 0.22 to 0.27 mm long, have two or four zones of warts; crosses are also present. Surface layer of the stalk has clubs and cylinder-like forms similar to those in the lobes. Internal sclerites are also similar to the lobe interior and are up to 0.29 mm long, but spindles are absent.

Colour : Colony greenish, light brown in alcohol.

Habitat : Found in sub-tidal reef zones.

Distribution : India (South and North Andaman), Madagascar, Vietnam, Fiji Is., Tuamotu Is., New Caledonia, Cook Is., Gambier Is. and Mururua Is.

*8. *Lobophytum crassum* Von Marenzeller, 1886 (fig. 11, Plate I fig. 2)

1886. *Lobophytum crassum* Von Marenzeller, *Zool. Jahrb (Syst)*, 1: 363-364, pl. 9, fig. 8.

1971. *Lobophytum cristagalli*: Verseveldt, *Zool. Verhand.*, Leiden, (117):16-17, fig.8.

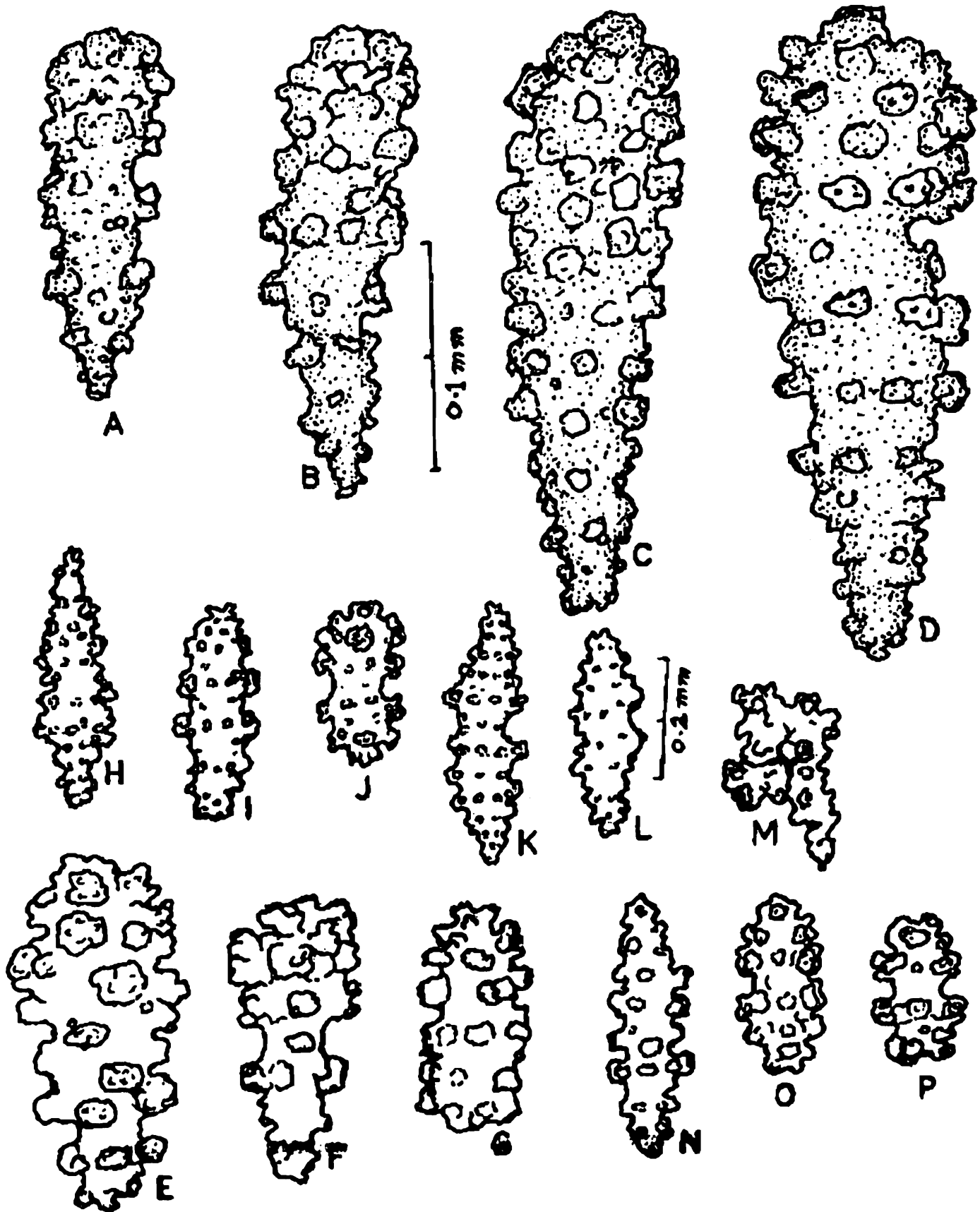


Fig. 8. *Lobophytum altum* Tixier- Durivault A-D, sclerites from surface layer of a lobe; E-G, sclerites from surface layer of the base; H-M, sclerites from interior of a lobe; N-P, sclerites from interior of the base. (Enlargement of A-G by 0.1mm scale and H-P by 0.2 mm scale)

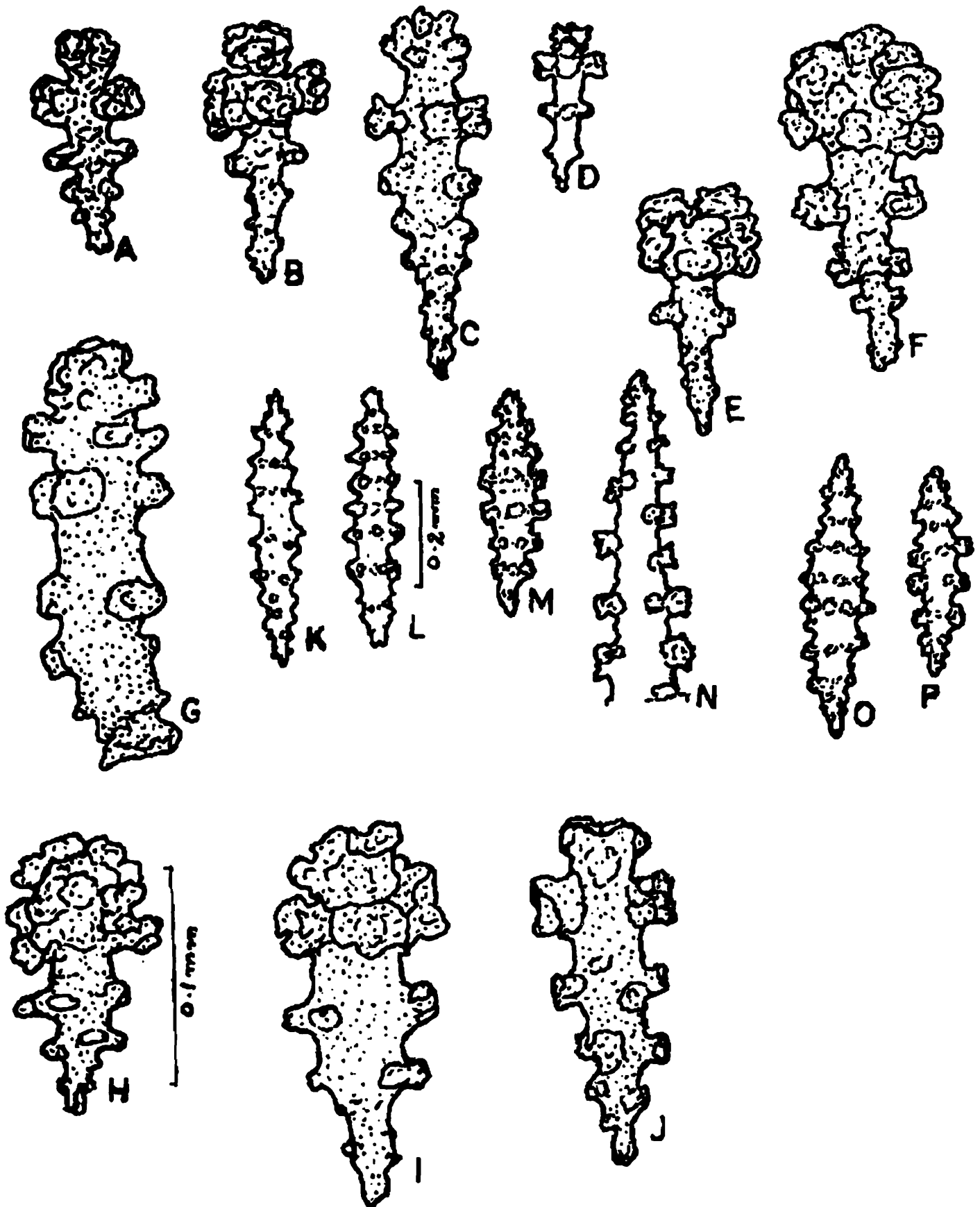


Fig. 9. *Lobophytum batarum* Moser A-G, sclerites from surface layer of a lobe; H-J, sclerites from surface layer of the stalk; K-N, sclerites from interior of a lobe; O-P, sclerites from interior of the stalk. (Enlargement of A-J and N by 0.1 mm scale and K-M and O-P by 0.2 mm scale).

1983. *Lobophytum crassum*: Verseveldt, *Zool. Verhand.*, Leiden, (200):25-32, figs. 8,9, pls. 4,5, pl.6 fig.3, pl.7, fig .3.

Material : Little Andaman, 15.iii.1995 & 9.iii.1995, D.V.Rao, Reg. No. 3545 and 3546; Henry Lawrence (Ritchie's Archipelago), 4.iv.1996, D.R.K.Sastry, Reg. No. 3547; Havelock Is. (Ritchie's Archipelago), 5.iv.1996, D.R.K.Sastry, Reg. No. 3548; Jolly Buoy (South Andaman), 16.v.1996, D.R.K.Sastry, Reg. No. 3550; Hobday Is. (South Andaman), 18.v.1996. D.R.K.Sastry, Reg. No. 3549; Peacock Is. (North Andaman), 13.xii.1997. D.V.Rao, Reg. No. 3551; East Is. (North Andaman), 11.xii.1997. D.V.Rao, Reg. No. 3552; West Is. (North Andaman), 15.xii.1997. D.V.Rao, Reg. No. 3553.

Description : Colonies are encrusted; the stalk at its base is wider and the capitulum is disc-like; the lobes are crest-like, firm and radially directed around the margin and have finger-like lobules. Central part of the disc has small crests in some colonies. Surface layer of the lobes contains clubs, 0.12 to 0.19 mm long, with weakly developed heads and two distinct median girdles of warts. The longer clubs of 0.17 to 0.23 mm long are also common. In addition, numerous shuttles, 0.08 to 0.15 mm long, with blunt cone shaped processes arranged in 2-3 girdles are also present. Sclerites of the lobe interior are oblong or fusiformspindles, 0.20 to 0.29 mm long, with four girdles of warts. Few small capstans, 0.15 to 0.19 mm long, are also present. Clubs in the surface layer of the stalk are slightly shorter and wider, 0.10 to 0.17 mm long, with bigger warts. Sclerites of the stalk interior are of two types: the ovals or barrels, 0.20 to 0.22 mm long, with two distinct girdles and terminal clusters of warts and the others are longer spindles, 0.23 to 0.30 mm long, similar to those in the lobes.

Colour : Colony light greenish to brown.

Habitat : Found on intertidal to sub-littoral reef flats.

Distribution : India (Andaman Islands, Gulf of Mannar and Lakshadweep). Widely distributed in Indo-West Pacific region.

***9. *Lobophytum crebriplicatum* Von Marenzeller, 1886 (fig. 12)**

1886. *Lobophytum crebriplicatum* Von Marenzeller, *Zool. Jahrb (Syst.)*, 1: 341-368, pl. 9, fig. 7.

1983. *Lobophytum crebriplicatum*: Verseveldt, *Zool. Verhand.*, Leiden, (200):32-35, figs. 10,11, pl.8, figs. 1, 2.

Material : Peacock Is. (North Andaman), 13.xii.1997, D.V.Rao, Reg. No. 3568.

Description : Colony is low and encrusted. The capitulum is hollow with flexible thick and closely set sinuous plate like lobes and some lobes are finger-like. Surface layer of a lobe

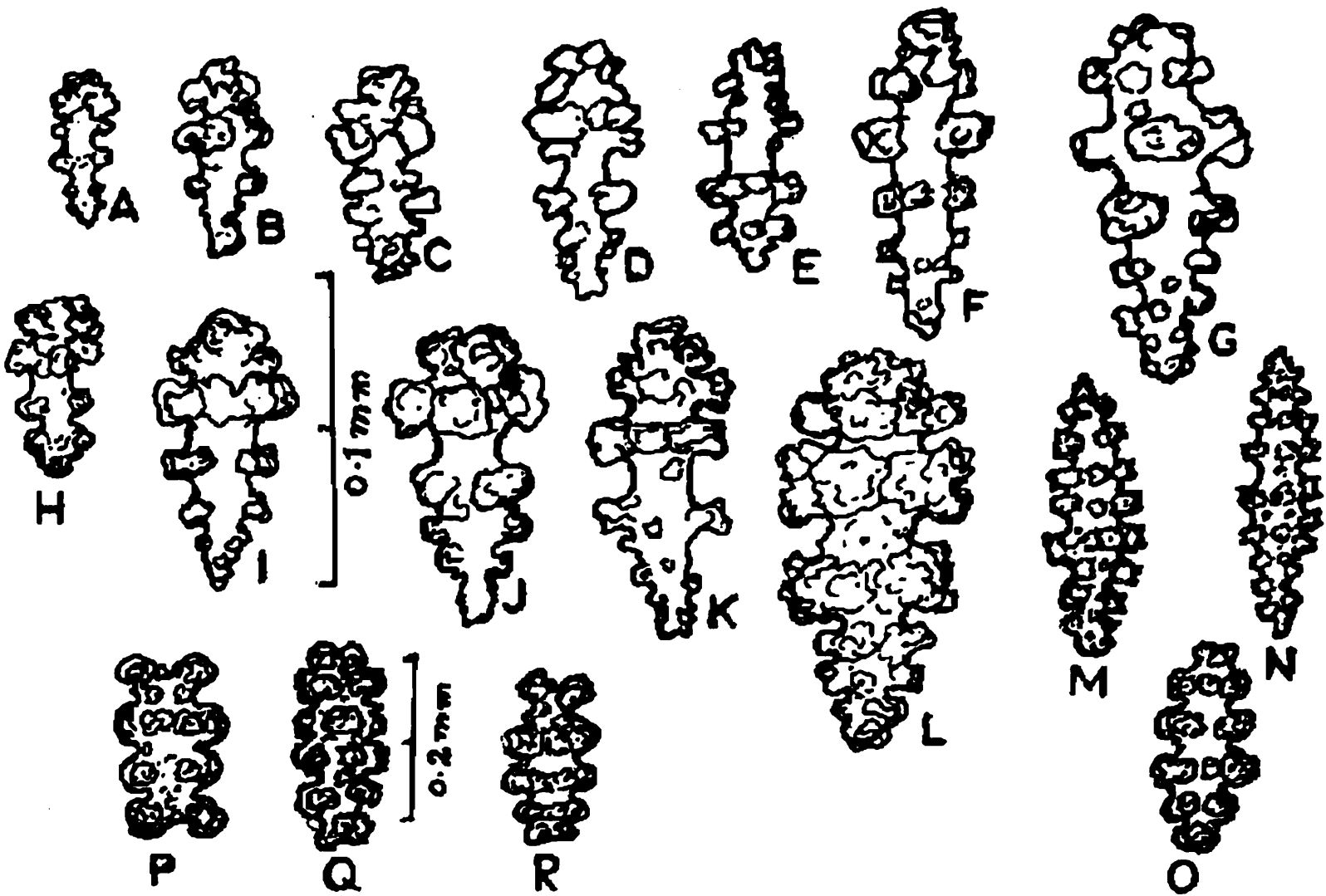


Fig. 10. *Lobophytum catalai* Tixier-Durivault A-G, sclerites from surface layer of a lobe; H-L, sclerites from surface layer of the stalk; M-O, sclerites from interior of a lobe; P-R, sclerites from interior of the stalk. (Enlargement of A-L by 0.1 mm scale and M-R by 0.2mm scale).

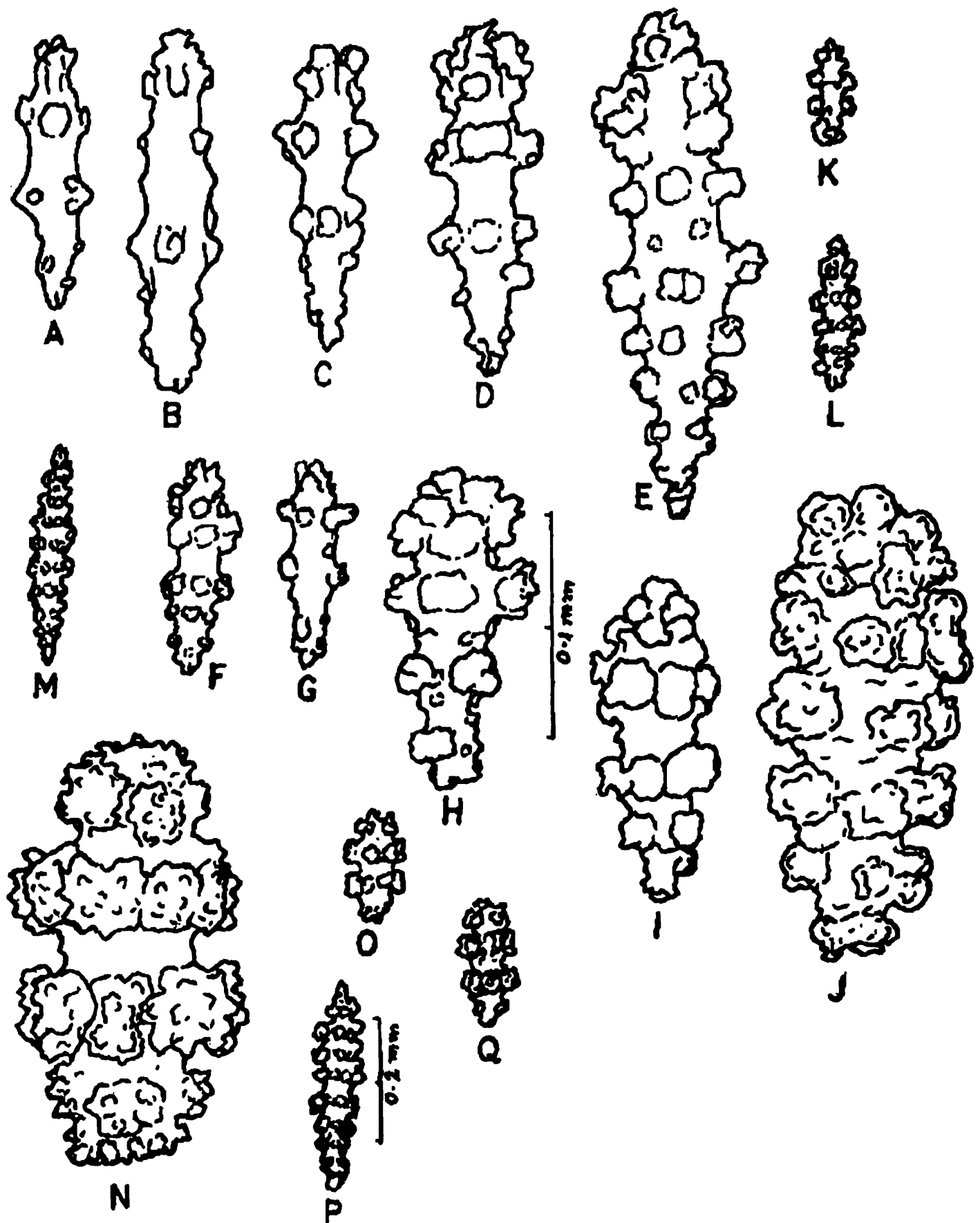


Fig. 11. *Lobophytum crassum* Von Marenzeller A-E, sclerites from surface layer of a lobe; F-J, sclerites from surface layer of the stalk; K-M, sclerites from interior of a lobe; N-Q, sclerites from interior of the stalk. (Enlargement of A-J and N by 0.1mm scale and K-M and O-Q by 0.2 mm scale).

contains longer clubs measuring 0.15 to 0.26 mm long; few smaller clubs measuring 0.10 to 0.12 mm long are also present. The clubs are rod shaped, their heads are less distinct with few erect thorns; the handles bare small warts and the tubercles arranged in zones. Interior of the lobes contains slender spindles, 0.25 to 0.38 mm long, have small warts arranged in distinct girdles. Surface layer of the stalk contains 0.12 to 0.22 mm long clubs; the warts on the clubs are big and zoned. Interior of the stalk contains numerous 0.20 to 0.25 mm long oblong spindles; the warts on the spindles arranged in four whorls and terminal clusters. A few pointed spindles up to 0.32 mm long are also present.

Colour : Colony light brown.

Habitat : Found on intertidal reef flats.

Distribution : India (North Andaman), Tonga Is., Australia, Palau Is., Bonin Is., Guam, Vietnam and Zanzibar.

10. *Lobophytum hirsutum* Tixier-Durivault, 1956 (fig. 13, Plate I, fig. 3)

1956. *Lobophytum hirsutum* Tixier-Durivault, *Bul. Mus. nat. Hist. Nat.*, Paris, 28(6): 541-542.

1983. *Lobophytum hirsutum*: Verseveldt, *Zool. Verhand.*, Leiden, (200): 51, fig. 21, pl. 11.

Material examined : Rutland Is. (South Andaman), 27.iii.1994, D.V.Rao, Reg.No. 3543; Jolly Buoy Is. (South Andaman), 16.v.1996, D.R.K.Sastry, Reg.No. 3544.

Description : Capitulum of the colony consists of finger-like lobes and a narrow stalk. Surface layer of the lobes contains few clubs measuring 0.12 to 0.25 mm long; their heads and handles are warty, and the middle row warts form into girdles. Spicules of lobe interior are pointed warty spindles, 0.32 to 0.46 mm long, and the warts on the spicules are zoned in the middle. Clubs of the surface layer of the stalk are almost similar to the lobes, 0.09 to 0.15 mm long. Internal sclerites are oblong to cylindrical, 0.17 to 0.26 mm long; some longer spicules up to 0.34 mm are also present.

Colour : Light green. Light brown in alcohol.

Habitat : Found on shallow littoral reef flats.

Distribution : India (South and Middle Andaman), Vietnam

11. *Lobophytum pauciflorum* (Ehrenberg, 1834) (fig. 14, Plate I, fig. 4).

1834. *Lobophytum pauciflorum* Ehrenberg, *Die Corallenliere des rothen Meres physioilgisch untersucht und systematisch verzeich nat.*(1): 58.

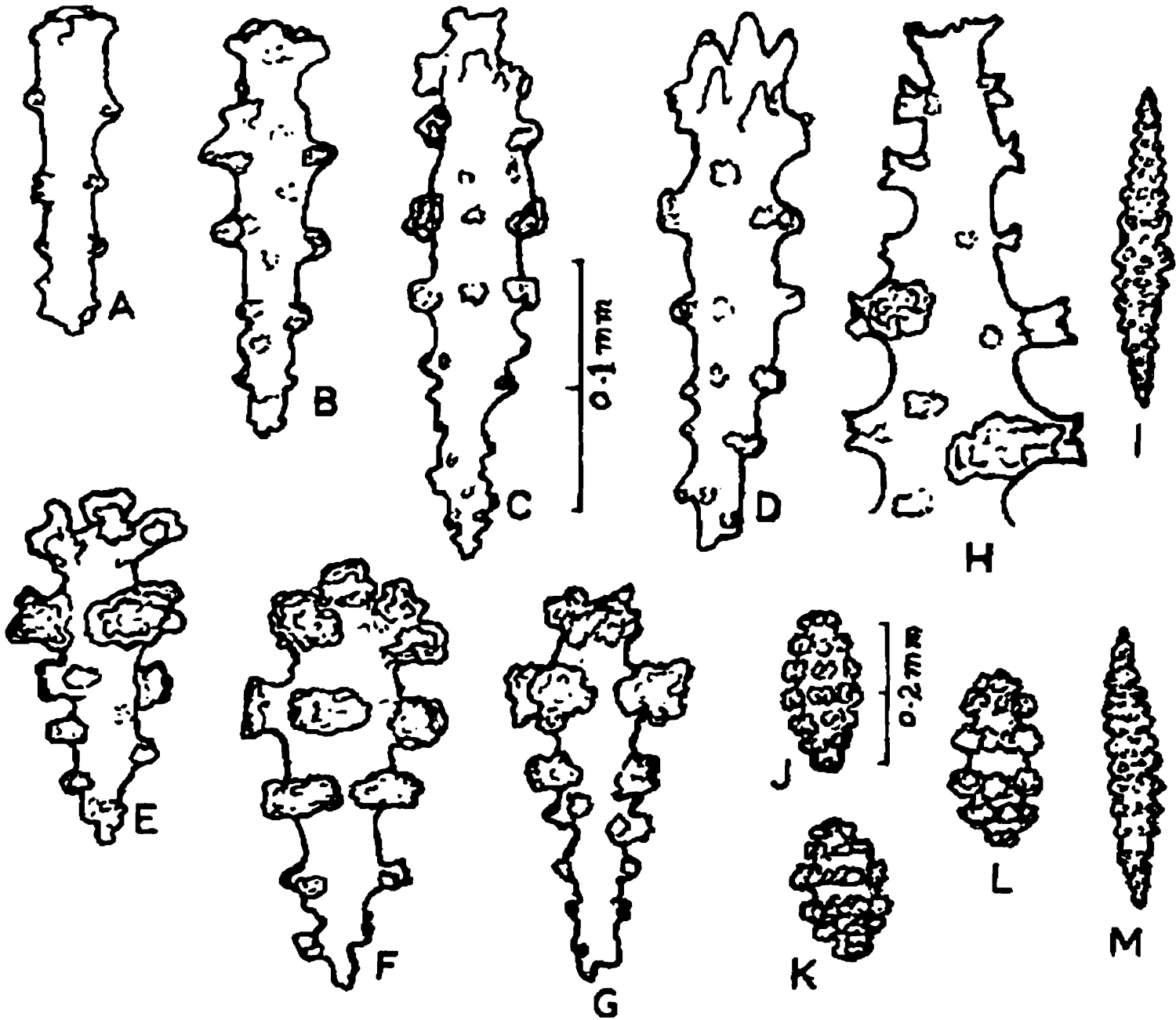


Fig. 12. *Lobophytum crebriplicatum* Von Marenzeller A-D, sclerites from surface layer of a lobe; E-G, sclerites from surface layer of the stalk; H-I, sclerites from interior of a lobe; J-M, sclerites from interior of the stalk. (Enlargement of A-H by 0.1 mm scale and I-M by 0.2 mm scale).

1983. *Lobophytum pauciflorum*: Verseveldt, *Zool. Verhand.*, Leiden. (200): 74-79, pl. 21, figs. 1,2, pl. 22.

Material : Little Andaman, 20.ii.1995, D.V.Rao, Reg.No. 3554; Pongibalu (South Andaman), 4.ii.1996, D.R.K.Sastry, Reg.No. 3555; Henry Lawrence (Ritchie's Archipelago), 4.iv.1996, D.R.K.Sastry, Reg.No. 3556; Havelock Is. (Ritchie's Archipelago), 5.iv.1996, D.R.K.Sastry, Reg.No. 3557; Jolly Buoy (South Andaman), 16.v.1996, D.R.K.Sastry, Reg.No. 3558; Landfall Is. (North Andaman), 10.xii.1997, D.V.Rao, Reg.No. 3559; Peacock Is. (North Andaman), 13.xii.1997, D.V.Rao, Reg.No. 3560; Temple Is. (North Andaman), 2.xii.1997, D.V.Rao, Reg.No. 3561; East Is. (North Andaman), 12.xii.1997, D.V.Rao, Reg.No. 3562.

Description : Colonies are low and encrusted; the capitulum is flat with erect digitiform and laterally flattened lobes; the lobes fused at their base and forming crests. The sclerites in the surface layer of the lobes are fusiform measuring 0.10 to 0.19 mm long; shuttles with cone shaped prominences; some are spindles have warty zones. The spindles of lobe interior are long and pointed, 0.23 to 0.42 mm long, with warts arranged in a number of zones. Surface layer of the stalk has few clubs, 0.10 to 0.14 mm long, and few short spindles, 0.10 to 0.16 mm long, with two zones of warts. Stalk interior has capstans and cylindrical sclerites. The capstans have two to four girdles of warts. Crosses are common.

Colour : Light greenish brown.

Habitat : Found on intertidal reef flats.

Distribution : India (Andaman Islands, Gulf of Mannar and Lakshadweep). Widely distributed in the Indo-West Pacific region.

***12. *Lobophytum planum* Tixier-Durivault, 1970 (fig. 15)**

1960a. *Lobophytum planum* Tixier-Durivault, *L'Expedition francaise sun les recifs coralliens de la Nouvelle-Caledonie*, 4:213-215, fig. 47-48.

1983. *Lobophytum planum*: Verseveldt, *Zool. Verhand.*, Leiden. (200): 79, fig. 38, pl. 23, fig. 1.

Material : Little Andaman, 21.iii.1995, D.V.Rao, Reg.No. 3565.

Description : Colony flat dish-shaped and has few flattened lobes; no distinct stalk. Clubs of the surface layer of the lobe are 0.10 to 0.20 mm long and have small heads; heads of the larger clubs have upwardly directed small prominences, and the handles bear small warts and blunt thorns arranged in girdles. Interior of the lobes contains capstans and spindle shaped sclerites. The small sclerites, 0.16 to 0.18 mm long, have two girdles of warts and clusters at the ends; the oblong forms, 0.21 to 0.26 mm long, have 3 or 4 girdles of warts; the warts are irregularly arranged in bigger sclerites of 0.28 mm long and above. Surface layer of the

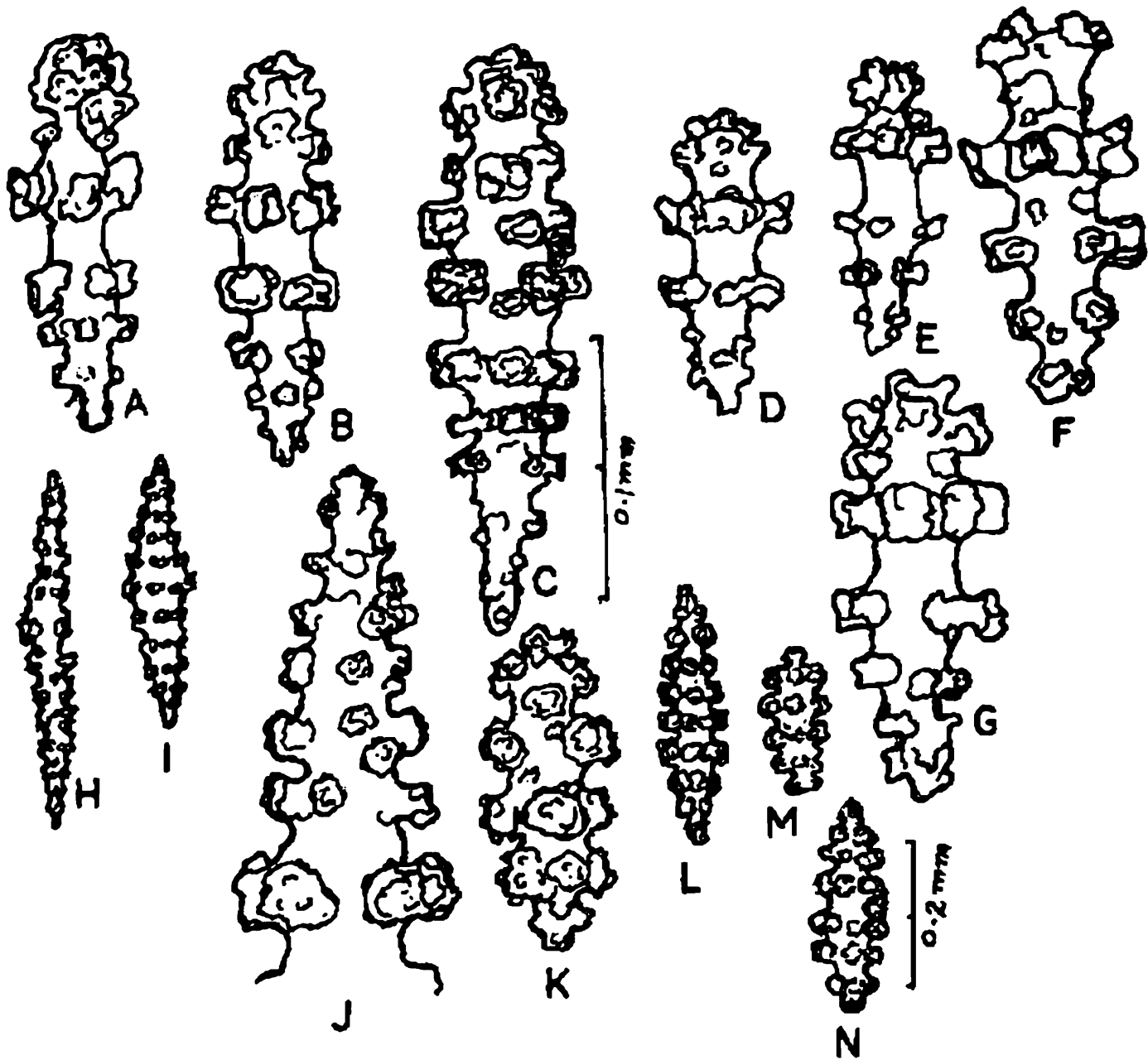


Fig. 13. *Lobophytum hirsutum* Tixier-Durivault A-C, sclerites from surface layer of a lobe; D-G, sclerites from surface layer of the stalk; H-J, sclerites from interior of a lobe; K-N, sclerites from interior of the stalk. (Enlargement of A-G and J by 0.1 mm scale and H, I and K-M by 0.2 mm scale)

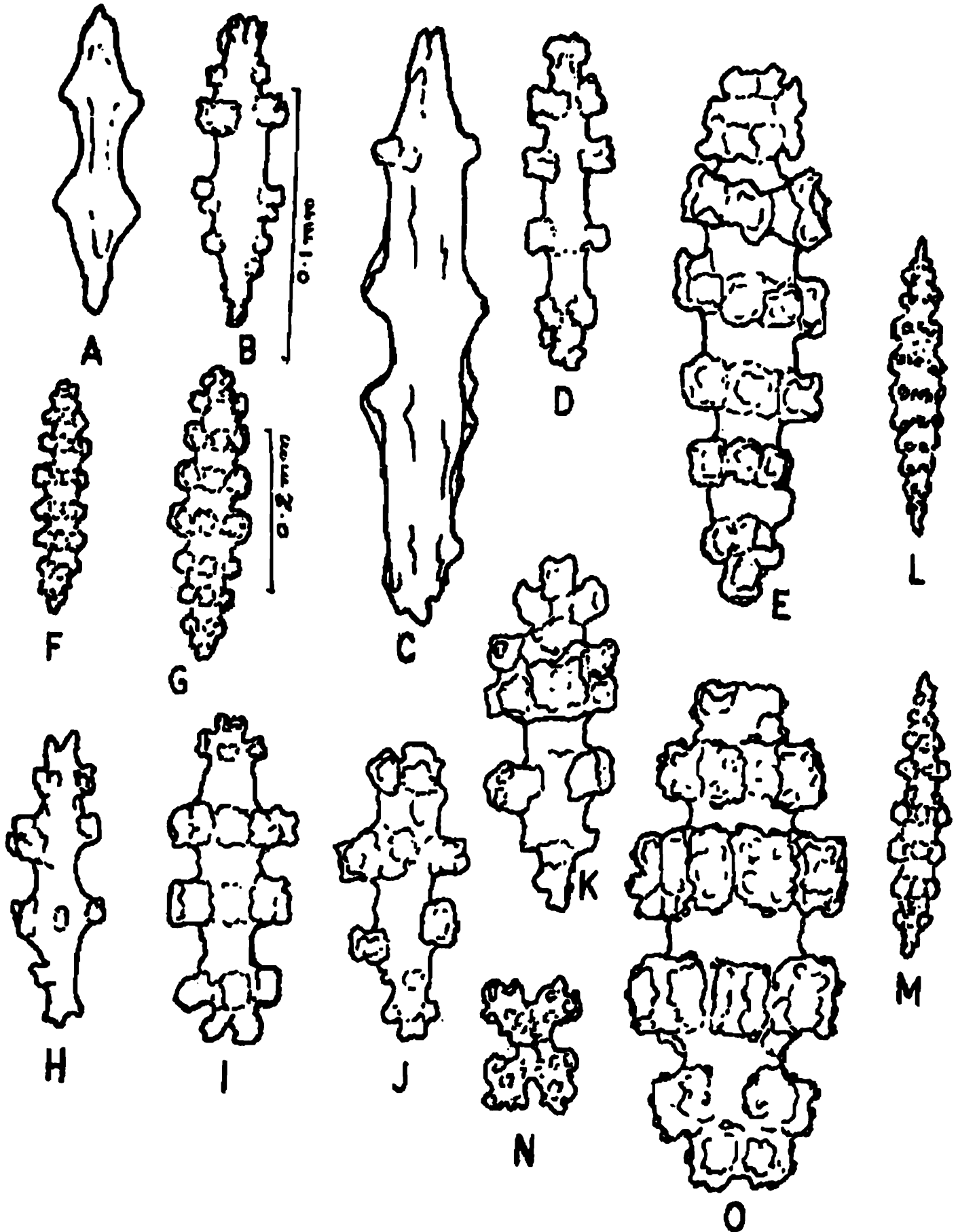


Fig. 14. *Lobophytum pauciflorum* (Ehrenberg) A-G, sclerites from surface layer of a lobe; H-K, sclerites from surface layer of the stalk; L-M, sclerites from interior of a lobe; N-O, sclerites from interior of the stalk. (Enlargement of A-E, H-K and O by 0.1 mm scale and F,G, L-N by 0.2 mm scale).

basal part of the colony has 0.08 to 0.12 mm long clubs. The clubs have small warts and blunt thorns arranged in 2 or 3 zones. Interior of the basal part of the colony contains 0.16 to 0.22 mm long barrels and capstans, the warts are arranged in zones; some sclerites are long and spindle shaped, up to 0.30 mm, have irregularly arranged warts.

Colour : Colony light green. Specimen preserved in alcohol turned to light brown.

Habitat : Shallow intertidal reef areas.

Distribution : India (Little Andaman) and New Caledonia.

13. *Lobophytum pusillum* Tixier-Durivault, 1970 (fig. 16)

1970. *Lobophytum pusillum* Tixier-Durivault, *L' Expedition francaise.... Cal; edonie organisee....Singer polignac* 1960-1963, 4: 220, fig. 52-54.

1983. *Lobophytum pusillum*: Verseveldt, *Zool. Verhand.*, Leiden. (200): 82-83, fig. 40, pl.18, figs. 2,3.

Material : Pongibalu Little Andaman, 20.iii.1995, D.V.Rao, Reg. No. 3571; (South Andaman), 4.ii.1996, D.R.K.Sastry, Reg. No. 3570.

Description : Colony encrusted and the lobes are finger-like. Surface layer of the lobes contains shuttles, rods and clubs measuring 0.10 to 0.20 mm long; the shuttles having volcano shaped processes, the rods have truncated thorns, while the clubs have narrow heads with truncated thorns and simple warts. Lobe interior contains cylinders and spindles, 0.18 to 0.37 mm long, have simple warts arranged in zones. Surface layer of the stalk also contains rods, shuttles and clubs similar to the sclerites of the lobe. Interior of the stalk contains dumbbells and capstans have two girdles of warts and terminal clusters; some longer sclerites up to 0.2 mm long and spindle shaped sclerites up to 0.26 mm are also present.

Colour : Colony light green.

Habitat : Found on reef flats in sub-tidal zone.

Distribution : India (South and Little Andaman) and New Caledonia.

*14. *Lobophytum sarcophytoides* Moser, 1919 (fig. 17)

1919. *Lobophytum sarcophytoides* Moser, *Mitt. Zool. Mus.*, Berlin, 9(2): 267-268, fig. 13, pl. 6, fig. 16.

1983. *Lobophytum sarcophytoides*: Verseveldt. *Zool. Verhand.*, Leiden, (200): 86-89 fig. 43, pl 26-27.

Material: Henry Lawrence (South Andaman), 4.iv.1996, D.R.K.Sastry and party, Reg. No. 3572.

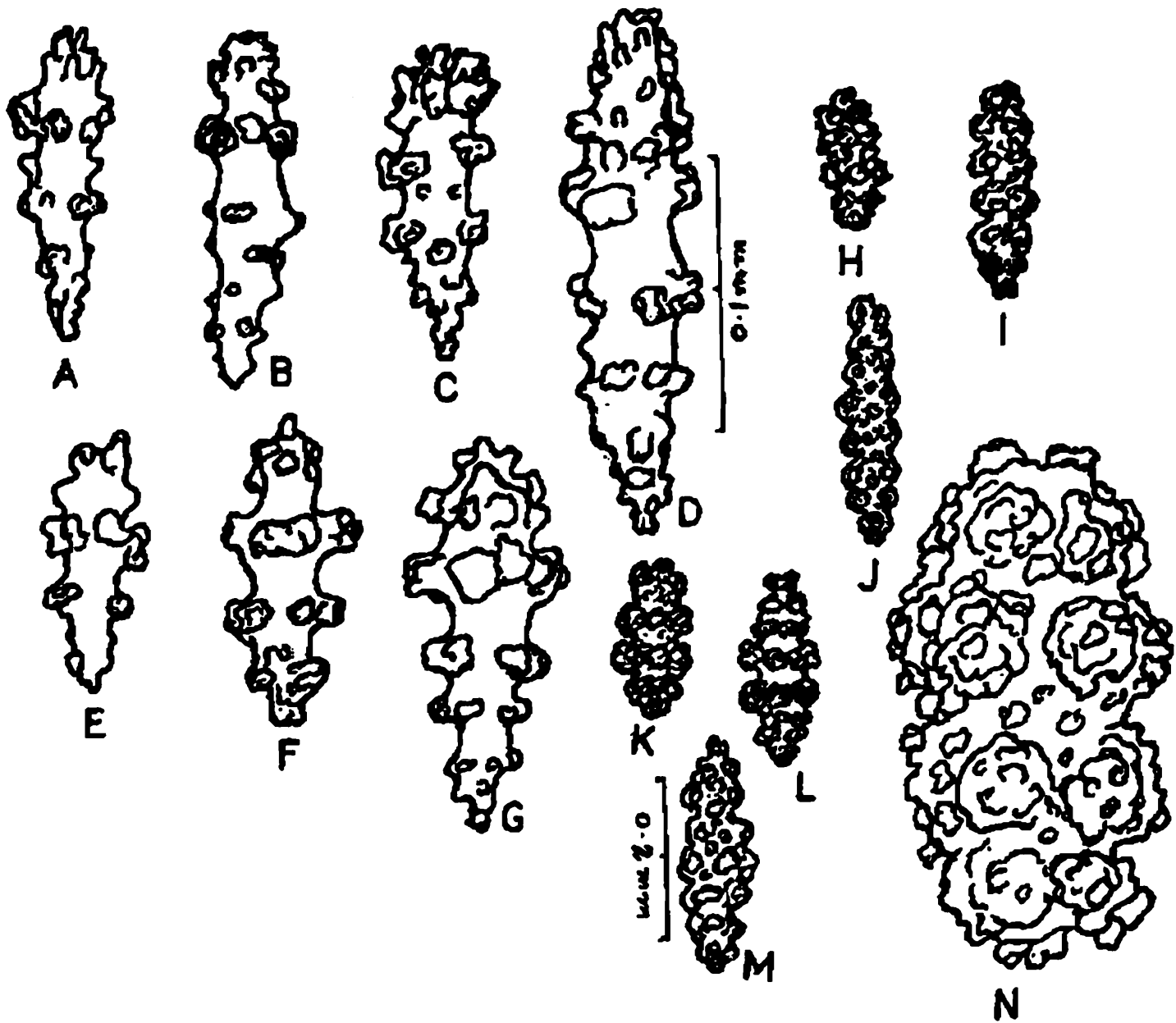


Fig. 15. *Lobophytum planum* Tixier-Durivault A-D, sclerites from surface layer of a lobe; E-G, sclerites from surface layer of the base; H-J, sclerites from interior of a lobe; K-N, sclerites from interior of the stalk. (Enlargement of A-G and N by 0.1 mm scale and H-M by 0.2 mm scale).

Description : Colony cup shaped with raised edges; the lobes are thin and folded. Surface layer of the lobes contains small clubs measuring 0.06-0.14 mm and few clubs up to 0.22 mm long are also present. Few clubs have central warts; the warts on the head are irregularly placed and the prominences on the handles are arranged in one or two girdles; handles of a few clubs have high and branched processes. Interior of the lobes contains slender pointed spindles measuring up to 0.45 mm long; the prominences on the spindles are small and the spiny warts arranged in zones; the prominences on the longer spindles are antler like. Clubs of the surface layer of the stalk are 0.08 to 0.13 mm long but few clubs up to 0.25 mm long are also present; the club heads have a central wart and some clubs have high warts. Interior of the stalk contains spindles measuring 0.24-0.34 mm long; the warts and spindles are arranged in zones.

Colour : Colony light brown.

Habitat : Found in shallow reef region.

Distribution : India (South and North Andaman, Gulf or Mannar), Philippines, New Caledonia, Madagascar, Reunion and Ryukyu Archipelago.

15. *Lobophytum strictum* Tixier-Durivault, 1957 (fig. 18)

1957. *Lobophytum strictum* Tixier-Durivault, *Bull. Mus. Nat. hist. nat.*, Paris, 29(1):109.

1983. *Lobophytum strictum*: Verseveldt, *Zool. Verhand.*, Leiden, (200): 92-94, fig. 46, pl. 23, fig. 2.

Material : Little Andaman, 21.iii.1995, D.V.Rao, Reg. No. 3564.

Description : Colony is encrusted and has low stalk; edge of the capitulum slightly folded and has densely placed finger-like lobes; central part of the capitulum slightly stout with digitiform lobes. Surface layer of the lobes contains 0.06 to 0.18 mm long warty clubs. The warts on clubs arranged in girdles. Interior of lobes contains capstans and cylinders, 0.16 to 0.24 mm long, are highly warty and arranged in girdles or irregular in distribution. Clubs of the surface layer of the stalk are similar to the lobes, but the warts on the clubs are larger. Sclerites of the stalk interior are ovals and capstans, 0.15 to 0.21 mm long; cylindrical sclerites up to 0.24 mm long are also present. The warts on the spicules are zoned or irregular.

Colour : Colony light greenish white. Preserved specimen in Alcohol light brown.

Habitat : Intertidal to sub-tidal reef flats.

Distribution : India (South and Little Andaman and Lakshadweep), Vietnam.

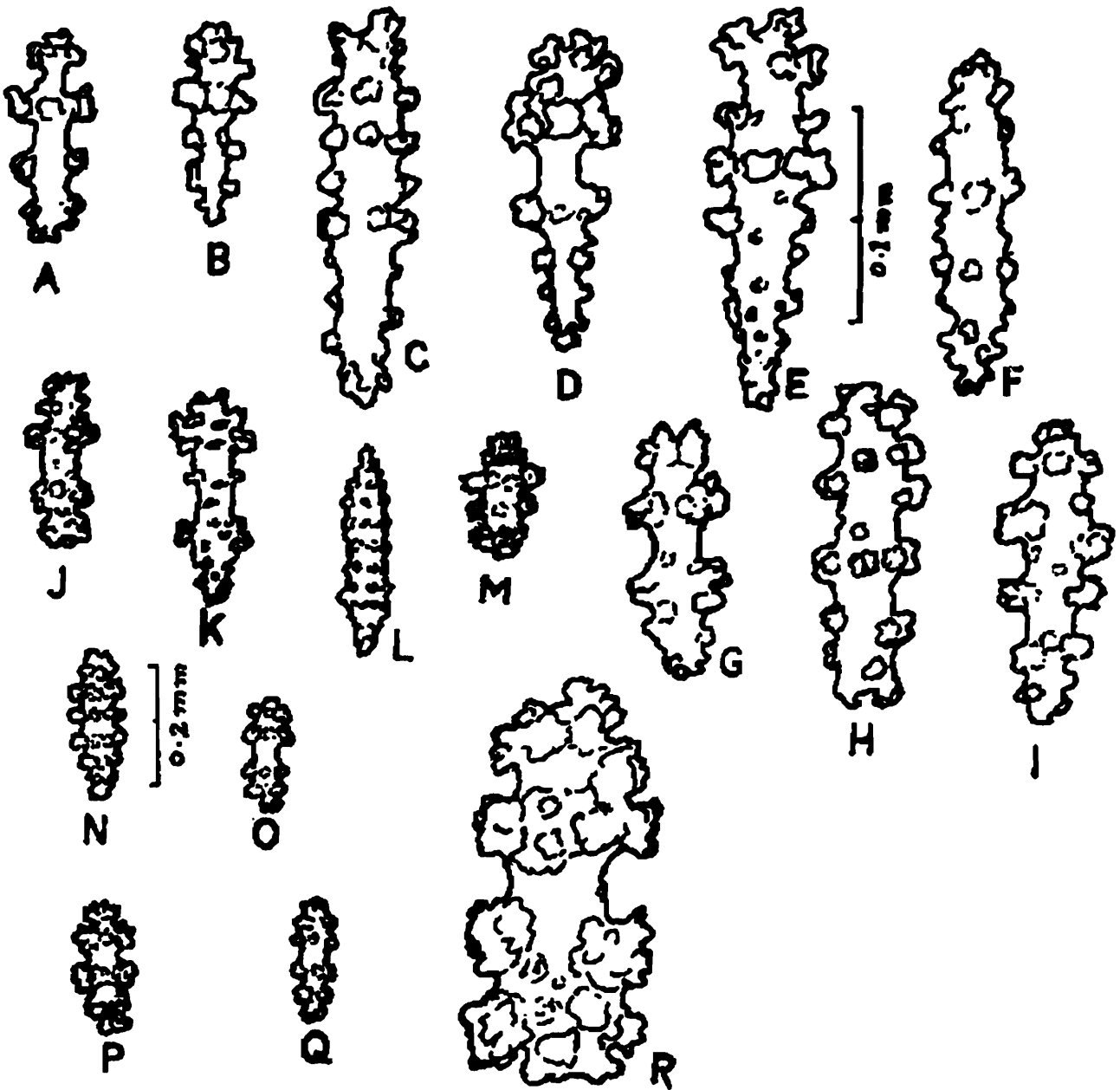


Fig. 16. *Lobophytum pusillum* Tixier-Durivault A-E, sclerites from surface layer of a lobe; F-I, sclerites from surface layer of the stalk; J-M, sclerites from interior of a lobe; N-R, sclerites from interior of the stalk. (Enlargement of A-I and R by 0.1 mm scale and J-Q by 0.2 mm scale).

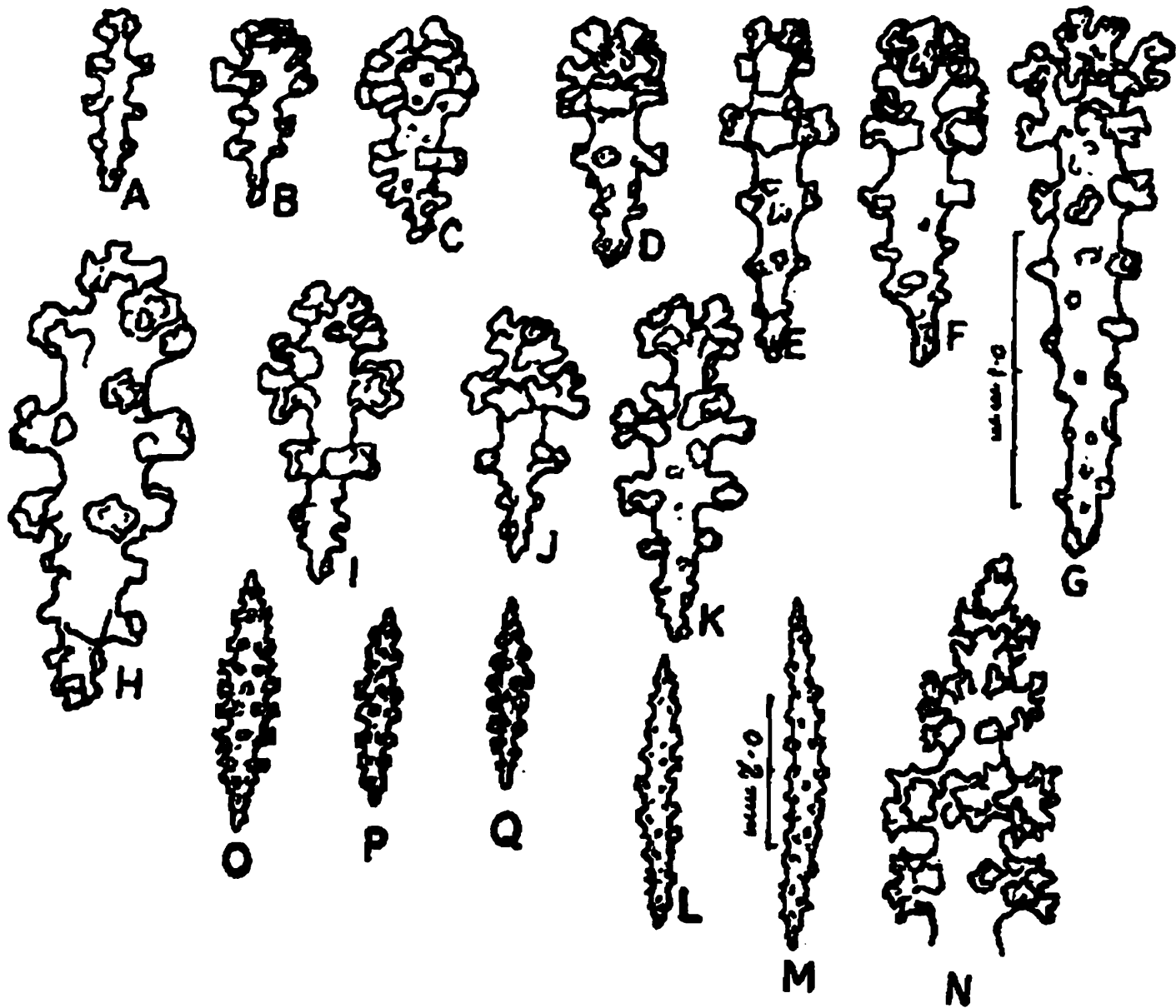


Fig. 17. *Lobophytum sarcophytoides* Moser A-G, sclerites from surface layer of a lobe; H-K, sclerites from surface layer of the stalk; L-N, sclerites from interior of a lobe; O-Q, sclerites from interior of the stalk. (Enlargement of A-K and N by 0.1 mm scale and L-M and O-Q by 0.2 mm scale.).

***16. *Lobophytum tecticum* Alderslade and Shirwaiker, 1991**

1991. *Lobophytum tecticum* Alderslade and Shirwaiker, *The Beagle Records of the Northern Territory Mus. of Arts and Sciences*, 8(1): 189-201, fig. 2-12.

Material : Havelock Is. (Ritchie's Archipelago), 5.iv.1996, D.R.K.Sastry, Reg. No. 3569.

Description : Colony encrusted and the stalk is not much conspicuous. The margin of the capitulum is folded and overhangs the stalk. Few thick lobes extended on the upper surface of the capitulum. Surface layer of a lobe contains large number of clubs and spindles measuring 0.12 to 0.22 mm long; the larger clubs, 0.32 mm long, are transitional forms to spindles. The club heads are poorly developed and warts on the handles arranged in whorls. The small clubs have smooth rounded prominences. Interior of a lobe contains large spindles measuring up to 0.44 mm long; some spindles are irregularly shaped and few are more cylindrical; the warts on the spindles are arranged in whorls. Surface layer of the base of the stalk contains 0.07 to 0.12 mm long clubs; a few longer clubs up to 0.16 mm long, small crosses and plumpy sclerites are also present. Interior of the base of the stalk contains capstons, 0.18 to 0.28 mm long; the warts are prominent and arranged in two whorls; the warts are irregularly arranged in some capstans.

Colour : Colony light greyish yellow.

Habitat : Found in shallow reef region.

Distribution : India (Andaman Islands, Lakshadweep)

***17. *Lobophytum variatum* Tixier-Durivault, 1957 (fig. 19)**

1957. *Lobophytum variatum* Tixier-Durivault, *Bull. Mus. nat. Hist. nat.*, Paris, 29(1): 110-111.

1983. *Lobophytum variatum*: Verseveldt, *Zool. Verhand.*, Leiden, (200): 94-95, fig. 47, pl. 29.

Material : Little Andaman, 19.iii.1995, one specimen, D.V.Rao. Reg. No. 3563.

Description : Colony is small, encrusted; its disc flat with few erect lobes; the stalk is not much distinct. Surface layer of the disc contains 0.05 to 0.15 mm long clubs. The smaller clubs have central wart and the longer clubs have big warty heads. Interior of the disc contains cylinders and wide rods are fusiform and blunt-ended, 0.24 to 0.32 mm long, with simple or compound warts arranged in girdles. Surface layer of the colony near the base has clubs with thick and closely set warts, 0.09 to 0.26 mm long; few smaller clubs are also present. Interior of base contains sclerites similar to the sclerites of the disc. Small shuttles are also present.

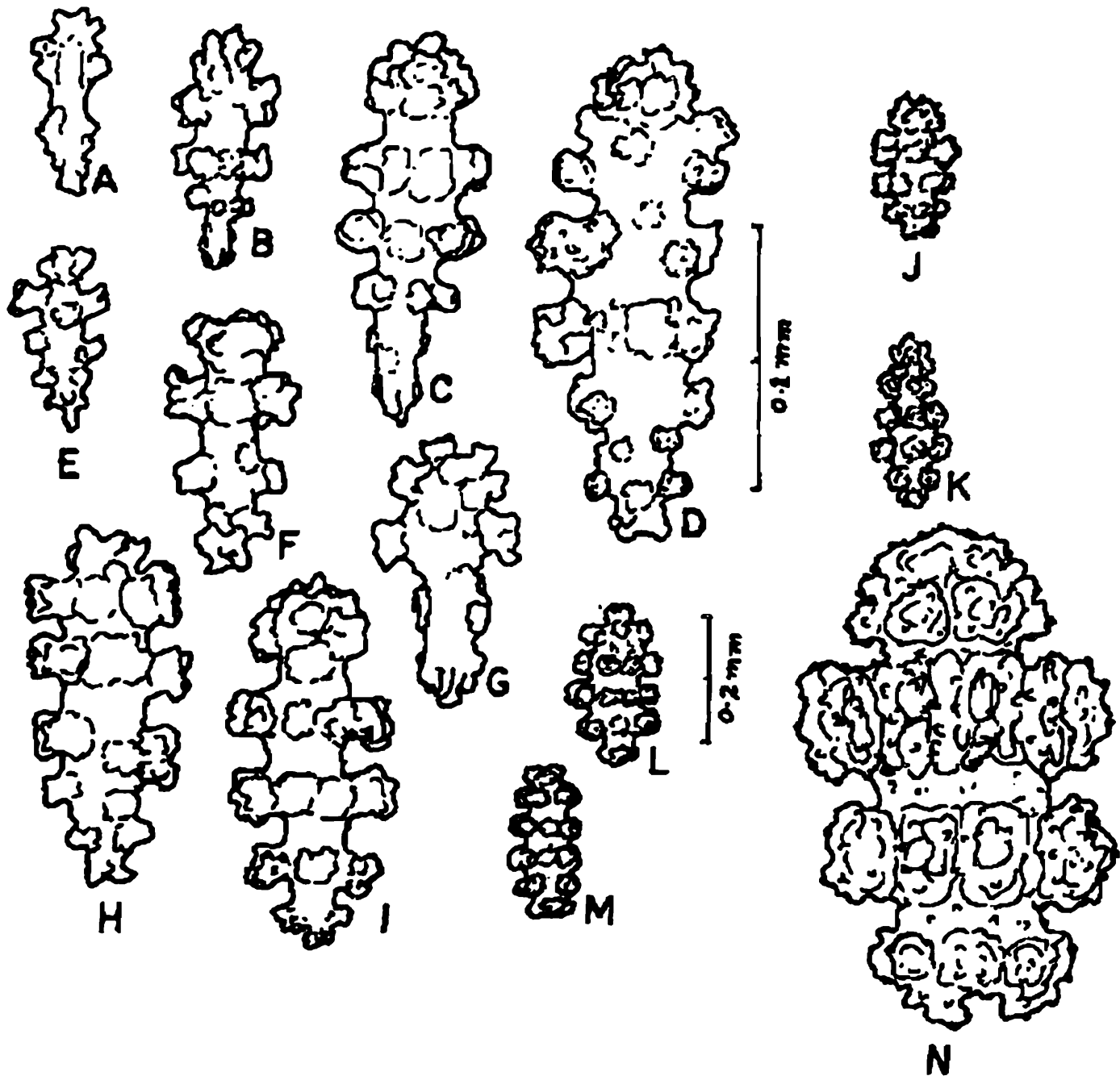


Fig. 18. *Lobophytum strictum* Tixier-Durivault A-D, sclerites from surface layer of a lobe; E-I, sclerites from surface layer of the stalk; J-K, sclerites from interior of a lobe; L-N, sclerites from interior of the stalk. (Enlargement of A-I and N by 0.1 mm scale and J-M by 0.2 mm scale).

Colour : Colony Greenish-white. Preserved specimen in alcohol light brown.

Habitat : Found in shallow intertidal reef flats.

Distribution : India (Little Andaman, Gulf of Mannar), Madagascar and New Caledonia.

18. *Sarcophyton andamanensis* Jayasree, Bhat and Paruleker, 1994

1994. *Sarcophyton andamanensis*: Jayasree et al. *J. Andaman Sci. Assoc.*, 10(1&2): 107-111, fig. 1-4.

Diagnostic features : Colony mushroom shaped; the capitulum is a heart shaped and completely flat. Polyps contain reticulate type of sclerites with wavy edges and thin rods measuring up to 0.05 mm long. Surface layer of the capitulum contains 0.03 to 3.05 mm long shuttles and 0.1 to 0.24 mm long clubs. Interior of the disc contains spindles measuring up to 0.52 mm long; some spindles are bifurcated at one end. Surface layer of the stalk contains mostly capstans measuring 0.03 to 0.19 mm long, and few sclerites that are of transitional forms to spindles are also present. Interior of the stalk contains spindles up to 0.46 mm long; some sclerites are less warty, flat and bifurcated at one end. Apart from these, irregularly shaped and flat plate like sclerites, 0.03 to 0.05 mm long, are also present.

Colour : Colony dark green with cream coloured tentacles.

Habitat : Found in rocky intertidal areas.

Distribution : India (South Andaman).

19. *Sarcophyton buitendijki* Verseveldt, 1982

1982. *Sarcophyton buitendijki*: Verseveldt, *Zool. Verhand.*, Leiden., (192): 19-22. figs. 4,5; pl. 3, fig. 3, pl.4.

1996. *Sarcophyton buitendijki* Jayasree et al. *J. Bombay nat. Hist. Soc.*, 92 : 202-209.

Diagnostic features : Colony thick and stiff; the capitulum is hollow, its margin heavily folded and the folds hang over the stalk. Surface layer of the capitulum has 0.08 to 0.21 mm long clubs, few clubs are up to 0.31 mm long; the club heads have terminal cluster of warts and below this with a girdle of big warts; the club handles bear smaller zoned warts. Interior of the disc contains pointed spindles measuring up to 0.6 mm long with irregularly placed flat warts. Surface layer of the stalk contains clubs similar to that of the lobe surface. Stalk interior contains broad ovals and round-ended cylinders, measuring up to 0.55 mm long, are densely covered with warts; pointed spindles up to 0.6 mm long are also present.

Colour : Colony grayish brown.

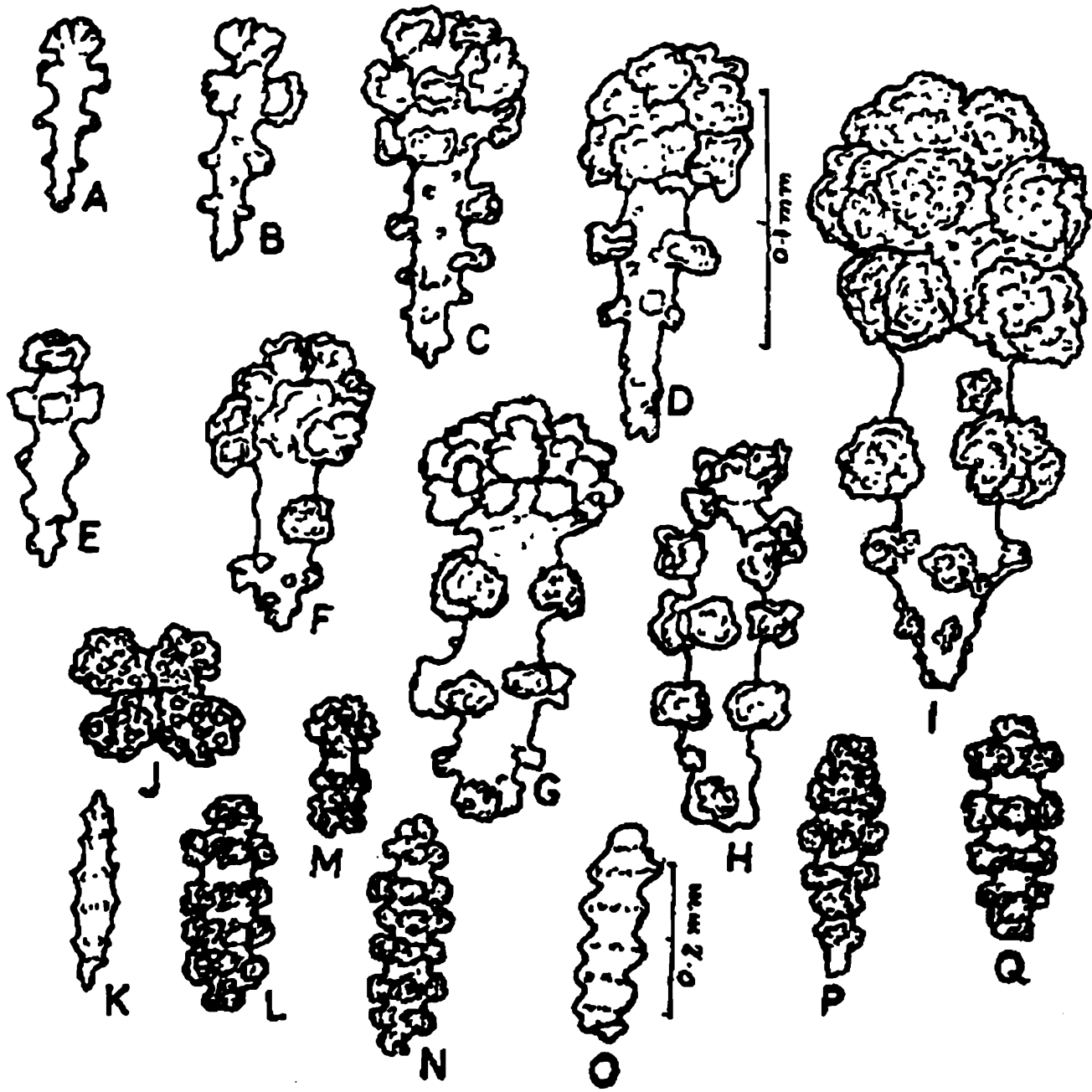


Fig. 19. *Lobophytum variatum* Tixier-Durivault A-D, sclerites from surface layer of a disc; E-I, sclerites from surface layer of the base; J-N, sclerites from interior of a disc; O-Q, sclerites from interior of the base. (Enlargement of A-I by 0.1 mm scale and J-Q by 0.2 mm scale).

Habitat : Found in shallow intertidal reef areas.

Distribution : India (Middle Andaman), Sumatra and Great Barrier Reef.

***20. *Sarcophyton cherbonnieri* Tixier-Durivault 1958, (fig. 20)**

1958. *Sarcophytum cherbonnieri* Tixier-Daurivault, *Zool. Verhand.*, Leiden, 36: 68-70, figs. 60,71,72.

1982. *Sarcophyton cherbonnieri* Verseveldt, *Zool. Verhand.*, Leiden, (192):22-24, fig. 6; pl.2.

Material : Harmander Bay (Little Andaman), 15.iii.1995, D.V.Rao, Reg. No. 3601.

Description : Colony mushroom shaped with hollow disc; the edge of the disc is thick and not much folded; most of the autozooids expanded. Surface layer of the disc contains 0.09 to 0.39 mm long clubs and rods, but most of the clubs are 0.11 to 0.16 mm long. The heads of the clubs are slightly wider than the handles and bear low rounded prominences, which are more on the heads than on the handles. Interior of the disc contains very slender spindles, measuring up to 0.40 mm long, with rounded spines densely arranged at both the ends of the spicules. Surface layer of the stalk contains blunt and wide rod like sclerites; many of them are oval shaped with median waist and bear few falacious prominences measuring 0.05 mm to 0.09 mm long; the longer sclerites, 0.10 to 0.24 mm long, are more clavate with blunt and wide spines. Interior of the stalk contains blunt ended and thickly warted spindles, measuring up to 0.93 mm long; some spindles are with irregular protuberances.

Colour : Colony dark green.

Habitat : Found in intertidal reefs up to 5 meters depth.

Distribution : India (Little Andaman, Gulf of Mannar), Madagascar.

21. *Sarcophyton crassocaule* Moser, 1919 (fig. 21)

1919. *Sarcophyton crassocaule* Moser, *Mitt. Zool. Mus. Berlin*, 9(2): 243-244, fig. 6, pl.5, fig. 10.

1982. *Sarcophyton crassocaule*: Verseveldt, *Zool. Verhand.*, Leiden, (192):27-34, figs. 9-11, pls. 5-8, pl.9, fig.1.

Material : Havelock Is. (South Andaman), 5.iv.1996, D.R.K.Sastry & party, Reg. No. 3586; Inglis Is. (South Andaman), 3.iv.1996, D.R.K.Sastry & party, Reg. No. 3587; Hut Bay (Little Andaman), 19.iii.1995, 21.iii.1995, D.V.Rao & party, Reg. No. 3588; Pongibalu (South Andaman), 4.ii.1996, D.R.K.Sastry & party, Reg. No. 3589; Hobday Is. (South Andaman), 18.5.1996, D.R.K.Sastry & party, Reg. No. 3590; Car Nicobar, 22.xi.1996 & 24.xi.1996, D.R.K.Sastry & party, Reg. No. 3591 & 3592; West Is. (North Andaman), 15.xii.1997,

D.V.Rao, Reg. No. 3593; Peacock Is. (North Andaman), 13.xii.1997, Reg. No. 3594; East Is. (North Andaman), 12.xii.1997, D.V.Rao, Reg. No. 3595.

Description : Colonies are mushroom shaped; the capitulum extends far beyond the sterile stalk. In some colonies the disc is rather flat and unfolded; the margin of the disc in some colonies is strongly folded. Surface layer of the capitulum contains 0.08 to 0.15 mm long clubs; longer spicules up to 0.25 mm long are more club shaped; the smaller clubs have two girdles of volcano shaped prominences. Interior of the capitulum contains slender spindles measuring up to 0.45 mm long bear low cones. Surface layer of the stalk contains 0.08 to 0.17 mm long clubs; the prominences on the clubs are wart like and arranged in girdles. Interior of the stalk contains oblong and oval or barrel shaped 0.20 to 0.26 mm long sclerites. The sclerites have two terminal clusters and two girdles of big spiny warts; a median waist is also present in many spicules. In addition some specimens have oval bodies, 0.28 to 0.29 mm long, with or without waist and are completely covered with spiny warts.

Colour : Colonies are light brownish green.

Habitat : Found in intertidal shallow reef areas.

Distribution : India (North, South and Little Andaman, Gulf of Mannar, Lakshadweep), Philippines, Vietnam. Indonesia, New Guinea, New Britain and Chrisms Island.

***22. *Sarcophyton crassum* Tixier-Durivault, 1946 (fig. 22)**

1946. *Sarcophyton crassum* Tixier-Durivault, *Bull.mus.nat. Hist. nat.*, Paris, 18(1): 82-83.

1982. *Sarcophyton crassum*: Verseveldt, *Zool. Verhand.*. Leiden, (192): 35-37. fig. 12; pl. 9, fig. 4.

Material : Breakwater area (Little Andaman), 20.iii.1995, D.V.Rao, Reg. No. 3596; Inglis Is. (South Andaman), 3.iv.1996, D.R.K.Sastry & party, Reg. No. 3597; Peacock Is. (North Andaman), 13.xii.1997, D.V.Rao, Reg. No. 3598, Landfall Is. (North Andaman), 10.xii.1997, D.V.Rao, Reg. No. 3599; East Is. (North Andaman), 12.xii.1997, D.V.Rao, Reg. No. 3600.

Description : Colonies are cup shaped with hollow disc; the margin of the colony thickly folded; most of the autozooids are retracted. Surface layer of the disc contains small clubs, 0.10 to 0.29 mm long, but most of them are 0.12 to 0.14 mm long; the club heads have small cones and warts, their handles are blunt ended and bear cones and blunt truncated spines. Interior of the disc contains slender spindles, measuring up to 0.60 mm long, with low cone shaped prominences. Surface layer of the stalk contains clubs similar to the clubs of surface layer of lobes but the prominences on the clubs are bigger. Interior of the stalk contains pointed straight and curved spindles, measuring up to 1.0 mm long, covered with small warts.

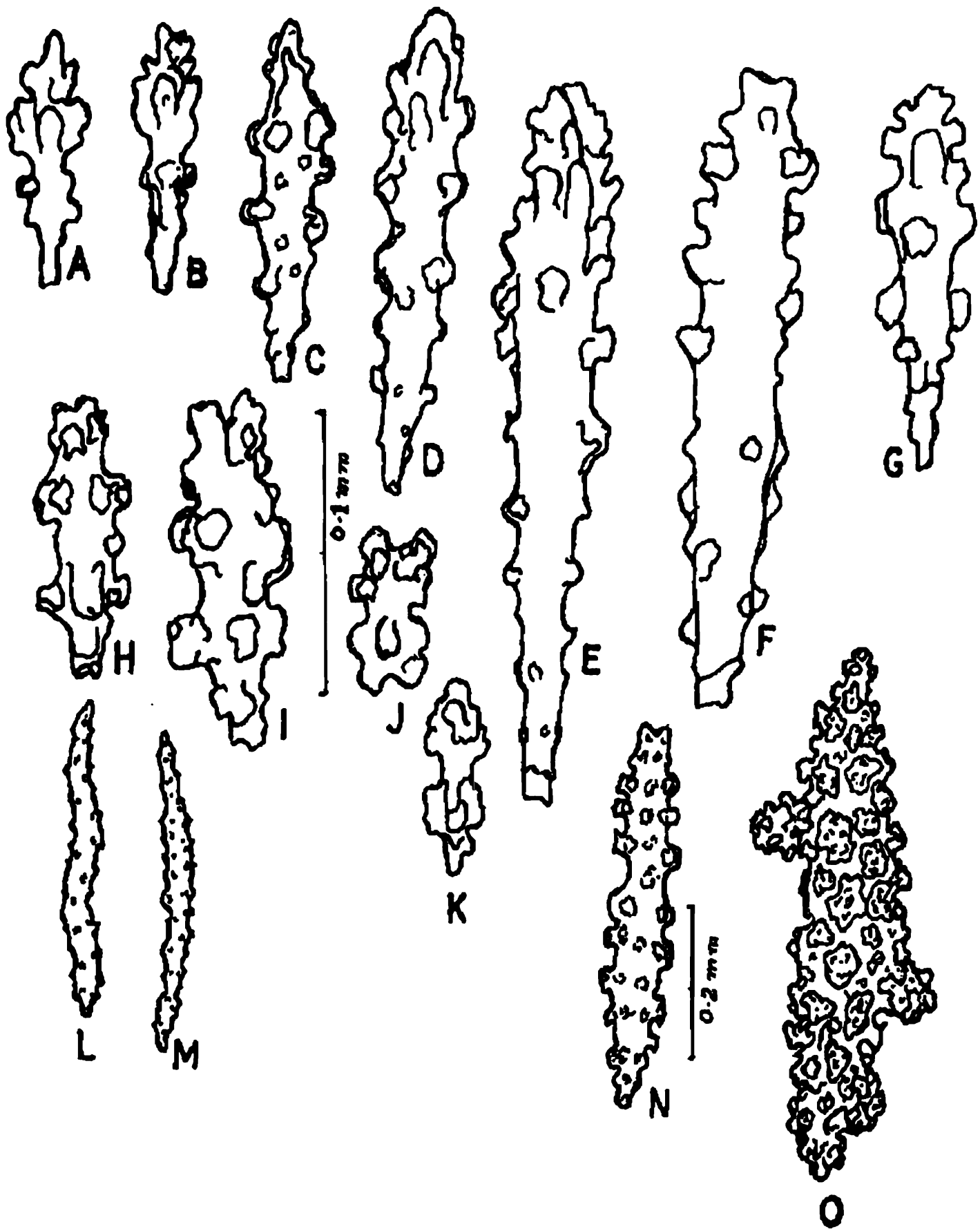


Fig. 20. *Sarcophyton cherbonnieri* Tixier-Durivault A-E, sclerites from surface layer of the disc; F-K, sclerites from surface layer of the stalk; L-M, sclerites from interior of the disc; N-O, sclerites from interior of the stalk. (Enlargement of A-K by 0.1 mm scale and L-O by 0.2 mm scale).

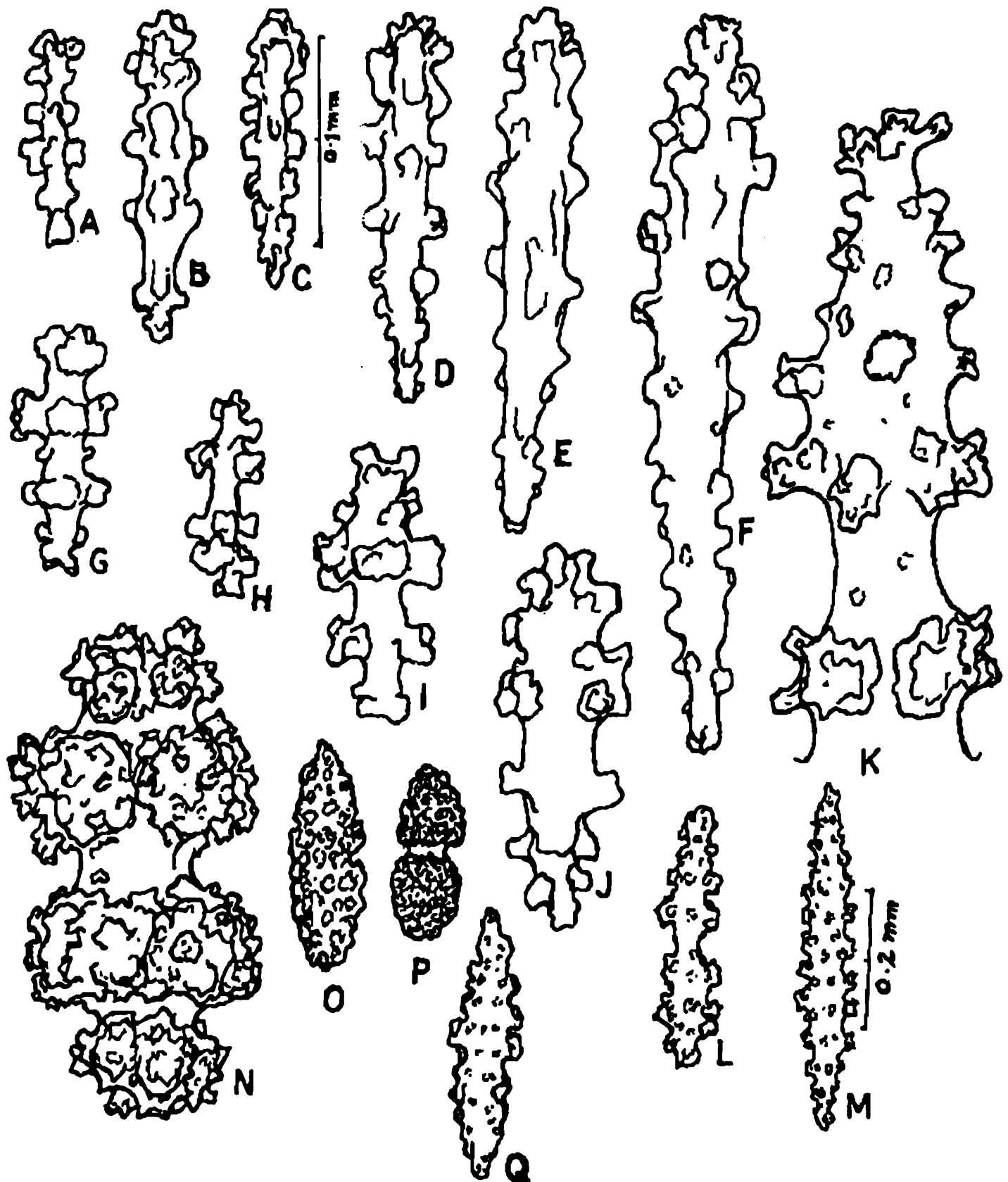


Fig. 21. *Sarcophyton crassocaule* Moser A-F, sclerites from surface layer of the disc; G-J, sclerites from surface layer of the stalk; K-M, sclerites from interior of the disc; N-Q, sclerites from interior of the stalk. (Enlargement of A-K and N by 0.1 mm scale and L-M and O-Q by 0.2 mm scale).

Colour : Colonies are greenish brown.

Habitat : Found in shallow intertidal reefs.

Distribution : India (North, South and Little Andaman), Madagascar and New Caledonia.

***23. *Sarcophyton digitatum* Moser, 1919 (fig. 23)**

1919. *Sarcophyton digitatum* Moser, *Mitt. Zool. Mus.*, Berlin, 9(2): 249-252, fig. 10, pl. 5, fig. 8.

Material : Jolly Buoy (South Andaman), 16.v.1996, D.R.K. Sastry, Reg. No. 3604; Pongibalu (South Andaman), 29.ix.1996, D.R.K.Sastry, Reg. No. 3605.

Description : Colony is very small and has shallow disc; the folds finger-like; stalk of the colony long and cylindrical. Surface layer of the disc contains 0.06 to 0.08 mm long small warty rods, and up to 0.30 mm long clubs; the heads of the clubs have few spines and their handles are narrow with widely spaced small cones. Interior of the capitulum contains few slender needles, up to 0.43 mm long, are weakly spined or almost smooth. Surface layer of the stalk contains 0.10 to 0.34 mm long clubs with simple warts; the handles have more prominences. Stalk interior contains wider spindles, up to 0.78 mm long, with few truncated cones and small warts.

Colour : Colony light greenish brown.

Habitat : Found in shallow reef areas.

Distribution : India (South Andaman), Red Sea, Seychelles, Madagascar, Philippines, New Caledonia, and Great Barrier Reefs.

***24. *Sarcophyton ehrenbergi* Von Marenzeller, 1886 (fig. 24)**

1886. *Sarcophyton ehrenbergi* von Marenzeller, *Zool. Jahrb (Syst.)*, 1 : 356-357, pl. 9, fig. 3.

1982. *Sarcophyton ehrenbergi*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 42-48, figs. 14-17, pl. 10-12 figs. 2,3.

Material : Little Andaman, 18.iii.1995, D.V.Rao, Reg. No. 3583; 19.iii.1995, Henry Lawrence (Ritchie's Archipelago), 4.iv.1996, D.V.Rao, Reg. No. 3584; Lamia Bay (North Andaman), 8.xii.1997, D.V.Rao, Reg. No. 3585.

Description : Colony funnel shaped, soft, fragile and compressed laterally. The margin of the disc has few folds are slightly thicker and extends beyond the stalk. Surface layer of the disc contains club and irregularly shaped oval and warty sclerites, 0.06 to 0.08 mm long.

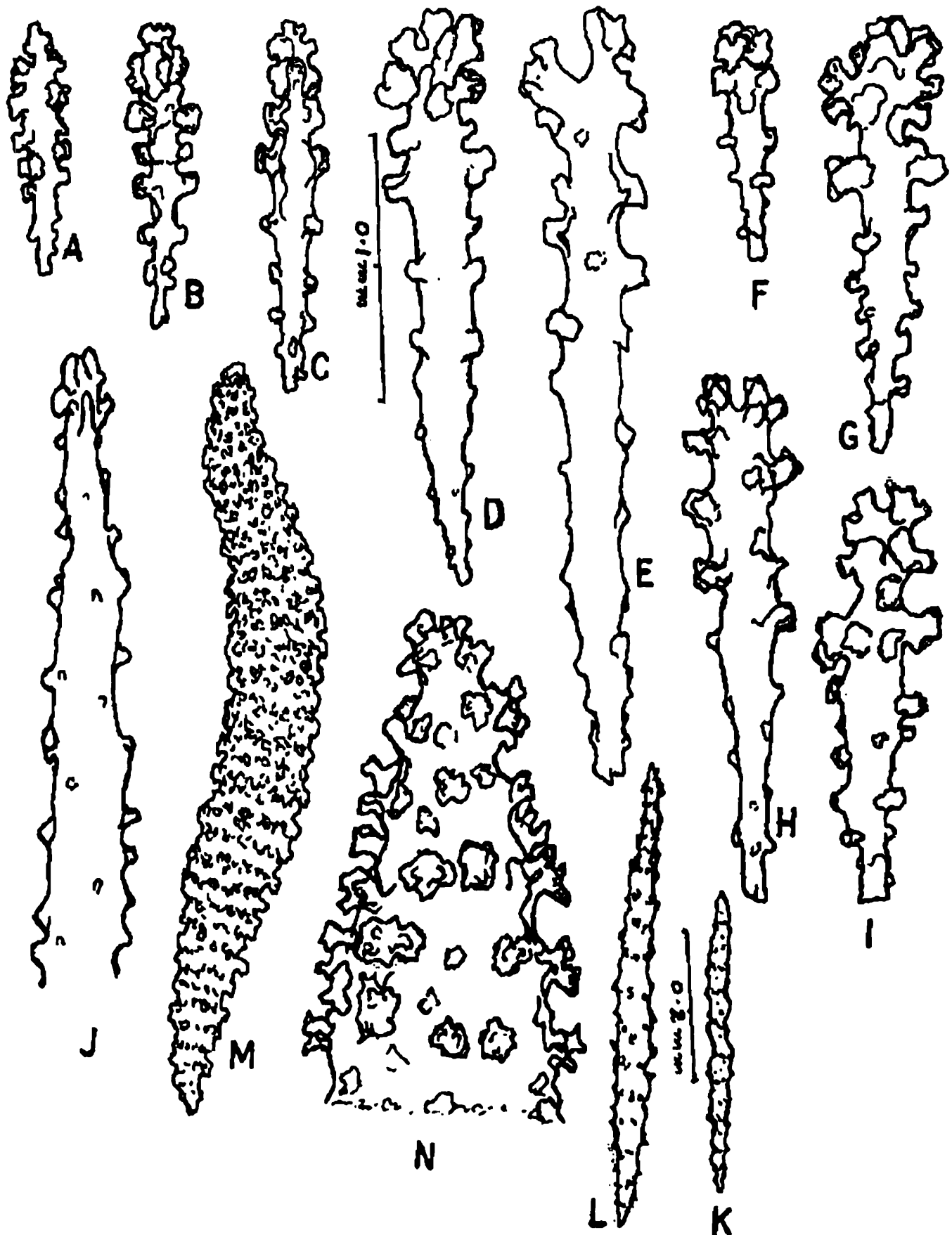


Fig. 22. *Sarcophyton crassum* Tixier-Durivault A-E, sclerites from surface layer of the disc; F-I, sclerites from surface layer of the stalk; J, sclerites from interior of the disc; K-N, sclerites from interior of the stalk. (Enlargement of A-J and N by 0.1 mm scale and K-M by 0.2 mm scale).

Interior of the disc contains thin transparent rods, 0.08 to 0.17 mm long, with antler like processes and slightly curved spindles up to 0.5 mm long. Surface layer of the sterile stalk contains warty club like sclerites, 0.10 to 0.22 mm long; the heads of the clubs are wider, composed of big warts. The coenenchymal spicules of the stalk are slender and thick spindles measuring 0.35 to 0.40 mm long; few spindles measuring 0.47 mm are also present.

Colour : Colony light grey.

Habitat : Found in shallow intertidal reefs.

Distribution : India (North, South and Little Andaman), Tropical Indo-Pacific.

25. *Sarcophyton elegans* Moser, 1919 (fig. 25)

1919. *Sarcophyton elegans* Moser, *Mitt. Zool. Mus. Berlin*, 9(2):250-253, fig. 11 pl. 5, fig. 9.

1996. *Sarcophyton elegans*: Jayashree *et al.*, *J. Bombay nat. Hist. Soc.*, 93:205.

1982. *Sarcophyton elegans*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 48-51, fig. 18; pl. 3 figs. 2,3.

Material : Henrey Lawrence Is. (South Andaman), 4.iv.1996, D.R.K.Sastry, Reg. No. 3585a.

Description : Colony is funnel like; the margin of the disc moderately thick has many folds extend beyond the stalk; many of the autozooids are expanded and visible. Surface layer of the disc contains 0.09 to 0.30 mm long clubs with wider and warty heads; the warts on the handles are zoned. Interior of the disc contains rods and spindles, 0.50 mm long, have numerous low or conical prominences with blunt spines. Surface layer of stalk contains clubs similar to the clubs of the disc but the heads are bigger and the warts are rough and stout. Interior of the stalk contains blunt cylinders and spindles, up to 0.80 mm long, covered with simple spiny warts; narrow spindles measuring up to 0.65 mm long with fewer prominences are also present.

Colour : Disc of the colony is light grayish brown and the stalk dark brown; the autozooids appear as white spots.

Habitat : Found in shallow intertidal reef areas.

Distribution : India (South and North Andaman, Gulf of Mannar), Madagascar, Seychelles, Philippines, Vietnam, Papua New Guinea, Australia and Japan.

*26. *Sarcophyton glaucum* (Quoy & Gaimard, 1833) (fig. 26)

1833. *Alcyonium glaucum* Quoy and Gaimard, *Voyage de l'Astrolabe, Zoologie*, 4:2 0-271, pl.22 figs. 11,12.

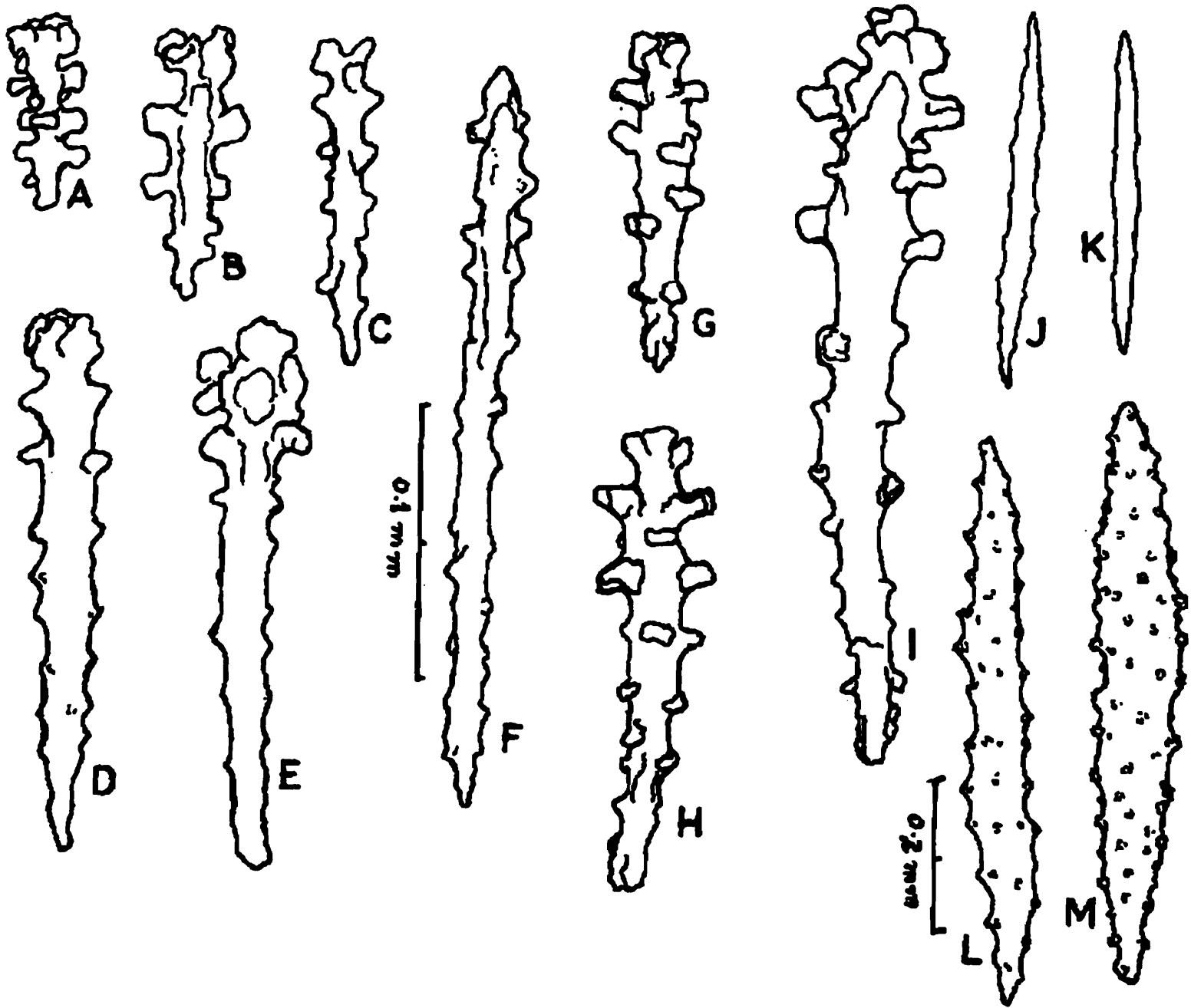


Fig. 23. *Sarcophyton digitatum* Moser A-F, sclerites from surface layer of the disc; G-I, sclerites from surface layer of the stalk; J-K, sclerites from interior of the disc; L-M, sclerites from interior of the stalk. (Enlargement of A-I by 0.1 mm scale and J-M by 0.2 mm scale).

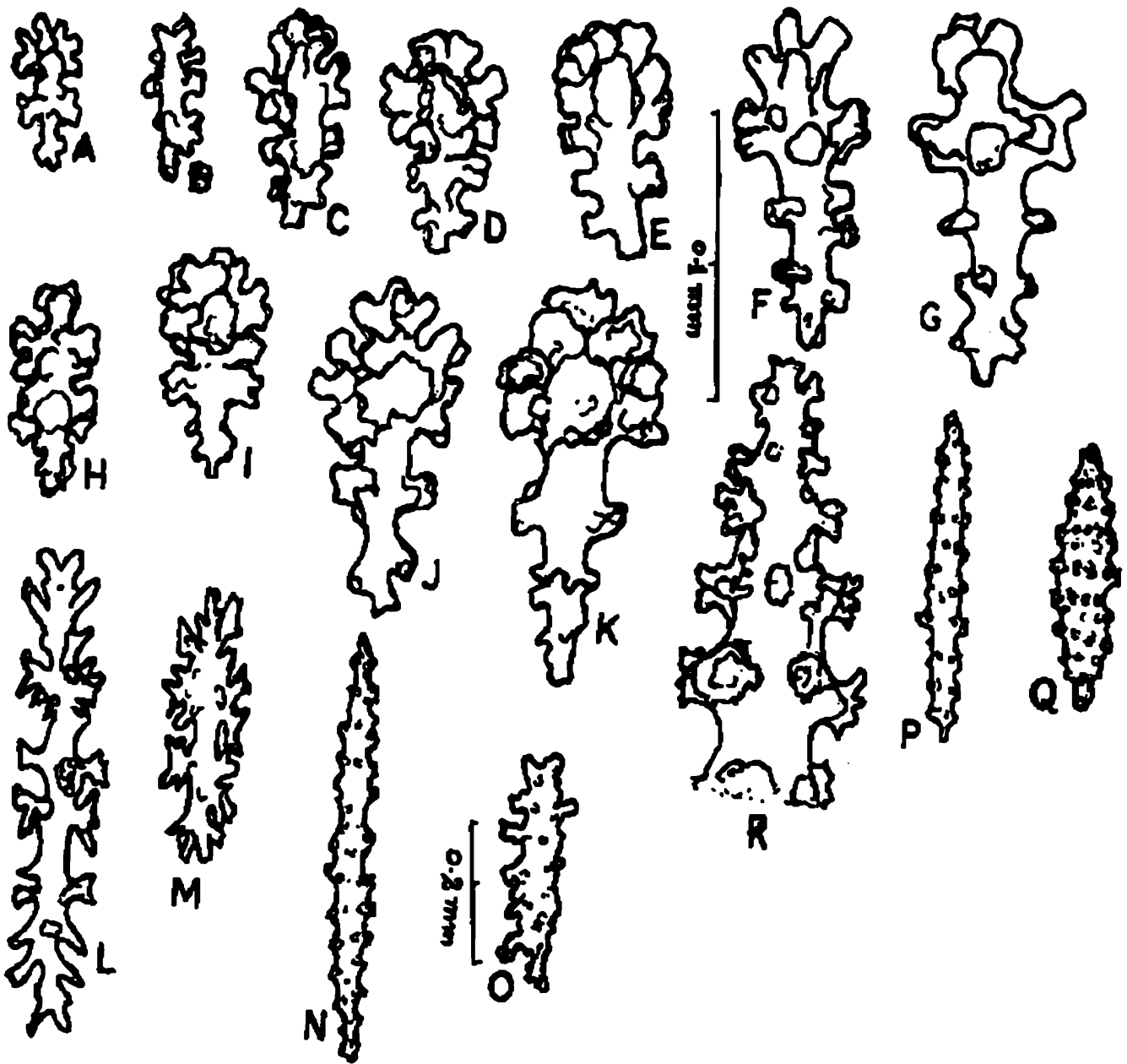


Fig. 24. *Sarcophyton ehrenbergi* Von Marenzeller A-G, sclerites from surface layer of the disc; H-K, sclerites from surface layer of the stalk; L-O, sclerites from interior of the disc; P-R, sclerites from interior of the stalk. (Enlargement of A-M and R by 0.1 mm scale and N-Q by 0.2 mm scale).

1982. *Sarcophyton glaucum*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 52-57, figs. 20,21, pl.11,14 figs. 1,2.

Material : Twins Island (South Andaman), 28.iv.1994, N.V.S.Rao, Reg. No. 3608; Havelock Is. (South Andaman), 5.iv.1996, D.R.K.Sastry, Reg. No. 3609.

Description : Colony stout and mushroom shaped with fleshy short stalk; the capitulum has broad undulating lobes; polyps are yellowish. Surface layer of the lobes contains clubs, 0.10 to 0.45 mm long; the heads of the clubs are ill defined with small warts and rounded spines; the handles have few low rounded prominences. Interior of the lobes contains spindles, measuring up to 0.07 mm long, covered with blunt spines. Surface layer of the stalk contains coarser clubs measuring 0.08 to 0.26 mm long; the club heads bear higher wart like prominences; the handles are stout, blunt ended and warty. Interior of the stalk contains very stout and straight sclerites measuring up to 2.25 mm long; some sclerites are curved and some have side branches and are covered with closely set small blunt spines.

Colour : Stalk of the colony light gray, the capitulum gray with light brown to yellowish polyps.

Habitat : Found in shallow sandy reef region.

Distribution : India (Andamans, Gulf of Mannar), Wide spread in Indo West Pacific.

***27. *Sarcophyton infundibuliforme* Tixier-Durivault, 1958 (fig. 27, Plate I, fig. 5)**

1958. *Sarcophyton infundibuliforme* Tixier-Durivault, *Zool. Verhand.*, Leiden, 36: 34-35, figs. 27,29,30.

1982. *Sarcophyton infundibuliforme*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 57-60, figs. 22,23, pl. 15, figs. 1,2.

Material : Rutland (South Andaman), 27.iii.1994, D.V.Rao, Reg. No. 3575; Little Andaman, 19.iii.1995, D.V.Rao, Reg. No. 3536.

Description : Colony funnel shaped; the capitulum extended beyond the sterile stalk and the margin strongly folded. Surface layer of the disc contains 0.11 to 0.30 mm long clubs; the club heads are ornamented with rounded spines directed upwards and few rounded falacious prominences; in some clubs the warts are arranged in zones. Coenenchyme of the capitulum contains narrow and elongated spicules, up to 0.41 mm long, have conical spines on heads and handles; the wider spicules have simple warts arranged in girdles. Clubs of the surface layer of the stalk are 0.10 to 0.21 mm long and similar to the clubs of lobe surface. The coenenchyme of the stalk contains long, wider and more warty spicules measuring up to 0.36 mm long.

Colour : Colony light greenish brown.

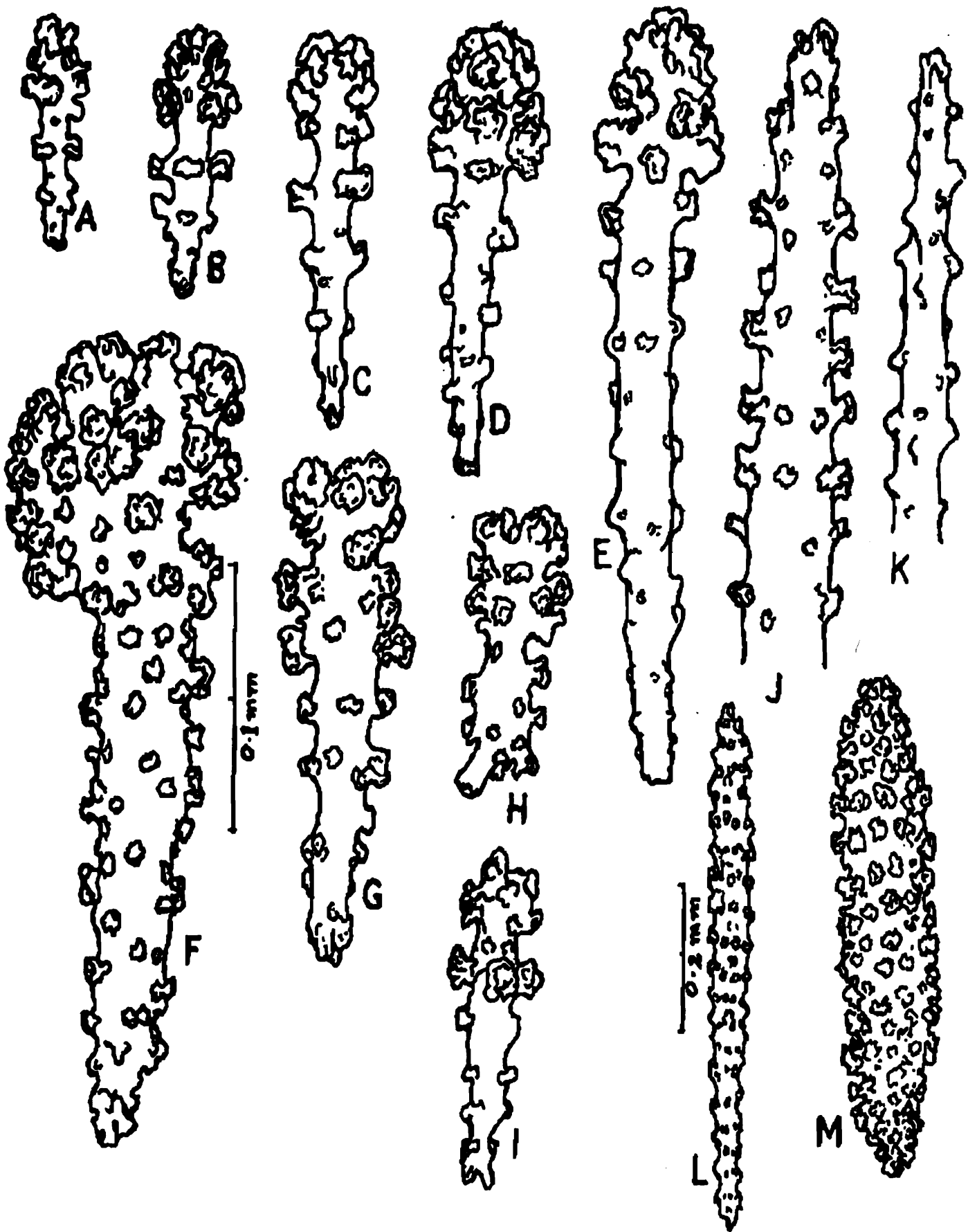


Fig. 25. *Sarcophyton elegans* Moser A-E, sclerites from surface layer of the capitulum; F-I, sclerites from surface layer of the stalk; J-K, sclerites from interior of the capitulum; L-M, sclerites from interior of the stalk. (Enlargement of A-I by 0.1 mm scale and J-M by 0.2 mm scale).

Habitat : Found in inter and sub-tidal reef areas.

Distribution : India (South and Little Andaman), Madagascar and Sri Lanka.

***28. *Sarcophyton roseum* Pratt, 1903 (fig. 28)**

1903. *Sarcophyton roseum* Pratt, *Fauna Geogr. Mald. Laccad. Archip.*, 2(1): 512 Pl. 29, figs. 10 & 11.

1982. *Sarcophyton roseum*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 68-71 fig. 28, pl. 17, figs. 2 & 3

Material : South Bay (Little Andaman), 21.iii.1995, D.V.Rao, Reg. No. 3606; Henry Lawrence (South Andaman), 4.iv.1996, D.R.K.Sastry, Reg. No. 3607.

Description : Colony funnel shaped; marginal folds of capitulum thin and erect; pits of the retracted autozooids are clearly visible. Surface layer of the capitulum contains 0.06 to 0.20 mm long clubs; the smaller clubs are rod shaped with blunt spines arranged in two zones; heads of the large clubs have distinct central wart and below a girdle of warts. The handles are pointed bear small warts and blunt spines arranged in girdles. Interior of the capitulum contains slender spindles, 0.31 to 0.45 mm long, with simple warts arranged in girdles. Surface layer of the stalk contains clubs, 0.12 to 0.21 mm long; the warts on the clubs are bigger and coarser arranged in zones. Interior of the stalk contains slender spindles, 0.20 to 0.34 mm long, with zoned warts.

Colour : Colony light greenish.

Habitat : Found in shallow intertidal reef areas.

Distribution : India (South and Little Andamans), Madagascar, Malay Archipelago, Maldives and West Coast of Australia.

29. *Sarcophyton stellatum* Kukenthal, 1910 (fig. 29)

1910. *Sarcophyton ehrenbergi* var. *stellata* Kukenthal, *Die. Fauna. Suduest-Australiens, Ergebn. hanburger Suduest- Aust., Forschung.* 3(1): 24-25.

1982. *Sarcophyton stellatum*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 76-77. figs. 32-33, pl. 22, fig.1.

1996. *Sarcophyton stellatum*: Jayashree *et al.*, *J. Bombay nat. Hist. Soc.*, 93: 206.

Material : Rutland Is. (South Andaman), 27.iii.1994, D.V.Rao, Reg. No. 3607a.

Description : Disc of the colony almost flat; the margin has thick folds. Surface layer of the disc contains clubs, rods and spindles 0.06 to 0.15 mm long, are irregularly shaped, clavate; the heads of the clubs are with flat prominences; the spindles are 0.10 to 0.20 mm

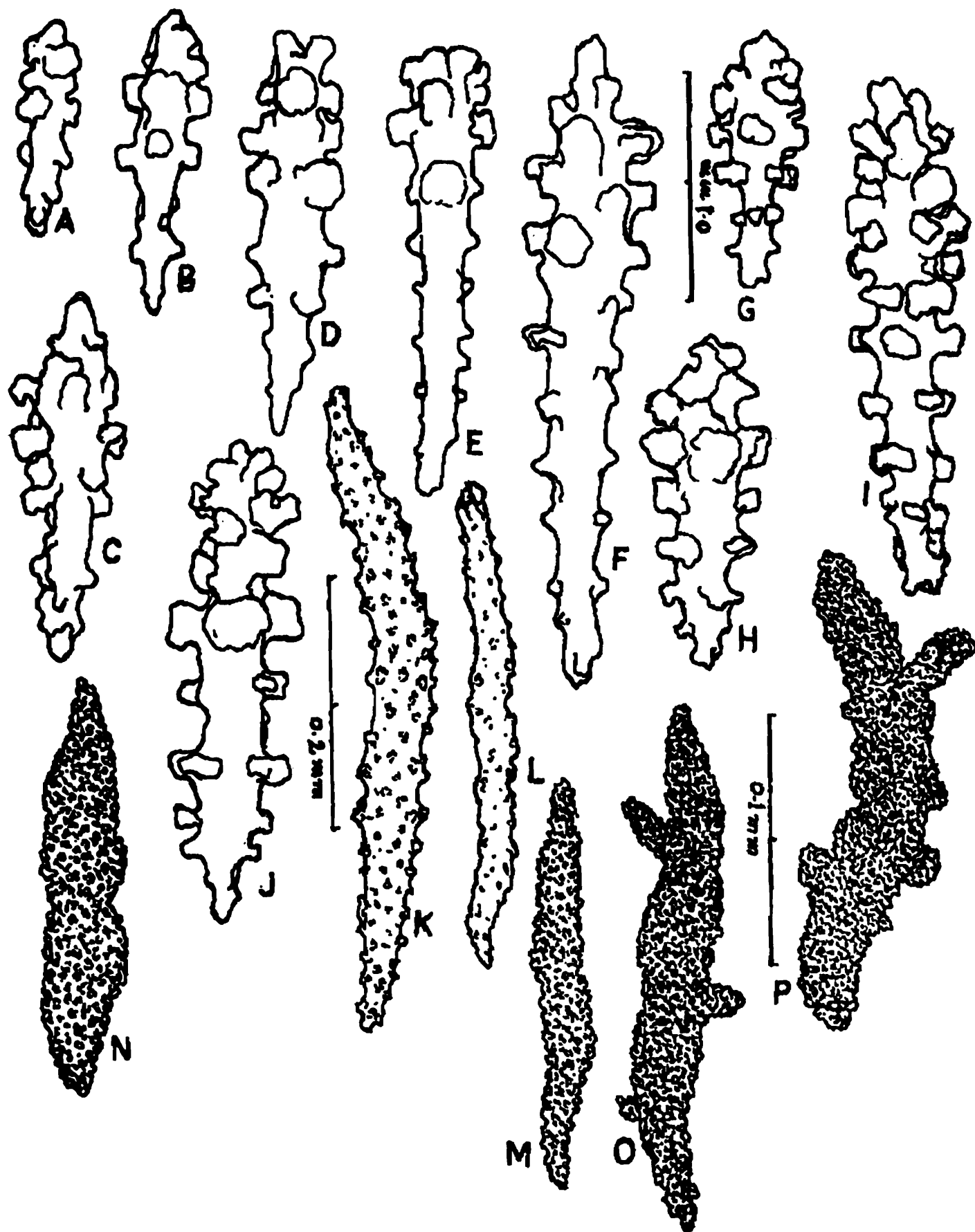


Fig. 26. *Sarcophyton glaucum* Quoy & Gaimard A-F, sclerites from surface layer of a lobe; G-J, sclerites from surface layer of the stalk; K-L, sclerites from interior of a lobe; M-P, sclerites from interior of the stalk. (Enlargement of A-J by 0.1 mm scale and K-P by 0.2 mm scale).

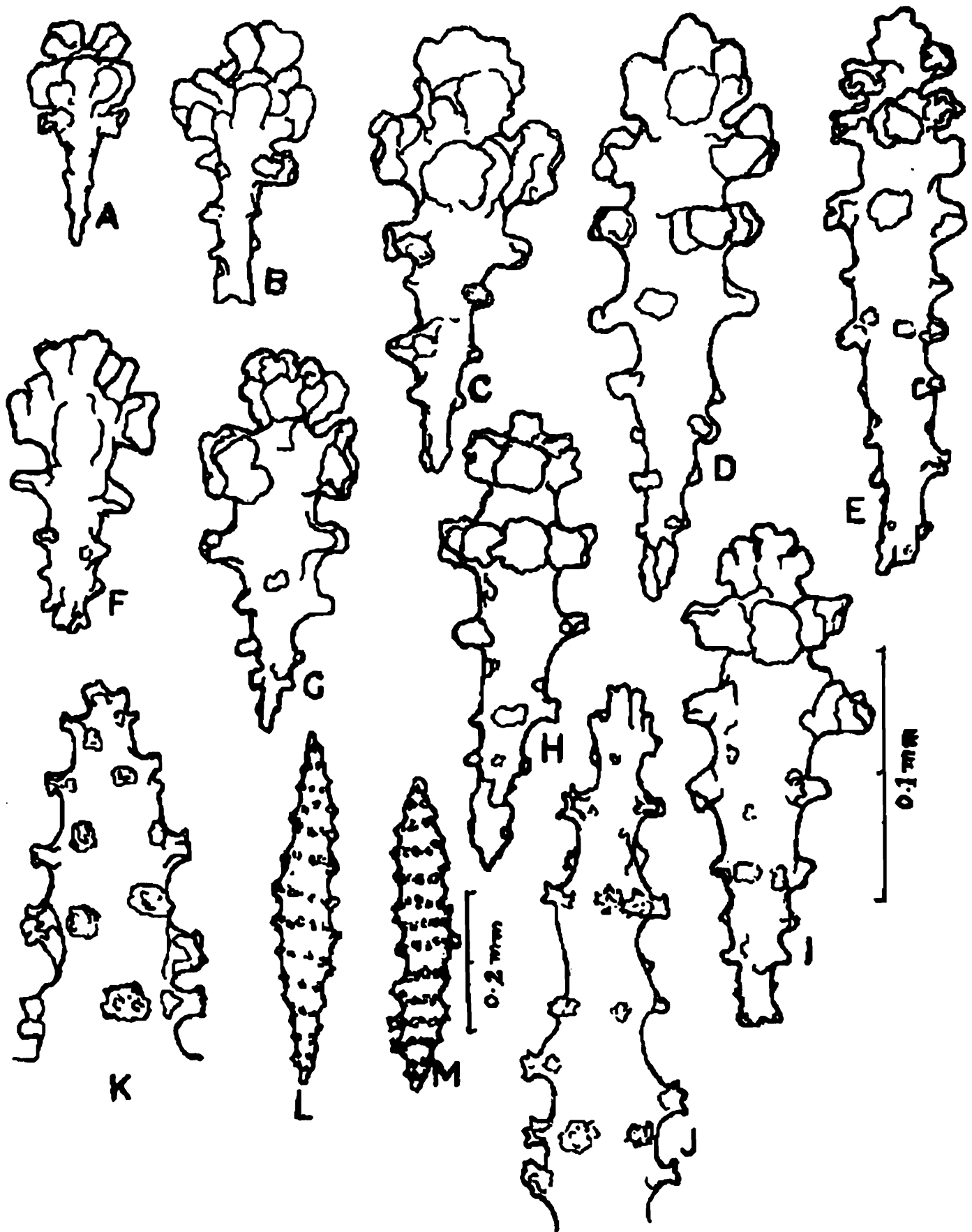


Fig. 27. *Sarcophyton infundibuliforme* Tixier-Durivault A-E, sclerites from surface layer of the disc; F-I, sclerites from surface layer of the stalk; J, sclerites from interior of the disc; K-M, sclerites from interior of the stalk. (Enlargement of A-K by 0.1 mm scale and L-M by 0.2 mm scale)

long and bear few truncated cones; the longer spindles are transitional forms to internal sclerites. In addition, irregularly flat four rayed bodies are also present. The spicules of the interior of the lobes are similar to that of lobe surface. They are, up to 0.30 mm long, straight or curved widest in the middle. The prominences on the spicules are cone shaped or small warts. Surface layer of the stalk contains few 0.08 to 0.10 mm long clubs and irregularly shaped rods; many of the clubs are warty and wider rods measuring 0.10 to 0.20 mm long. Oval shaped sclerites, 0.13 to 0.23 mm long, with big warts are also present. Stalk interior contains very warty ovals or cylinders measuring 0.16 to 0.29 mm long; the warts are more accumulated at both ends of the sclerites; the other type of sclerites are flat, rectangular or oblique-angled bodies, 0.10 to 0.20 mm diameter, are also present.

Habitat : Found in shallow reef region.

Distribution : India (South Andaman, Gulf of Mannar), Aru Islands.

***30. *Sarcophyton tortuosum* Tixier-Durivault, 1946 (fig. 30)**

1946. *Sarcophyton tortuosum* Tixier-Durivault, *Bull. mus. nat. Hist. nat.*, Paris, 18 (4): 349

1982. *Sarcophyton tortuosum*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 82-83 fig. 36; pl./23, figs. 1-3.

Material : Havelock Is. (South Andaman), 5.iv.1996, D.R.Sastry & Party, Reg. No. 3602; Peacock Is. (North Andaman), 13.xii.1997, D.V.Rao, Reg. No. 3603.

Description : Colonies are like mushroom; its disc is hollow and the edge is thick with numerous tortuous folds. The central part of the disc is almost invisible due to the folds. Surface layer of the disc contains very slender 0.08 to 0.25 mm long clubs; the heads of the clubs are warty and have small spines at their top; and the handles bear blunt spines arranged in girdles. Interior of the disc contains spiny rods and spindles, measuring up to 0.53 mm long. Surface layer of the stalk contains clubs similar to the clubs of the disc, but the warts are high and arranged in zones. Interior of the stalk contains slender and pointed spindles measuring 0.38 to 0.50 mm long, and some spindles measuring up to 0.65 mm long are covered with small simple warts.

Colour : Colonies are light greenish brown.

Habitat : Found in intertidal reef areas.

Distribution : India (North and South Andaman), Fiji, New Caledonia.

31. *Sarcophyton trocheliophorum* Von Marenzeller, 1886 (fig. 31, Plate I, fig. 31)

1886. *Sarcophyton trocheliophorum* Von Marenzeller, *Zool. Jahrb (Syst.)*, 1:359-362, pl. 9, fig. 5.

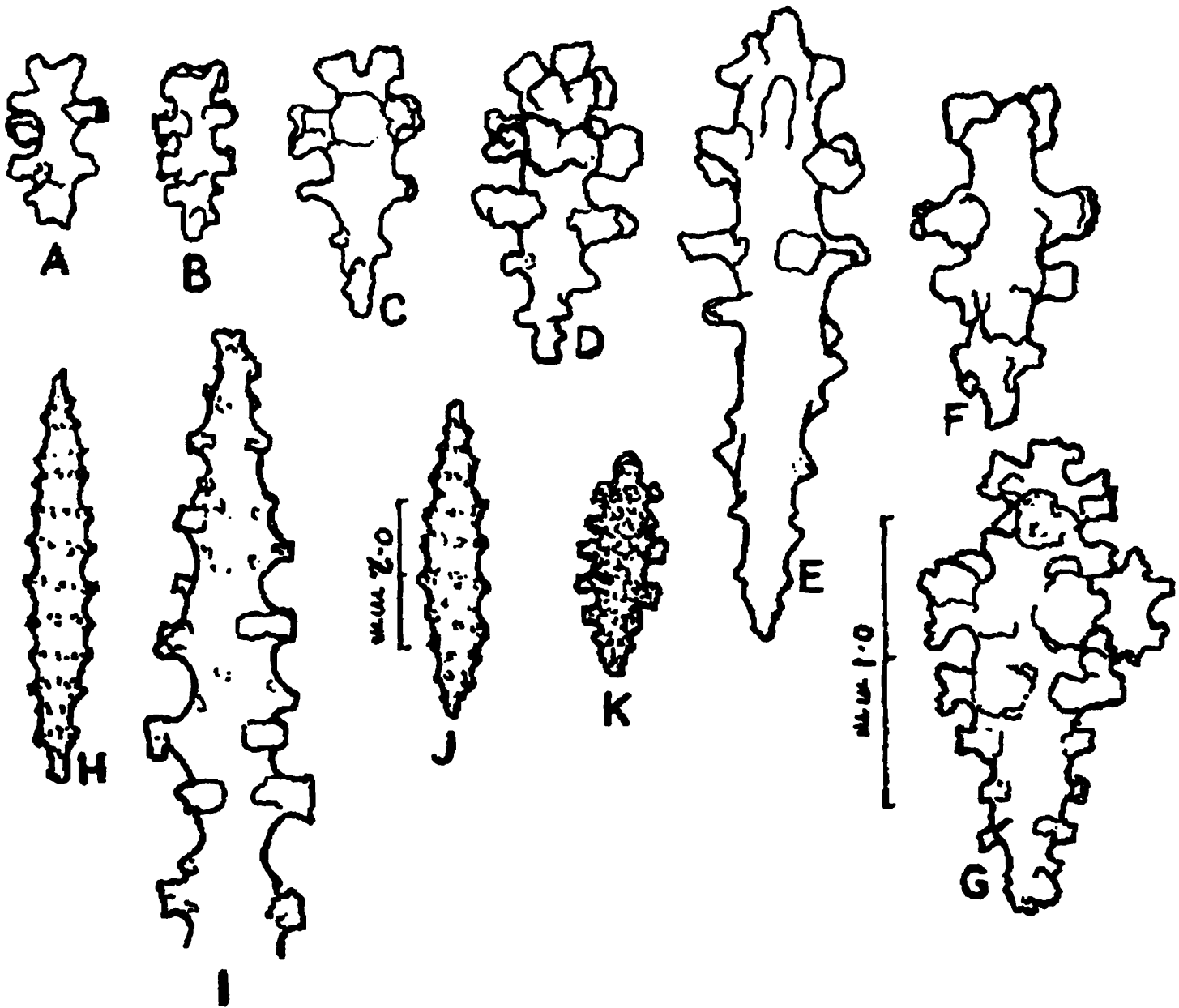


Fig. 28. *Sarcophyton roseum* Pratt A-E, sclerites from surface layer of the capitulum; F-G, sclerites from surface layer of the base; H-I, sclerites from interior of the capitulum; J-K, sclerites from interior of the base. (Enlargement of A-G and I by 0.1 mm scale and H, J and K by 0.2 mm scale).

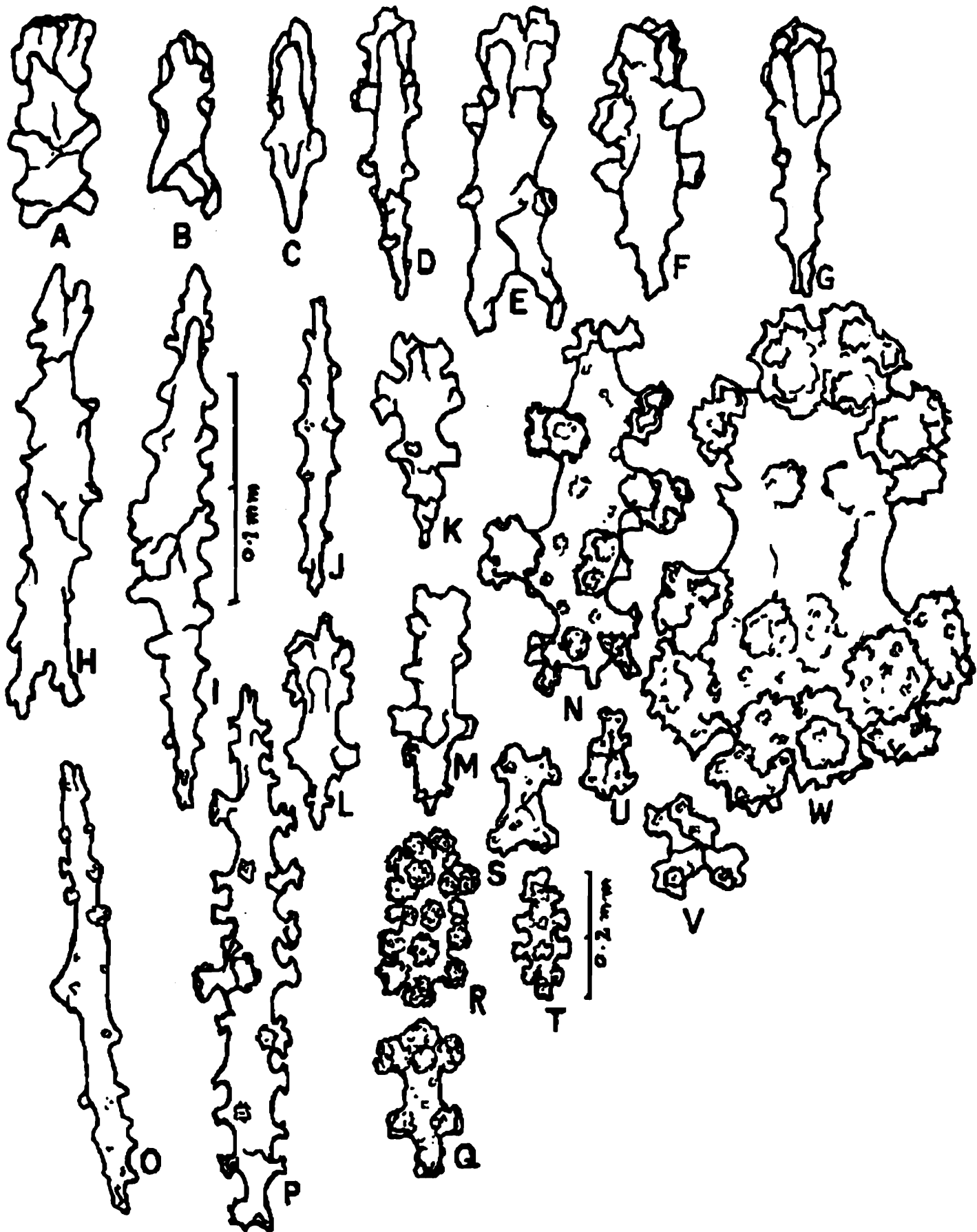


Fig. 29. *Sarcophyton stellatum* Kükenthal A-K, sclerites from surface layer of the disc; L-N, sclerites from surface layer of the stalk; O-P, sclerites from interior of the disc; Q-W, sclerites from interior of the stalk. (Enlargement of A-P and W by 0.1 mm scale and Q-V by 0.2 mm scale).

1982. *Sarcophyton trocheliophorum*: Verseveldt, *Zool. Verhand.*, Leiden, (192): 83-88, figs. 37-39, pl. 12, fig. 1, pl. 19, fig. 2, pl. 24 figs. 1,2.

Material : Rutland Is. (South Andaman), 28.iii.1994, D.V.Rao, Reg. No. 3577; Hobdey Is. (South Andaman), 18.v.1996, D.R.K.Sastry, Reg. No. 3578; Little Andaman, 15.iii.1995, 19.iii.1995, D.V.Rao, Reg. Nos. 3579; Inglis Is., 3.iv.1996, Henry Lawrence, 4.iv.1996, Havelock Is., (Ritchie's Archipelago), 5.iv.1996, D.R.K.Sastry, Reg. Nos. 3580 to 3582.

Description : Colonies are mushroom-shaped having distinct stalks; the disc flat and its margin strongly folded. Surface layer of the disc contains 0.08 to 0.012 mm long clubs, and some longer clubs measuring up to 0.23 mm is also present. The heads of the clubs have leaf-like prominences directed towards the summit of the head, and have prominent narrow waist in the middle; the handles are pointed and bear cone shaped prominences arranged in girdles. The coenenchyme of the disc contains long narrow, curved and straight spindles, 0.21 to 0.36 mm long, bear small and conical warts. The clubs of the surface layer of the stalk are similar to the clubs of disc, measuring 0.10 to 0.14 mm long. Interior of the stalk contains thick oval shaped 0.23 to 0.30 mm long sclerites. Most of the sclerites are having two girdles of spiny warts separated by a median constriction and two terminal compound warts; in some sclerites, the warts are irregularly distributed; more or less fusiform sclerites are also present in some specimens.

Colour : Colonies are dark grey. Appears greenish-brown when polyps expanded.

Habitat : Found in shallow intertidal reef areas.

Distribution : India (South and Little Andaman, Gulf of Mannar, Lakshadweep). Widely distributed in Indo-West Pacific including Red Sea.

***32 *Sinularia abrupta* Tixier-Durivault, 1970 (fig. 32)**

1970b. *Sinularia abrupta* Tixier Durivault, *Cahiers du pacifique*, 14: 135-140, figs 2-5.

1980. *Sinularia abrupta*: Verseveldt. *Zool. Verhand.*, Leiden. (179): 20-21 fig. 1, pl. 2.

Material : Rutland Is. (South Andaman), 27.iii.94, D.V.Rao, Reg. No. 3610; Havelock Is.(South Andaman), 5.iv.1996, D.R.K.Sastry, Reg. No. 3611.

Description : Colony flat with numerous knob like and moderately thick lobes. Surface layer of the lobes contains leptoclados type foliaceous clubs, 0.08 to 0.11 mm long; few clubs are up to 0.17 mm have long handles bearing blunt warts arranged in two irregular rows. Interior of the lobes contains thick spindles measuring up to 3.20 mm long; the warts on the

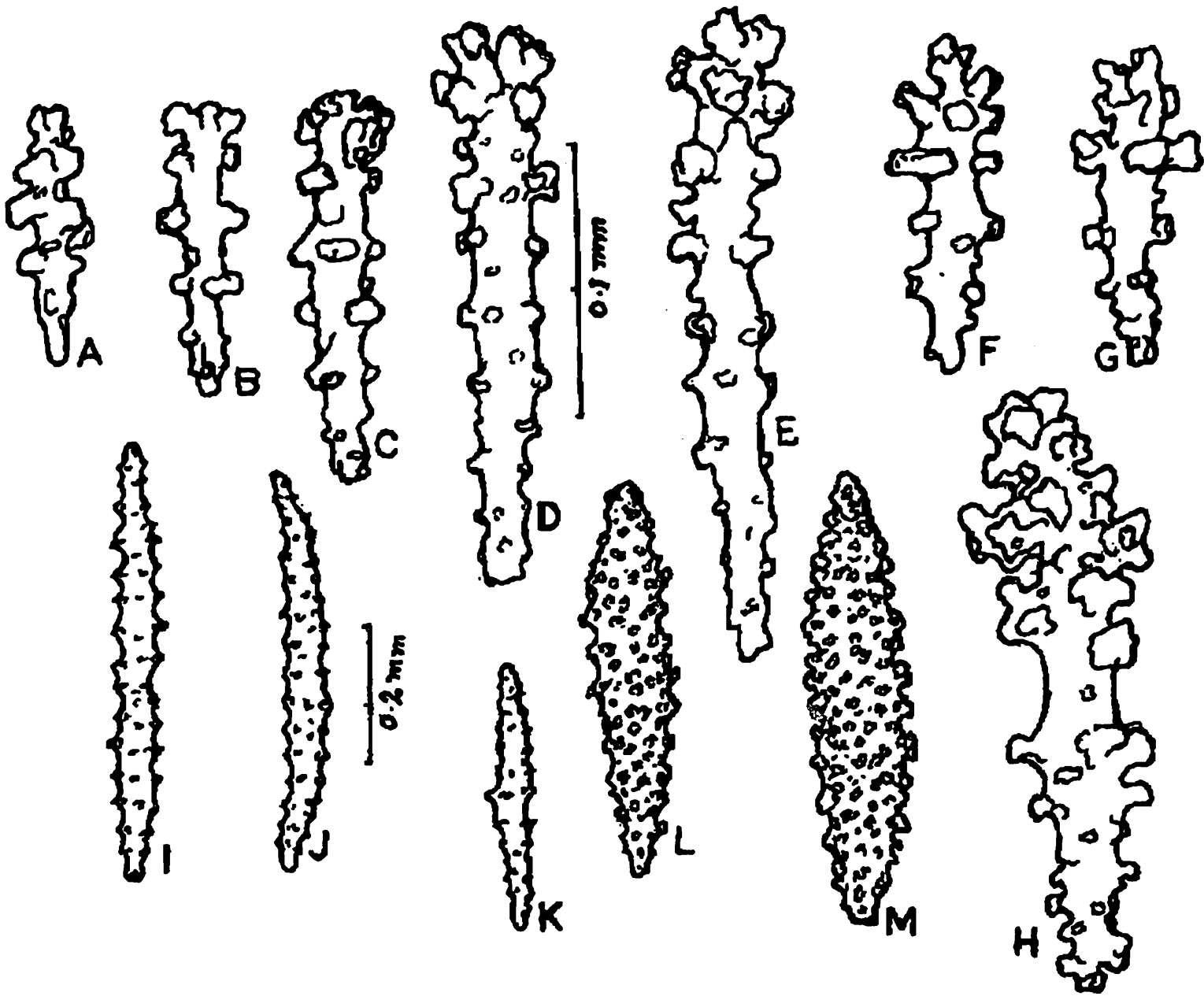


Fig. 30. *Sarcophyton tortuosum* Tixier-Durivault A-E, sclerites from surface layer of the disc; F-H, sclerites from surface layer of the stalk; I-K, sclerites from interior of the disc; L-M, sclerites from interior of the stalk. (Enlargement of A-H by 0.1 mm scale and I-M by 0.2 mm scale).

spindles are very coarse, big and irregular in shape and densely distributed. The surface layer of the stalk contains more leafy clubs, 0.10 to 0.14 mm long, are slightly wider and longer than the clubs of lobes; few clubs are up to 0.17 mm long. Internal sclerites of the stalk are similar to the lobe interior; few spindles bear a side branch.

Colour : Colony light brownish green.

Habitat : Found in reef regions of moderate depth.

Distribution : India (South Andaman, Gulf of Mannar, Lakshadweep), Vietnam, Line Island and Hawaii.

***33. *Sinularia brassica* May, 1898 (fig.33)**

1898. *Sinularia brassica* May. *Mitt. naturh. Mus. Hamburg*, 50(2): 101-102. pl. 1, fig. 12; pl. 5, fig 4a,b.

1980. *Sinularia brassica*: Verseveldt. *Zool. Verhand.*, Leiden, (179): 22-24, fig. 2. pl. 3.

Material : Hut Bay (Little Andaman), 19.iii.95, D.V.Rao & party, Reg. No. 3612.

Description : Colony has a distinct erect stalk; the capitulum with rounded and lobate folds. Surface layer of the lobe contains clavate clubs, 0.16 to 0.21 mm long; few smaller clubs measuring 0.13 mm were also present; the clubs of the heads are very wide and bear numerous processes. Clubs of the surface layer of stalk are also similar to the clubs of lobe surface. Interior of the lobes and the stalk contains thick spindles, 3.30 to 4.0 mm long, with densely covered warts.

Colour : Colony dark brown.

Habitat : Found on reefs of shallow to moderate depth.

Distribution : India (Little Andaman, Gulf of Mannar), Maldives, Australia, New Caledonia and Palau Is.

***34. *Sinularia capitalis* Pratt, 1903 (fig. 34)**

1903. *Sinularia capitalis* Pratt., *Fauna Geogr. Mald. Laccad. Archip.*, 2(1): 520-521. p 128,fig. 8, pl. 29, figs. 15-17, pl. 30, fig. 19.

1980. *Sinularia capitalis*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 25-28, fig. 4, pl. 5 figs. 1-2.

Material : Henry Lawrence (South Andaman), 4.iv.1996, D.R.K.Sastry, Reg. No. 5513.

Description : Colony small, the lobes robust and erect often flattened and irregular.

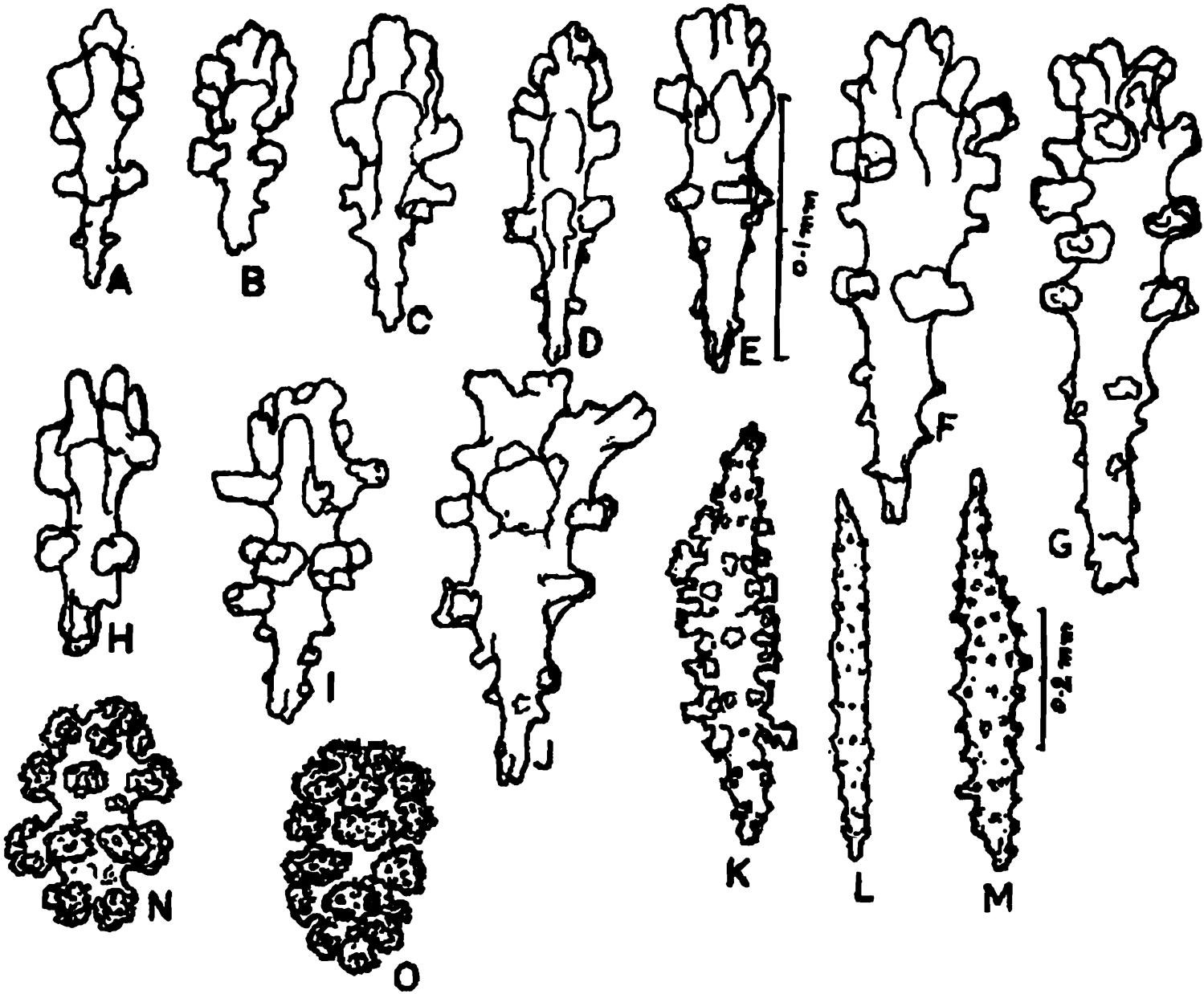


Fig. 31. *Sarcophyton trocheliophorum* Von Marenzeller A-G, sclerites from surface layer of the disc; H-J, sclerites from surface layer of the stalk; K-M, sclerites from interior of the disc; N-O, sclerites from interior of the stalk. (Enlargement of A-J by 0.1 mm scale and K-O by 0.2 mm scale).

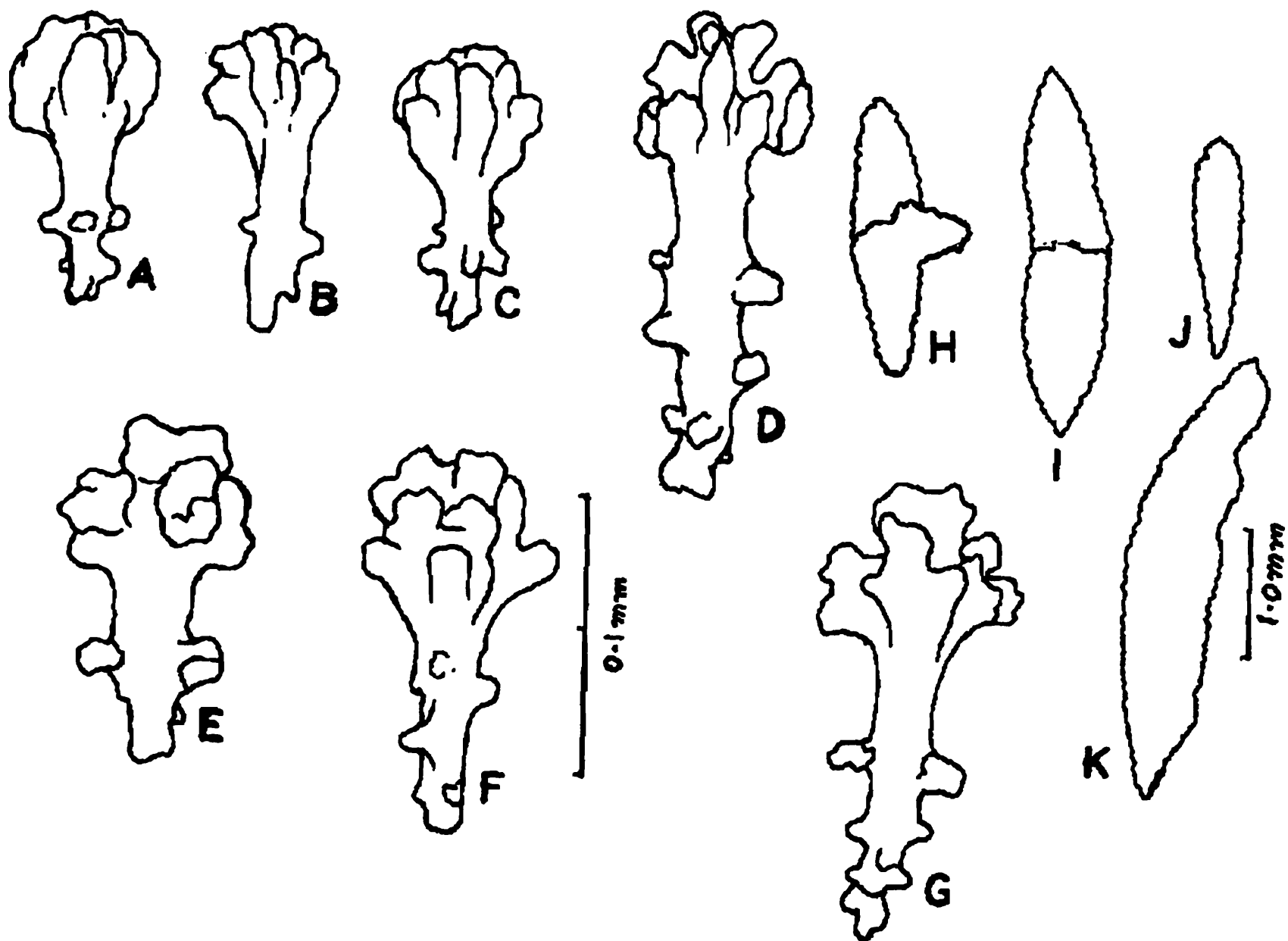


Fig. 32. *Sinularia abrupta* Tixier-Durivault A-D, sclerites from surface layer of a lobe; E-G, sclerites from surface layer of the stalk; H-K, sclerites from interior of the stalk. (Enlargement of A-G by 0.1 mm scale and H-K by 1.0 mm scale).

Surface layer of the lobes contains 0.11 to 0.16 mm long clubs; the heads of the smaller clubs are biramous, and the heads of other clubs are with few wide warts; the handles of the clubs are long and slender with weakly spined warts. Clubs of the surface layer of the stalk are 0.10 to 0.18 mm long and similar to the lobe surface; the club heads are wider and handles are thick. Interior of the lobes and the stalk contains straight and irregularly curved and bizarre shaped spindles, measuring up to 3.02 mm; the prominences on the spindles are volcano shaped and some are compound warts with flat, crenellated summits.

Colour : Colony brownish grey.

Habitat : Found in shallow intertidal reef areas.

Distribution : India (Andamans), Maldives and Singapore.

***35. *Sinularia conferta* (Dana, 1846) (fig. 35)**

1846. *Alcyonium confertum* Dana. *Zoophytes U.S. exploring exped.*, 7: 621-622. pl. 57, figs. 7,7a,7b.

1980. *Sinularia conferta*: Verseveldt. *Zool. Verhand.*, Leiden, (179):31-35, fig. 7,8, pl 6& 8.

Material : Havelock Island (South Andaman), 5.iv.1996, D.R.K.Sastry & party, Reg. No. 3617; Trilby Island (North Andaman), 1.xii.1997, D.V.Rao & party, Reg. No. 3614; Landfall Island (North Andaman), 10.xii.1997, D.V.Rao, Reg. No. 3615; Peacock Island (North Andaman), 13.xii.1997, one specimen, D.V.Rao, Reg. No. 3616.

Description : Colonies are flat and encrusted; the capitulum is hard consisting of few primary lobes; some lobes are knob like and have longitudinal ridges and groves. Surface layer of lobes contains 0.07 to 0.24 mm long clubs; most of the clubs are 0.12 to 0.20 mm long; no central wart in the clubs but they have terminal warts and below this a girdle of warts, the handles are slightly stout with blunt spines. Clubs of the surface layer of the stalk are 0.09 to 0.13 mm long, slightly heavier and bear thick and stout warts; the more massive clubs, 0.16 to 0.18 mm long, are transitional sclerite forms to coenenchymal sclerites. Interior of the lobe and stalk contains straight or slightly curved and unbranched spindles either blunt or pointed, measuring up to 2.50 to 2.65 mm long; the warts on the spindles are densely covered and arranged in transverse rows.

Colour : Colony pale-green, grey in alcohol.

Habitat : Found on intertidal rocky reef region.

Distribution : India (North and South Andamans), Australia, and Samoa.

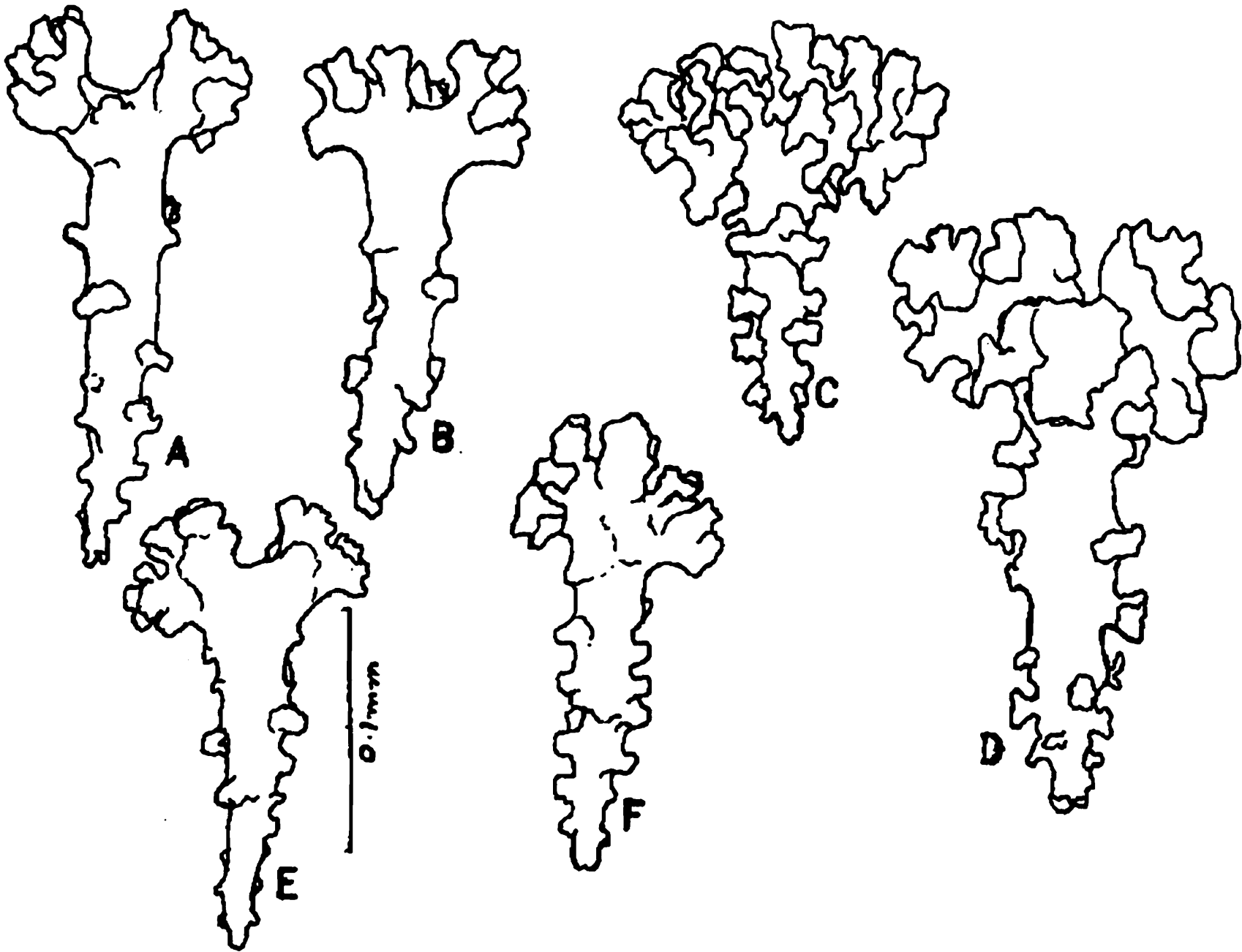


Fig.33. *Sinularia brassica* May A-F, sclerites from surface layer of a lobe.(Enlargement of A-F by 0.1 mm scale).

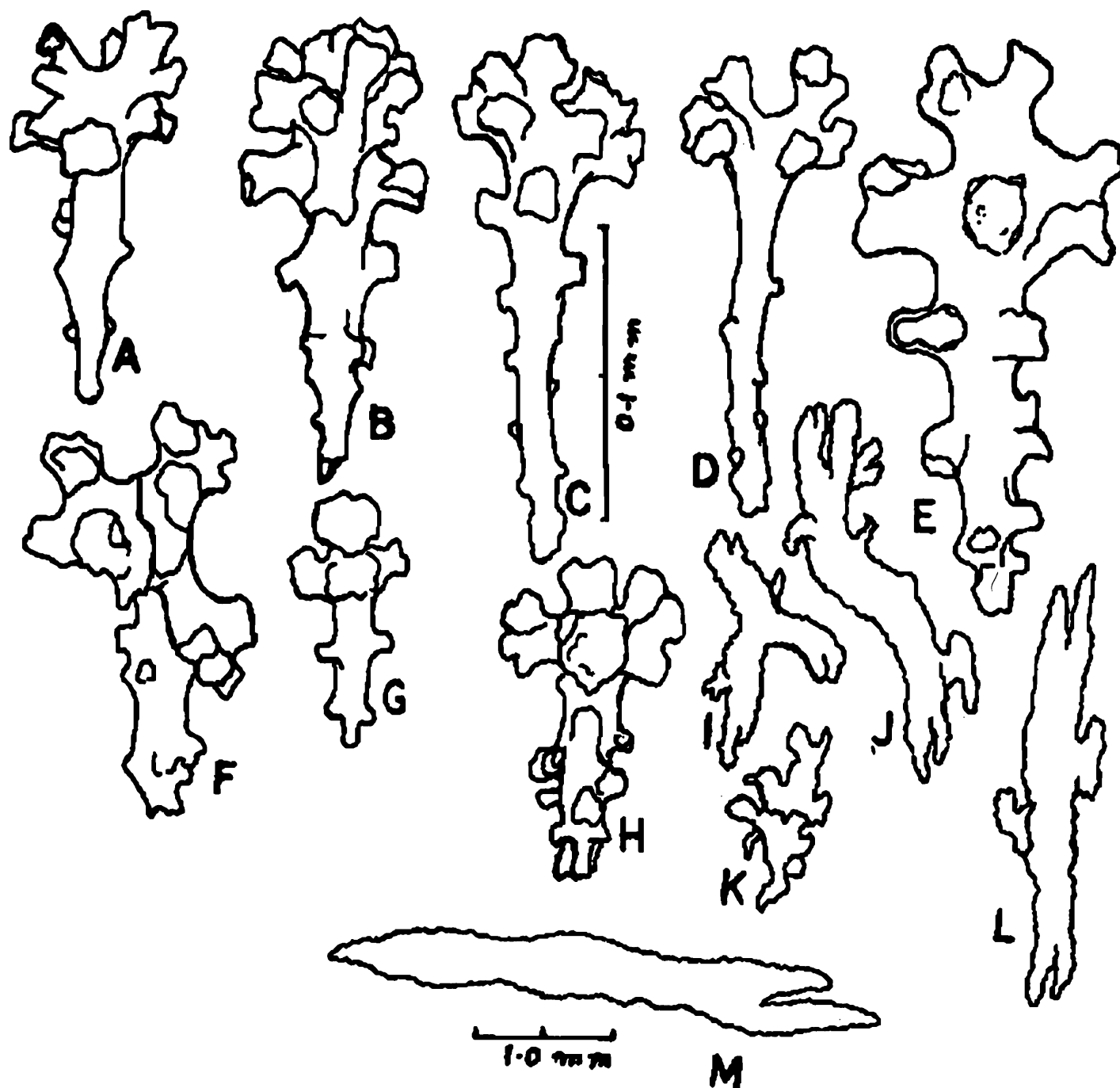


Fig. 34. *Simularia capitalis* (Pratt) A-D, sclerites from surface layer of a lobe; E-H, sclerites from surface layer of the stalk; I-M, sclerites from interior of the stalk. (Enlargement of A-H by 0.1 mm scale and I-M by 1.0 mm scale).

***36. *Sinularia cristata* Tixier-Durivault, 1969 (fig. 36)**

1969. *Sinularia cristata* Tixier-Durivault, *Cahiers du pacifique*, 14: 144.

1980. *Sinularia cristata*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 38-39, fig. 11, and pl. 10 fig. 2

Material : Henry Lawrence (South Andaman), 4.iv.1996, D.R.K.Sastry, Reg. No. 3642.

Description : Colony has distinct stalk, wider than high and broad upward; the lobes are erect, flat, thin and crest like; few lobules are present along the edge of the crests. Surface layer of the lobes contains 0.10 to 0.16 mm long clubs, but few longer clubs up to 0.26 mm are also present; no central wart in the clubs, heads with few spines and small warts; heads of some clubs are flat and leaf like. Clubs of the surface layer of the stalk, 0.10 to 0.14 mm long, are slightly stout and have wider heads. The heads bear high prominences, but many club heads are flat and leaf like; larger clubs up to 0.26 mm long are more warty and their heads are ill defined. The interior of the lobes and stalk contains spindles, up to 2.35 mm long, are pointed or blunt ended, but most of the spindles are curved and unbranched; few spindles with a side branch; the spindles are covered with scarcely distributed large sized crenellated tubercles.

Colour : Colony grayish-brown.

Habitat : Found in shallow reef areas.

Distribution : India (South Andaman), New Caledonia, Gambier Island and Guam.

37. *Sinularia depressa* Tixier-Durivault, 1970

1970b. *Sinularia depressa* Tixier-Durivault, *Chiers du pacifique*, 14: 149-151, figs. 13-17.

1980. *Sinularia depressa*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 44-46 figs. 15 & 16, pl. 12, fig. 1.

1996. *Sinularia depressa*: Jayasree et al., *J. Bombay nat. Hist. Soc.*, 92: 202-209.

Diagnostic features : Colony encrusted; the lobes are small and less branched; the lobules are small and much rounded. Surface layer of the lobes contains 0.08 to 0.26 mm long clubs; the club heads are tuberculate and have central wart, their handles are slender and spiny but the handles of the longer clubs are weakly spined. Clubs of the stalk interior, 0.08 to 0.32 mm long, are wider and have central wart; the club heads are with coarse tubercles and prominences that are strongly flattened. Spicules of the lobe interior are spindles up to 4.40 mm long and stout; they are irregularly curved and bifurcated at their ends. Spindles of the stalk interior are shorter and narrow up to 3.20 mm long; they bear irregularly shaped crenellated warts; some spindles are with thinly packed round or oval and curved spiny warts.

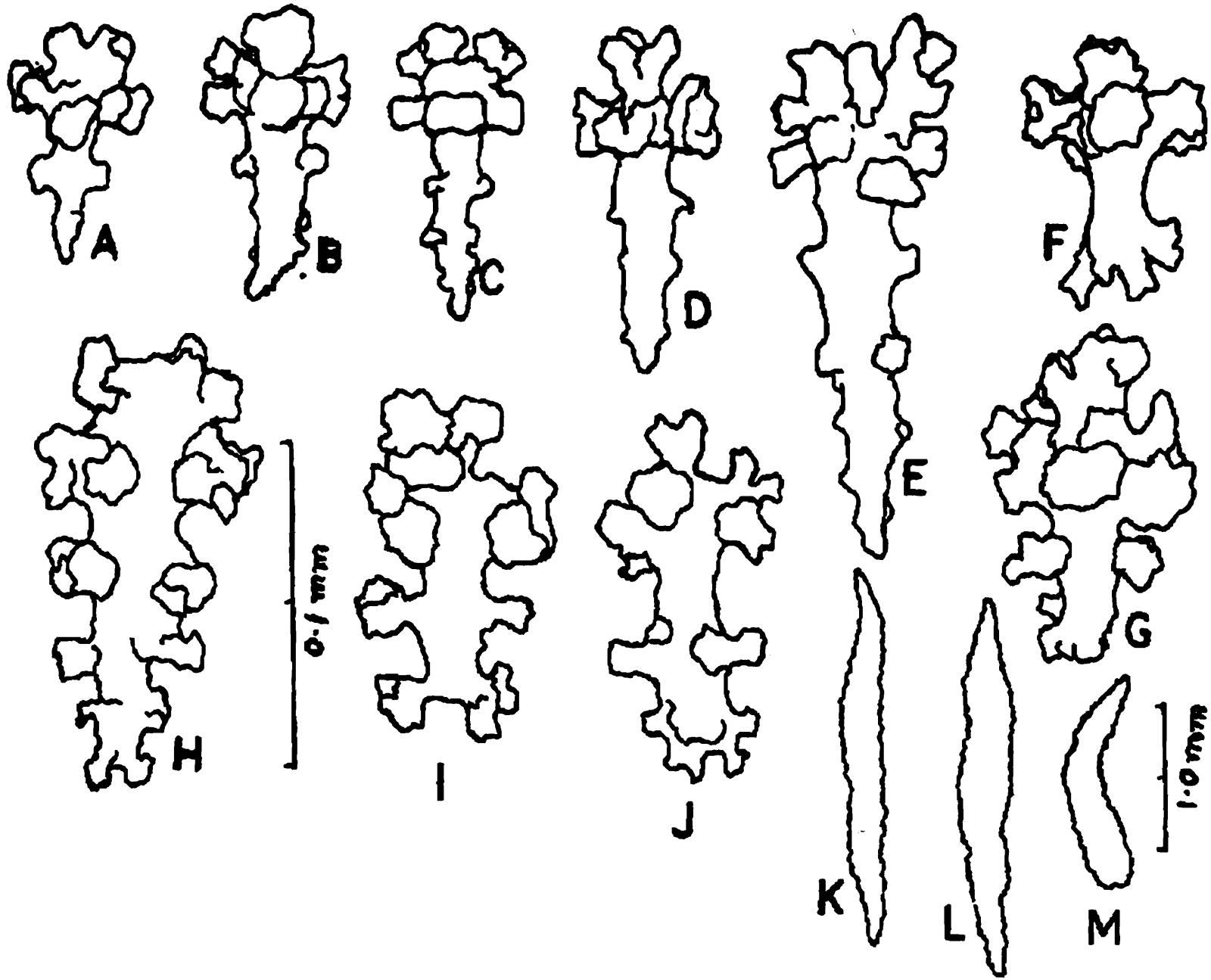


Fig. 35. *Simularia conferta* (Dana) A-E, sclerites from surface layer of a lobe; F-J, sclerites from surface layer of the stalk; K-M, sclerites from interior of the lobe. (Enlargement of A-J by 0.1 mm scale and K-M by 1.0 mm scale).

Colour : Colonies are light brown.

Habitat : Found in intertidal rocky reef areas.

Distribution : India (Andamans) and Vietnam.

38. *Sinularia flexibilis* Quoy & Gaimard, 1833 (fig. 37).

1833. *Alcyonum flexibile* Quoy and Gaimard, *Voyage ded decouvertes ded Astrolabe, Zoologie*, 4: 279, pl.23, figs. 1-3.

1980 *Sinularia flexibilis*: Verveveldt, *Zool. Verhand.*, Leiden, (179): 54-56. Fig. 23.

Material : Pongibalu (South Andaman), 4.ii.1996, D.R.K.Sastry & party, Reg. No. 3618.

Description : Colony has a distinct stalk with long, slender and tube like lobes and lobules; the lobules are very slender and tapering distally. No sclerites are present in the lobes and lobules. Surface layer of the stalk contains thick and more or less triangular clubs measuring 0.08 to 0.14 mm long; the smaller sclerites are almost oval in shape. The club heads are wide and gradually narrow towards the base of the handle; few clubs are covered with thick and stumpy warts. Interior of the stalk contains oval and fusiform spicules are thickly covered with crenulate rounded warts, up to 2.20 mm long; few sclerites are bifurcated at one end.

Colour : Colony dark grey.

Habitat : Found in shallow reef regions.

Distribution : India (North and South Andaman), Fiji, Samoa, Philippines, Malay Archipelago, Australia, Vietnam, Palau, New-Caledonia, Ryukyu Archipelago.

39. *Sinularia gibberosa* Tixier-Durivault, 1970 (fig. 38)

1970b. *Sinularia gibberosa* Tixier-Durivault, *Cahiers dupacifique*, 14: 170-172. fig. 31-33.

1980. *Sinularia gibberosa*: Verveveldt, *Zool. Verhand.*, Leiden, (179): 61-63, fig. 27 pl. 17.

Material : Harmander Bay (Little Andaman), 18.iii.1995, D.V.Rao & party, Reg. No. 3619; Hut Bay (Little Andaman), 19.iii.1995, D.V.Rao & party, Reg. No. 3620; Richardson Bay (Little Andaman), 22.iii.1995, D.V. Rao & party, Reg. No. 3621; Pongibalu (South Andaman), 4.ii.1996, D.R.K.Sastry & party, Reg. No. 3623; Henry Lawrence (South Andaman), 4.iv.1996, D.R.K.Sastry Reg. No. 3624; Havelock Island (South Andaman), 5.iv.1996, D.R.K.Sastry Reg. No. 3625; Trilby Island (North Andaman), 1.xii.1997, D.V.Rao & party, Reg. No. 3626; Landfall Island (North Andaman), 10.xii.1995, D.V.Rao Reg. No.3622.

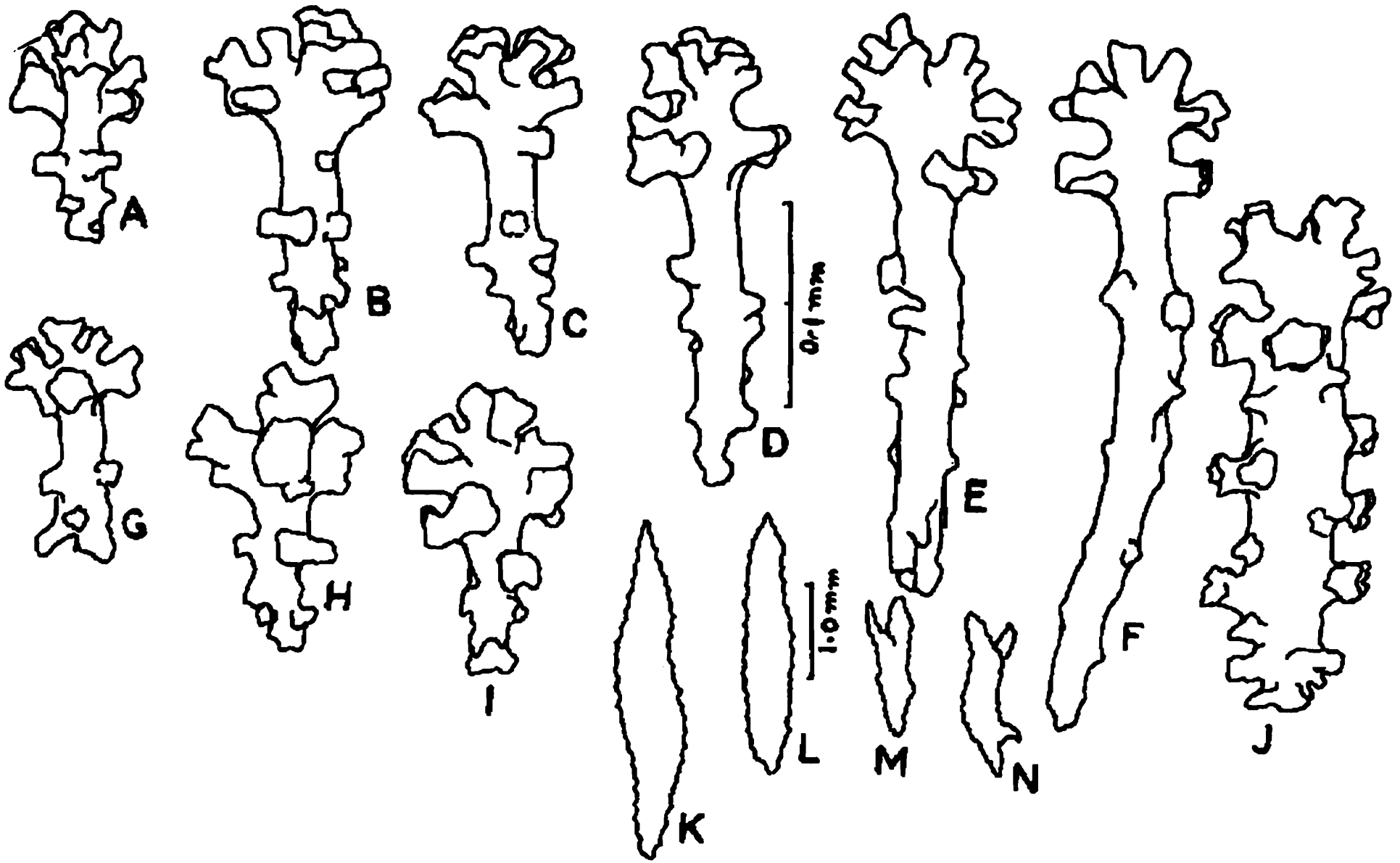


Fig. 36. *Sinularia cristata* Tixier-Durivault A-F, sclerites from surface layer of a lobe; G-J, sclerites from surface layer of the stalk; K-N, sclerites from interior of a lobe. (Enlargement of A-J by 0.1 mm scale and K-N by 1.0 mm scale).

Description : Colonies are encrusted with low stalk; the capitulum consists of a group of voluminous lobes; the lobes are flattened and arranged in rosettes. Surface layer of the lobes contains clubs. Many clubs have central wart; the heads of the clubs have irregularly placed warts; few club heads are bifurcated. Crosses with two heads and one or two handles and almost rod shaped sclerites without distinct head are also present. The clubs vary in length from 0.09 to 0.18 mm; few rod like clubs are up to 0.22 mm long. Surface layer of the stalk contains a variety of clubs, 0.08 to 0.16 mm long, have central warts; most of the clubs are wider and tuberculate. Interior of the lobes and stalk contains blunt and unbranched spindles up to 4.12 mm long; the tubercles on the spindles are concave with small warts around the edge.

Colour : Colony whitish grey.

Habitat : Found in shallow intertidal reef region.

Distribution : India (North, South and Little Andamans), Sri Lanka, Vietnam and Seychelles.

40. *Sinularia granosa* Tixier-Durivault 1970

1970b. *Sinularia granosa* Tixier-Durivault, *Cahiers du pacifique*, 14: 172-173, fig. 34-37.

1980. *Sinularia granosa*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 66-67, fig. 29, pl. 20.

1996. *Sinularia granosa*: Jayasree *et al.*, *J. Bombay nat. Hist. Soc.*, 92: 202-209.

Diagnostic features : Colonies are encrusted with small stalk; the lobes are knob shaped with small granular lobules. Clubs of the surface layer of the lobes are 0.09 to 0.12 mm long. The heads of the clubs are composed of high, blunt spines or few warts; their handles are slightly stout, blunt and warty. Clubs of the surface layer of the stalk are 0.09 to 0.17 mm long, have high blunt spines on heads and the handles are warty; stout clubs, 0.23 to 0.26 mm long, bear coarse warts. Interior of the lobes contains irregularly curved spindles are up to 3.40 mm long, they may be split at one end or bear a side branch. Spindles of the stalk interior are up to 3.00 mm long and more regular in shape; all the spindles are densely covered with crenellated small to big warts.

Colour : Colonies are creamy brown.

Habitat : Found in sub-tidal shallow regions.

Distribution : India (Andamans, Gulf of Mannar), Vietnam.

41. *Sinularia hirta* (Pratt, 1903)

1903. *Sarcophytum hirtum* Pratt., *Fauna Geogr Mald. Laccad. Archip.*, 2(1): 522-524, pl. 30, figs. 23-25.

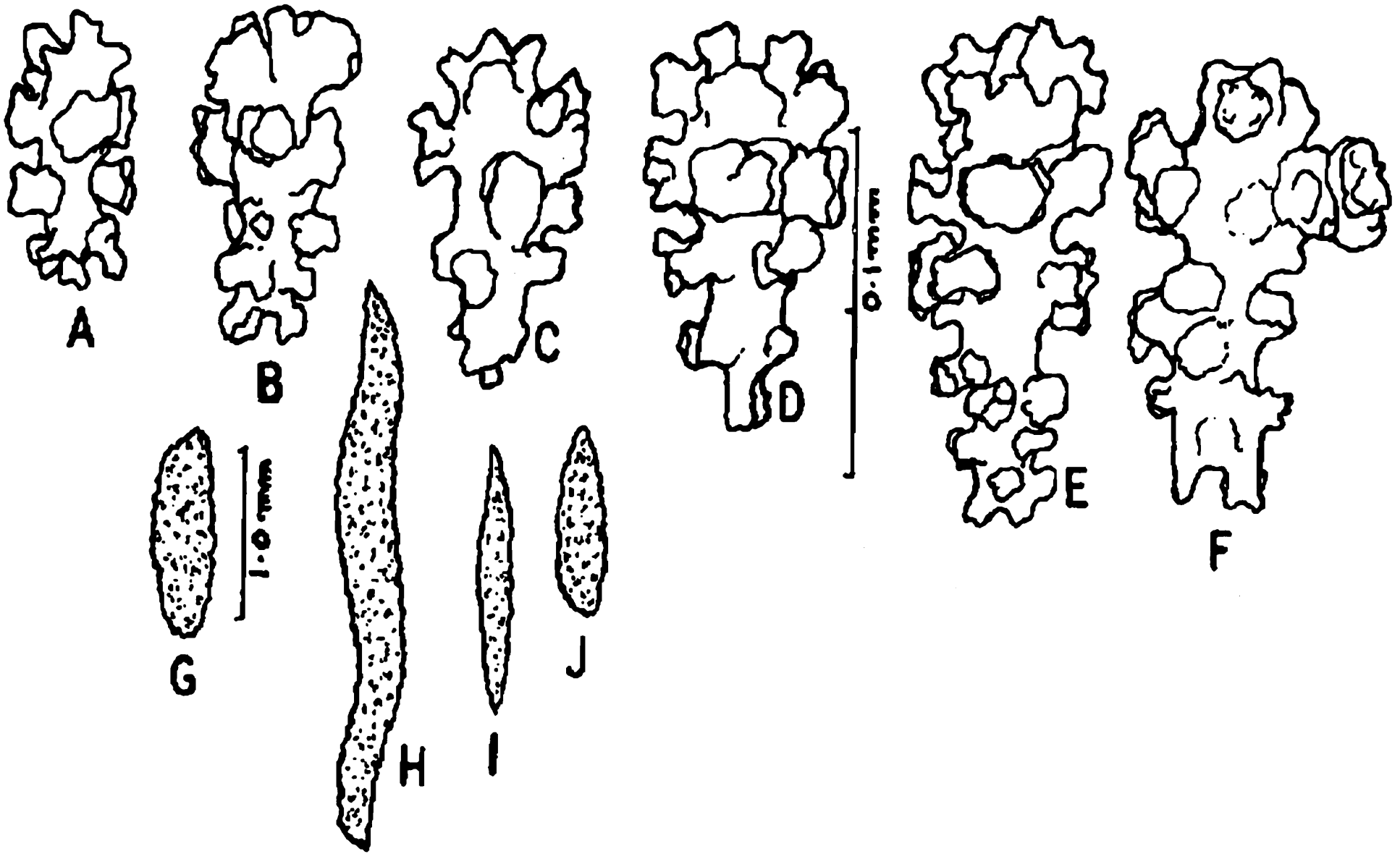


Fig. 37. *Simularia flexibilis* (Quoy & Gaimard) A-F, sclerites from surface layer of the stalk; G-J, sclerites from interior of the stalk. (Enlargement of A-F by 0.1 mm scale and G-J by 1.0 mm scale).

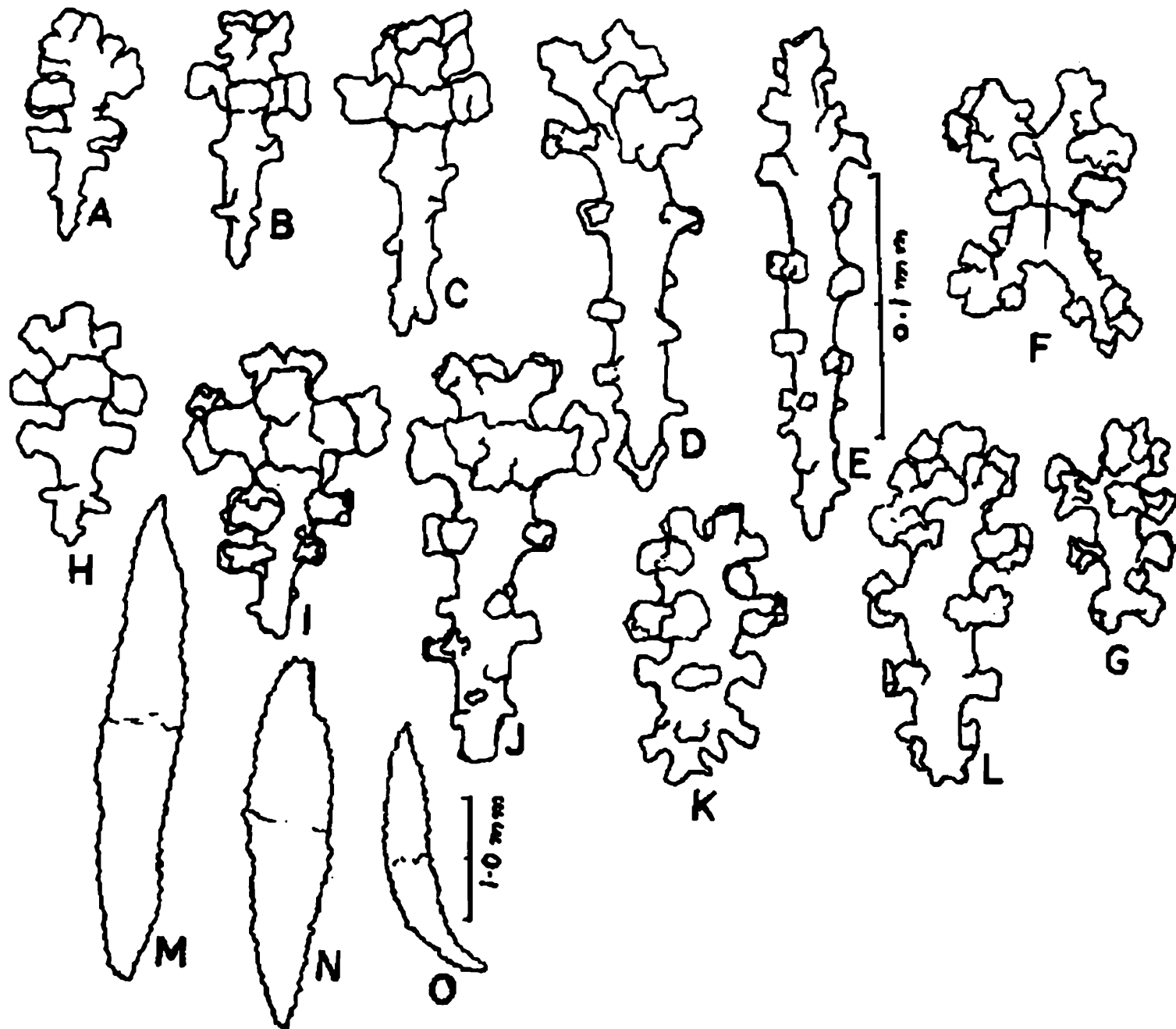


Fig. 38. *Sinularia gibberosa* Tixier-Durivault A-G, sclerites from surface layer of a lobe; H-L, sclerites from surface layer of the stalk; M-O, sclerites from interior of the stalk. (Enlargement of A-L by 0.1 mm scale and M-O by 1.0 mm scale).

1980. *Sinularia hirta*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 71-72, fig. 33, pl. 22, figs. 1 & 2.

1996. *Sinularia hirta*: Jayasree et al., *J. Bombay Nat. Hist. Soc.*, 92: 202-209.

Diagnostic features : Colony erects with distinct small wide stalk; the lobes are small and the secondary lobes are conical. Surface layer of the lobe contains clubs, 0.08 to 0.10 mm long, their heads with numerous pointed or blunt ended processes and the handles are long pointed or irregularly branched bear tiny warts. Some clubs are 0.10 to 0.25 mm long with slender weakly spined and pointed handles; the heads are with fewer prominences. The clubs measuring 0.28 to 0.34 mm long are with tuberculate heads and thick straight or curved handles. Clubs of the surface layer of the stalk are similar to those in the lobes; in addition the lobes and stalk have many small rods. Interior of the lobes and stalk contains slender, unbranched straight or irregularly curved spindles up to 3.50 mm long; the spindles bear large dome shaped and crenellated prominences arranged in transverse rows.

Colour : Colonies are light brown.

Habitat : Found in sub-tidal reef region.

Distribution : India (North and South Andaman, Gulf of Mannar, Lakshadweep) and Maldives

42. *Sinularia inelegans Tixier-Durivault, 1970 (fig. 39, Plate II fig. 10)

1970b. *Sinularia inelegans* Tixier-Durivault, *Cahiers du pacifique*, 14: 177-180, figs. 38-40.

1980. *Sinularia inelegans*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 72-73, fig. 38-40.

Material : Hut Bay (Little Andaman), 19.iii.1995, D.V.Rao and party, Reg. No. 3637; Inglis Is. (South Andaman), 3.iv.1996, D.R.K.Sastry and party, Reg. No. 3638; Havelock Is. (South Andaman), 5.iv.1996, D.R.K.Sastry and party, Reg. No. 3640; Landfall Is. (North Andaman), 10.xii.1997, D.V.Rao, Reg. No. 3641.

Description : Colonies are encrusted with basal plates; the lobes are slightly wall like, short and irregular. Surface layer of the lobes contains foliaceous leptoclados type clubs, 0.08-0.11 mm long; few longer clubs, 0.11 to 0.12 mm long, have leaf like prominences or rounded knobs on their heads; numerous warty rods measuring 0.13-0.26 mm are also present. Surface layer of the stalk contains similar foliaceous clubs of the lobes, but the handles of the clubs are stouter and their heads are more warty. The rod like spicules are more warty and stout. Interior of the lobes and stalk contains unbranched straight or slightly curved spindles up to 2.10 mm long, but in the stalk some spicules are longer up to 2.70 mm long; the warts on the spicules are crenellated and irregularly distributed.

Colour : Colonies light greenish grey.

Habitat : Found in intertidal reef areas.

Distribution : India (North, South and Little Andaman, Lakshadweep) and Vietnam.

***43. *Sinularia leptoclados* (Ehrenberg, 1834) (fig. 40)**

1834. *Sinularia leptoclados* Ehrenberg, *Abhandl. K. Akad. Wiss. Berlin*, 1832(1): 5.

1980. *Sinularia leptoclados*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 78-80, fig. 38.

Material : John Richardson Bay (Little Andaman), 23.iii.1995, D.V.Rao and party, Reg. No 3630.

Description : Colony encrusting with definite stalk; the capitulum has numerous digitiform knobs like long lobes; the lobes are strongly branched. Surface layer of the lobes and stalk contains small leptoclados type clubs, 0.07 to 0.11 mm long. The clubs have distinct foliaceous heads; the handles of the clubs are smooth and blunt with a ring of few small knobs at its end; longer clubs, 0.08 to 0.15 mm long, have few small warts on handles. Few spindle like bodies, 0.12 to 0.24 mm long, are also present in the stalk. Coenenchyme of the lobes and stalk contains 4.5 to 5.2 mm long spindles; the spindles are covered with small coarse warts arranged in transverse rows.

Colour : Colony brownish grey.

Habitat : Found in shallow reef region.

Distribution : India (Little Andaman), Widespread in Indo-west Pacific.

***44. *Sinularia lochmodes* Kolonko 1926 (fig. 41, Plate II fig. 11)**

1926. *Sinularia lochmodes* Kolonko, *Mitt. Zool. Mus. Berlin*, 12 (2): 300-303. pl. 1 fig. 1-3.

1980. *Sinularia lochmodes*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 80-83, figs. 39, and 40 pl. 25-27.

Material : Hut Bay (Little Andaman), 19.iii.1995, D.V. Rao & party, Reg. No. 3627; Landfall Island (North Andaman), 10.xii.1997, D.V.Rao, Reg. No. 3628; Peacock Island (North Andaman), 13.xii.1997, D.V.Rao, Reg. No. 3629.

Description : Colonies are wide and encrusted; lobes are small and the lobules are digitiform, stout and rounded; the stalk of the colonies are very strong and long, numerous thick upright branches arise from it. Surface layer of the lobes contains 0.09 to 0.11 mm long clubs; central warts in the clubs are absent and the heads have blunt spines directed upwards; below these

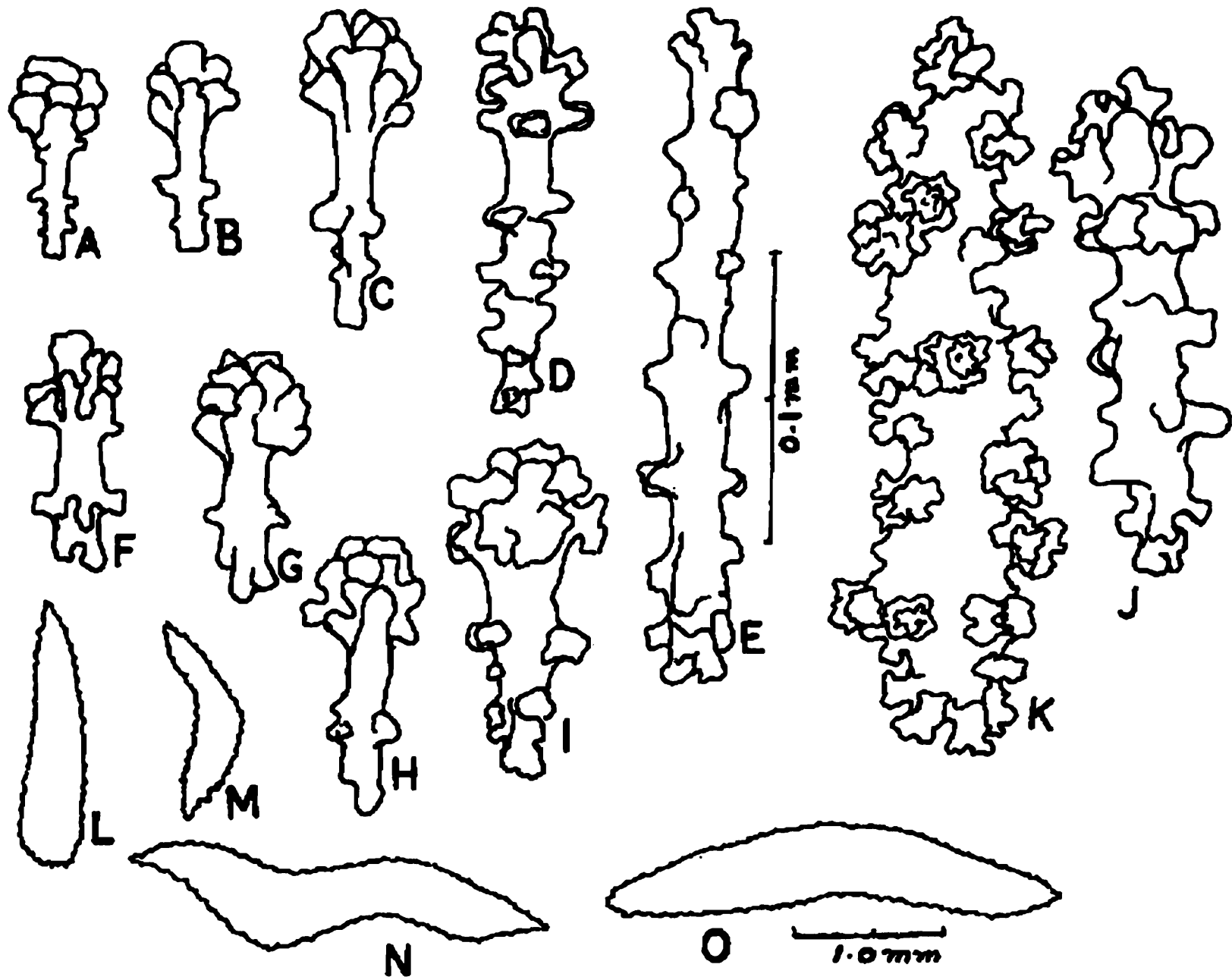


Fig. 39. *Sinularia inelegance* Tixier-Durivault A-E, sclerites from surface layer of a lobe; F-K, sclerites from surface layer of the stalk; L-O, sclerites from interior of the stalk. (Enlargement of A-K by 0.1 mm scale and L-M by 1.0 mm scale).

a girdle of simple warts present. Handles of the clubs are slender and pointed, some are blunt and bifurcated, bear a few processes. Longer clubs up to 0.28 mm long are common; few short clubs, 0.07 to 0.08 mm long, have wide and short handles with few warts. Surface layer of the stalk contains wider clubs, 0.07 to 0.1 mm long, have many stumpy warts on handles; the heads are branched and composed of three or more blunt spines. Interior of the lobes and stalk contains spindles, up to 5 mm long, are irregularly curved and crenellated; some spindles of the lobes are bifurcated at one end.

Colour : Colony light grey.

Habitat : Found in shallow intertidal region.

Distribution : India (North and Little Andamans, Lakshadweep), Philippines, Indonesia, Great Barrier Reef, Vietnam, New- Caledonia, Ryukyu Archipelago.

45. *Sinularia mannarensis* Verseveldt, 1980

1980. *Sinularia mannarensis* Verseveldt, *Zool. Verhand.*, Leiden, (179): 86-88, fig. 43 pl. 16 fig. 3

1996. *Sinularia mannarensis*: Jayasree et al., *J. Bombay nat. Hist. Soc.*, 92: 202-209.

Diagnostic features : Colonies have a distinct stalk with short finger like lobes. Surface layer of the lobes contains small clubs, 0.08 to 0.18 mm long, have tuberculate heads and inconspicuous central wart; some clubs are up to 0.29 mm long have warty heads and their handles are more rod like. The clubs in the surface layer of the stalk are 0.10 to 0.17 mm long have heads with a distinct central wart at the tip and a zone of lower tubercles. Interior of the lobes and stalk contains up to 3.3 mm long numerous pointed and slender spindles but the spindles of the stalk are up to 2.70 mm long; the prominences on the spindles are crenellated, irregularly distributed or arranged in girdles.

Colour : Colonies are light borwn.

Habitat : Found in intertidal reef region.

Distribution : India (South and Middle Andaman, Gulf of Mannar).

46. *Sinularia maxima* Verseveldt, 1971 (fig. 42)

1971. *Sinularia maxima* Verseveldt, *Zool. Verhand.*, Leiden, (117): 50-53, figs. 34,35; pl. 11, fig. 1.

Material : Little Andaman, 17.iii.1995, D.V.Rao & party, Reg. No. 3631; Pongibalu (South Andaman), 4.ii.1996, D.R.K.Sastry & party, Reg. No. 3632; Havelock Island (South Andaman), 5.iv.1996, D.R.K.Sastry & party, Reg. No. 3633.

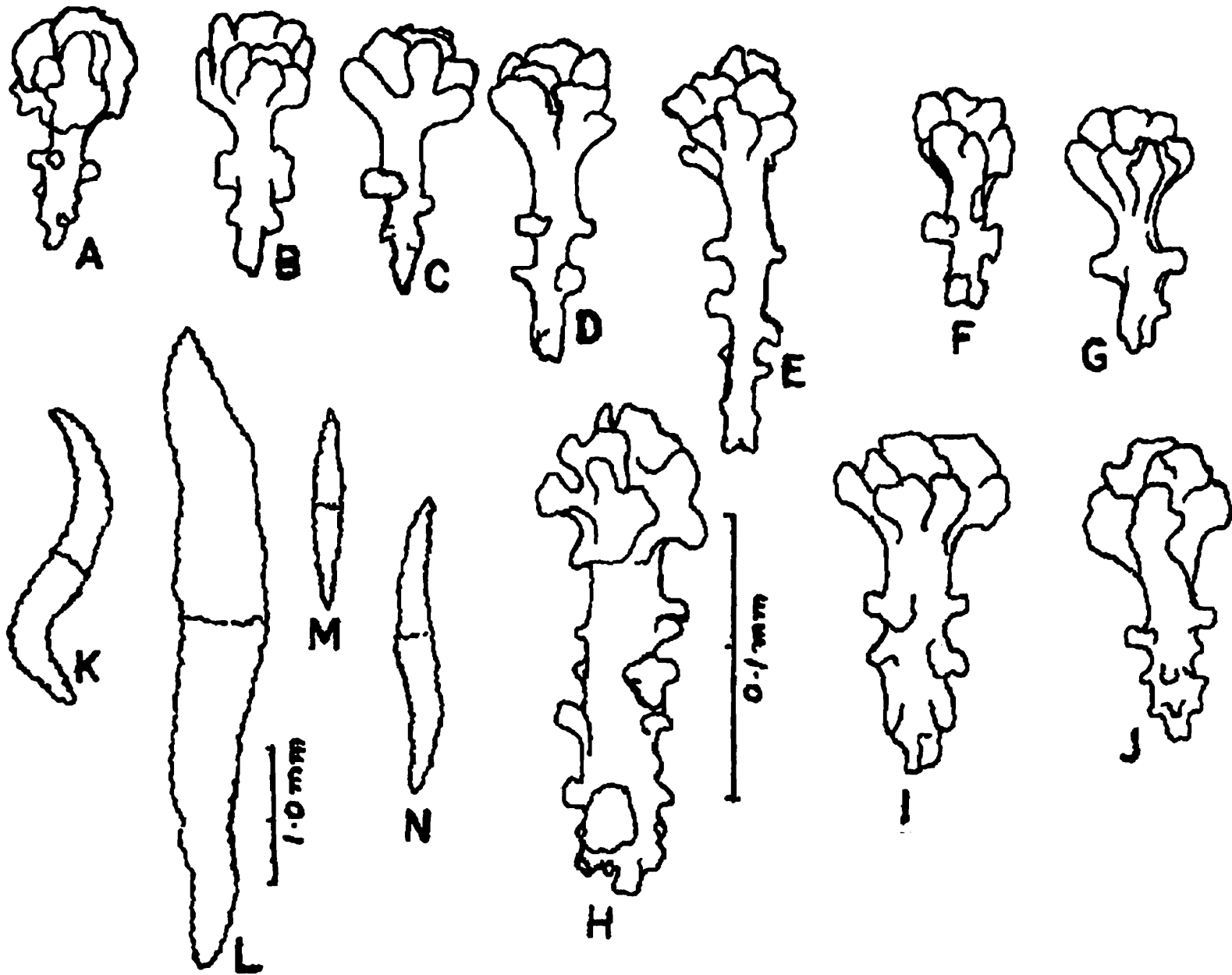


Fig. 40. *Sinularia leptoclados* Ehrenberg A-E, sclerites from surface layer of a lobe; F-J, sclerites from surface layer of the stalk; K-N, sclerites from interior of the stalk. (Enlargement of A-J by 0.1 mm scale and K-N by 1.0 mm scale).

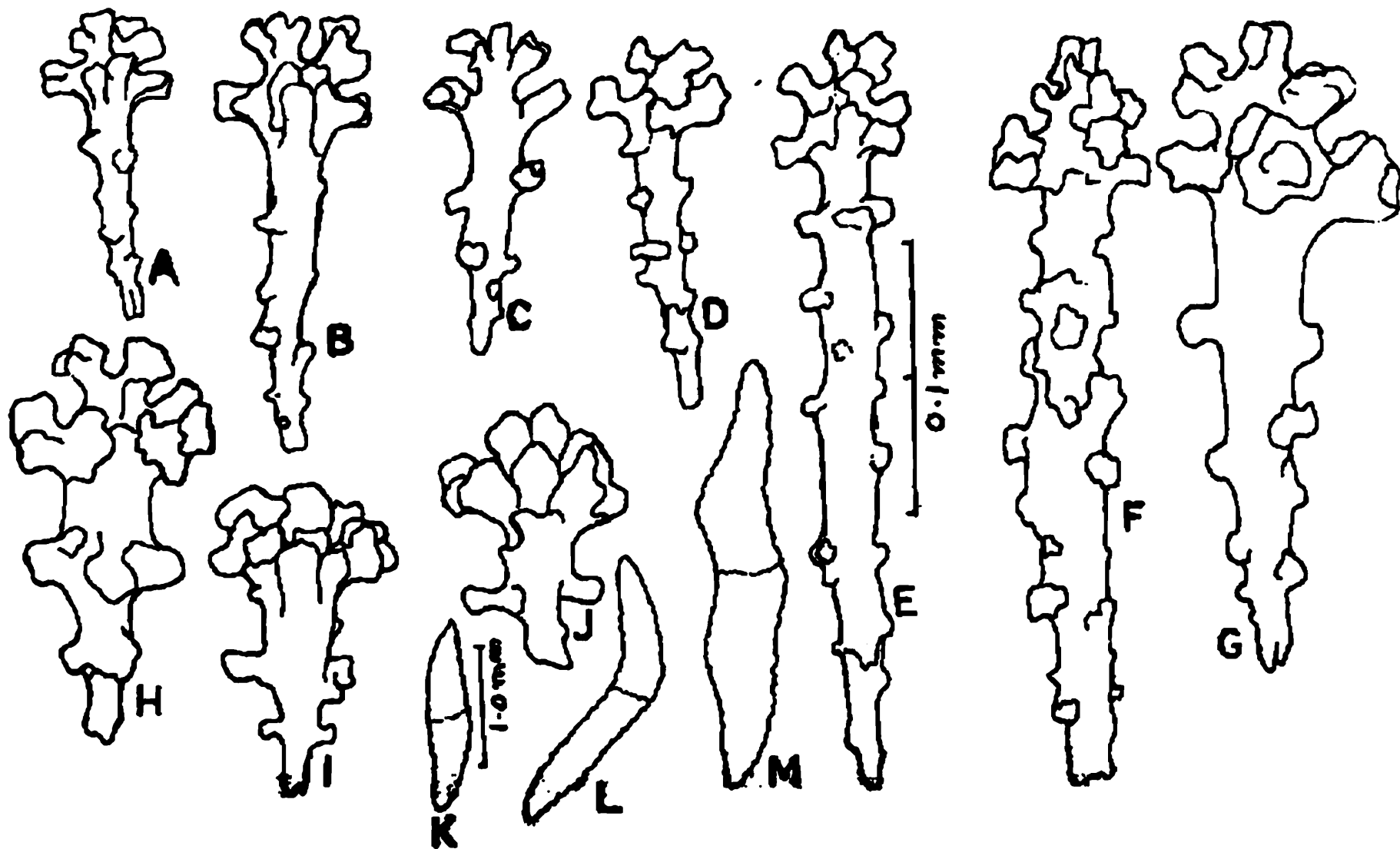


Fig. 41. *Sin uaria lochmodes* Kolonko A-E, sclerites from surface layer of a lobe; F-J, sclerites from surface layer of the stalk; K-M, sclerites from interior of the stalk. (Enlargement of A-J by 0.1 mm scale and K-M by 1.0 mm scale).

Description : Colonies are rather weak and soft have long stalk with longitudinal groves; the capitulum consist of digitiform long robust lobes; the wide primary lobes give rise to blunt ended secondary lobes. Surface layer of the lobes contains small clubs measuring 0.06 to 0.09 mm long. The heads of the clubs have leaf like prominences with lobate edges; the handles have one circle of spines near the base. Few spiny needles, 0.20 to 0.30 mm long, are also present. Surface layer of the stalk contains the clubs similar to the clubs of the lobes; in addition few relatively thick spiny spindles of 0.15 to 0.21 mm long are also present. Interior of the lobes contains pointed straight or curved and narrow spindles up to 0.35 to 0.40 mm long; the warts on the spindles are large and densely arranged; some spindles bear less warts and low cones and a few spindles are smooth. In addition there are numerous thin spiny rods, 0.35 to 0.50 mm long, are also present. Stalk interior also contains pointed straight or curved spindles, measuring up to 0.45 mm long; the warts on spindles are spiny and densely placed.

Colour : The colony dark grey.

Habitat : Found in shallow reef regions up to 15 m depth.

Distribution : India (South and Little Andaman), Madagascar and Malay Archipelago.

***47. *Sinularia microclavata* Tixier-Durivault, 1970 (fig. 43)**

1970a. *Sinularia microclavata* Tixier-Durivault, L. " *Expedition-----ded la fondation Singer—polignac*" 1960-1963. 4:266-268, figs. 108-110.

1980. *Sinularia microclavata*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 88-90 fig. 44, pl. 29, fig. 2.

Material : Hobday Is. (South Andaman), 18.v.1996, D.R.K.Sastry, Reg. No. 3634.

Description : Colony encrusted; the capitulum consists of crowded, low rounded lobes and lobules. The lobes are less branched, the lobules are small and digitiform. Surface layer of the lobes contains small clubs measuring 0.07 to 0.12 mm long. Many clubs have central wart with a circle of wart like prominences below; the handles are slightly pointed and bear small spines. The heads of the stout clubs, up to 0.22 mm long, have irregularly placed warts and blunt spines. Stalk surface contains small clubs measuring 0.06 to 0.09 mm long; the handles of the clubs are more cylindrical and slightly blunt ended; few larger clubs measuring 0.11 to 0.13 mm long are also present. Interior of the stalk and lobes contains curved and blunt ended slender spindles; the sclerites of the lobes are up to 2.25 mm long and those in the stalk are shorter up to 2.10 mm long; the warts on the spindles are high and irregularly distributed.

Colour : Colony dark grey.

Habitat : Found in shallow reef region.

Distribution : India (South Andaman), New Caledonia.

***48. *Sinularia muralis* May, 1899 (fig. 44)**

1899. *Alcyonium leptoclados* var *murale*, *Jena. Zeitschr. Naturw.*, 33: 108.

1980. *Sinularia muralis*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 94-96, fig. 48, pl. 30.

Material : Harmander Bay (Little Andaman), 18.iii.1995, D.V.Rao & party, Reg. No. 3635.

Description : Colony encrusted; the capitulum is thick and has wide wall like sinuous crests. Surface layer of the crests contains leptoclados type clubs, 0.07 to 0.13 mm long; the base of the club handles have small round knobs, the longer clubs have less foliaceous heads and the handles bear more prominences. Few rods of 0.14 to 0.19 mm long have blunt spines and small warts clustered at both ends are also present. Clubs of surface layer of the basal part of the colony are 0.08 to 0.13 mm long; some clubs are similar to the clubs of the crest, but most of them have wide and thick heads. Some clubs, 0.11 to 0.15 mm long, are thick and have warty heads and wide warty handles; few rods, 0.14 to 0.20 mm long, with simple warts at the ends and few oval shaped bodies, 0.20 to 0.23 mm long, with densely covered warts are also present. Interior of the crests and basal part of the colony contains up to 3.0 mm long unbranched blunt ended wide spicules. In addition many small ovals are also present in the basal part; the sclerites are covered with big warts.

Colour : Colony dark brown.

Habitat : Found on rocky reefs.

Distribution : India (Little Andaman, Lakshadweep) and Sri Lanka.

49. *Sinularia ornata* Tixier-Durivault, 1970

1970. *Sinularia ornata* Tixier-Durivault, "L" Expedition.....*De la foundation singer polignac* 1960-1963; 4: 271-273, figs. 117-119.

1980. *Sinularia ornata* Verseveldt, *Zool. Verhand.*, Leiden, (179): 100 fig. 51, pl. 33, fig. 4.

1996. *Sinularia ornata*: Jayasree et al., *J. Bombay nat. Hist. soc.*, 92: 202-209.

Diagnostic features : Colonies are encrusted and low; capitulum with numerous short knob-shaped lobes; the lobules small and closely packed. Surface layer of the lobes contains clubs, 0.09 to 0.30 mm long, have blunt warty heads; smaller clubs have central warts; the

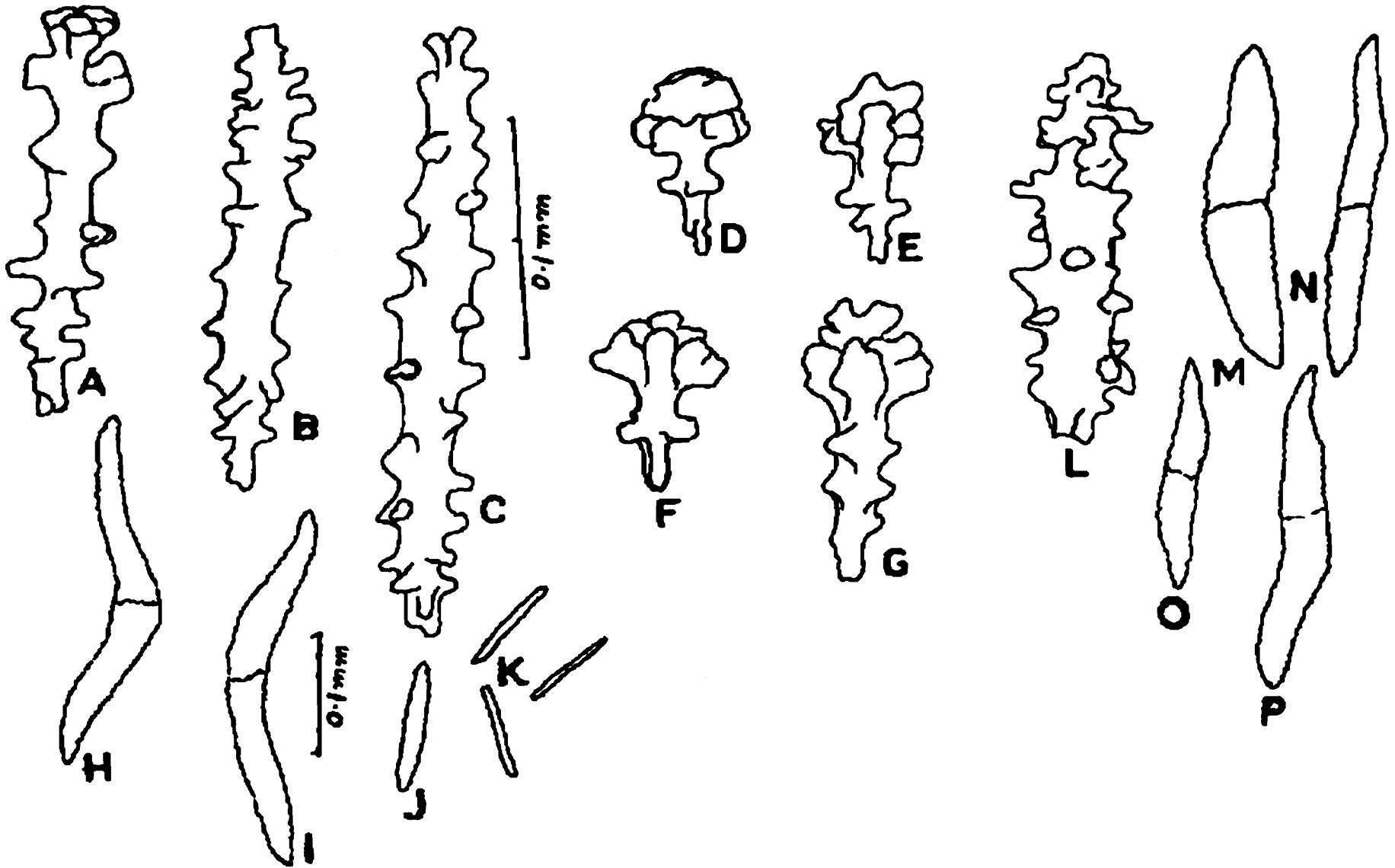


Fig. 42. *Sinularia maxima* Verseveldt A-C, sclerites from surface layer of a lobe; D-G, sclerites from surface layer of the stalk; H-K, sclerites from interior of a lobe; L-P, interior of the stalk (Enlargement of A-G by 0.1 mm scale and H-P by 1.0 mm scale).

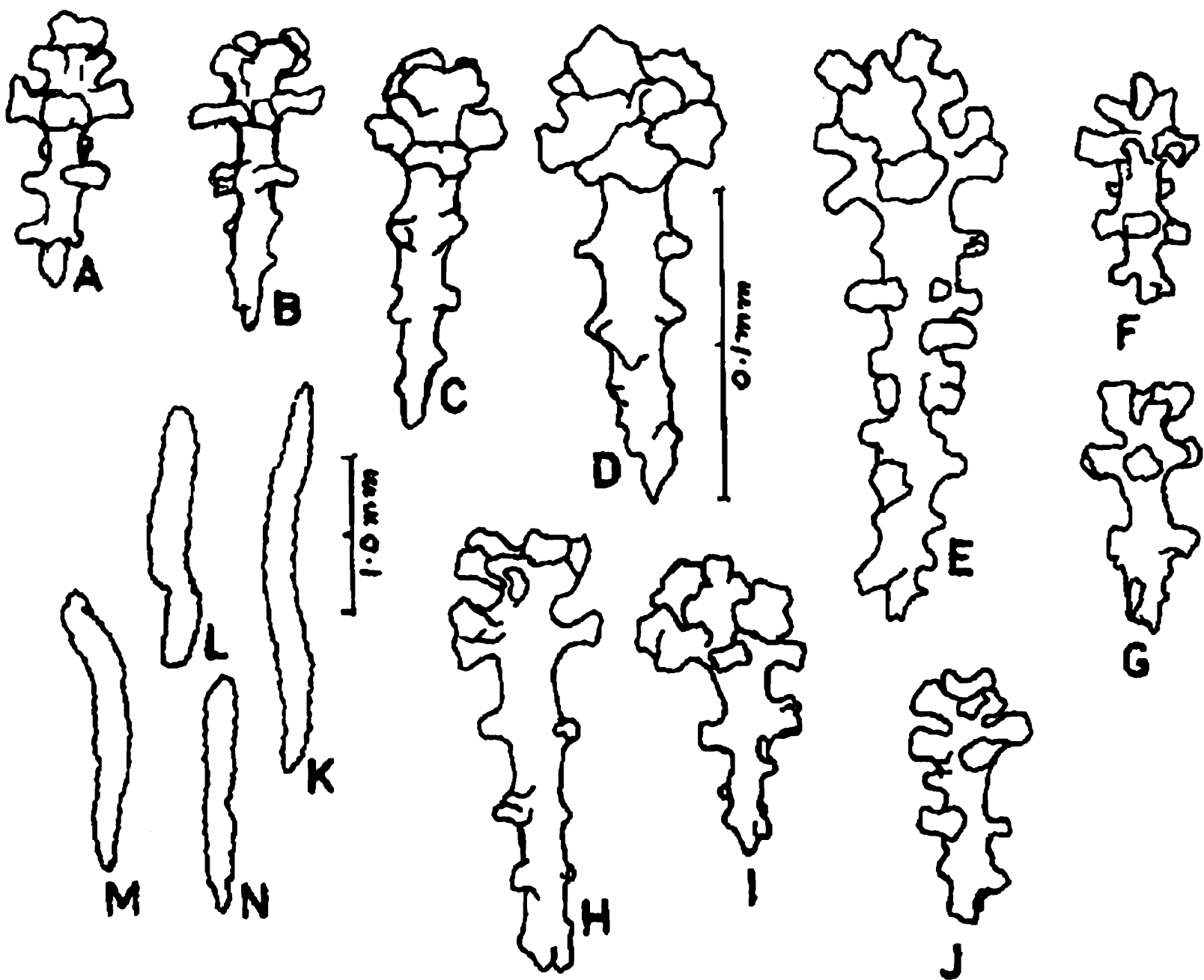


Fig. 43. *Simularia microclavata* Tixier-Durivault A-E, sclerites from surface layer of a lobe; F-J, sclerites from surface layer of the stalk; K, sclerite from interior of the lobe; L-N, sclerites from interior of the stalk. (Enlargement of A-J by 0.1 mm scale and K-N by 1.0 mm scale).

handles of the clubs are pointed with blunt warts arranged irregularly. Clubs in the surface layer of the stalk are 0.10 to 0.18 mm long; the heads are voluminous and bear big warts; the handles are thick and pointed with blunt warts. Interior of the lobes and stalk contains unbranched, both straight and curved spindles measuring up to 3.20 mm long; they have median constriction and strongly crenellated warts.

Colour : Colonies light brown.

Habitat : Found in intertidal reef region.

Distribution : India (South Andaman), New Caledonia and Gambier Island.

50. *Sinularia ovispiculata* Tixier-durivault, 1970 (fig. 45)

1970b. *Sinularia ovispiculata* Tixier-Durivault, *Cahiers du pacifique*, 14: 192-196. figs. 50-53.

1980. *Sinularia ovispiculata*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 100-101, fig. 52, pl. 31.

Material : Temple Island (North Andaman), 1.xii.1997, D.V.Rao & party, Reg. No. 3636.

Description : The colony encrusted and has small close-set tree like lobes; the lobules are short, rounded and closely set. Surface layer of the lobes contains 0.09 to 0.19 mm long clubs have pointed warty heads, the warts are narrow or wide; the handles are pointed or blunt with thorny warts. Surface layer of the stalk contains clavate and short rods; some spicules are irregularly shaped; all the sclerites bear very high wart like processes. Interior of the lobes and stalk contains oval shaped sclerites, up to 1.35 mm long, has a median construction and covered with small warts.

Colour : Colony dark brown.

Habitat : Found in intertidal rocky reef region.

Distribution : India (North Andaman) and Vietnam.

51. *Sinularia peculiaris* Tixier-Durivault, 1970 (Fig. 46, Plate II fig. 12)

1970. *Sinularia peculiaris* Tixier-Durivault. "L" Expedition... .. *De la foundation singer-Polignace* 1960-1963, 4: 279-280, figs. 130-132.

1980. *Sinularia peculiaris*: Verseveldt, *Zool. Verhandle*, Leiden, (179): 140-105, fig. 55, pl. 34 fig. 3.

Material : Little Andaman, 17.iii.1995, two specimens, D.V.Rao & party, Reg. no. 3643.

Distribution : Colony encrusted, lobes erect and small; lobules oblong, the summits rounded.

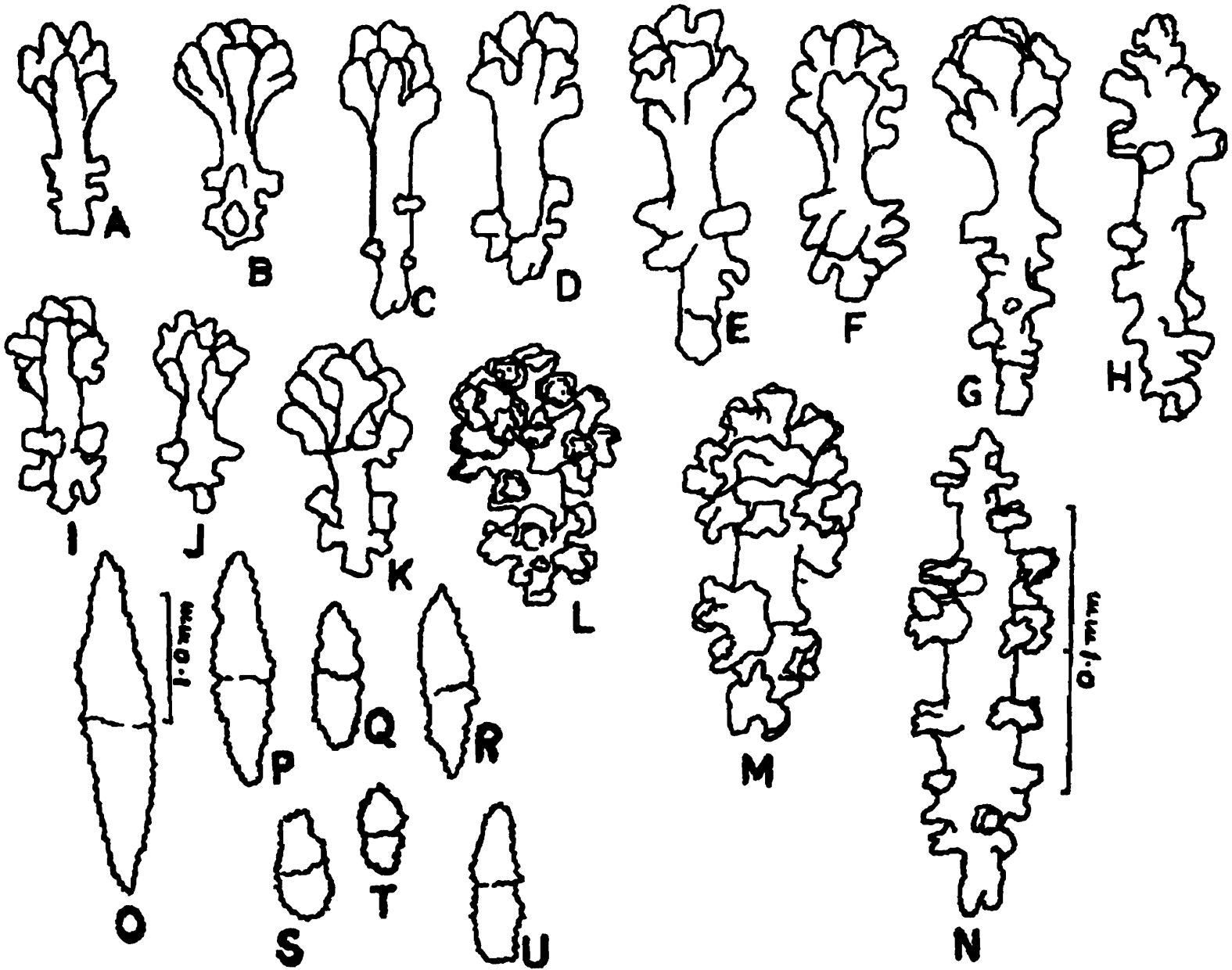


Fig. 44. *Simularia muralis* Tixier-Durivault A-H, sclerites from surface layer of a lobe; I-N, sclerites from surface layer of the base; O-U, sclerites from interior of the base. (Enlargement of A-N by 0.1 mm scale and O-U by 1.0 mm scale).

The surface layer of the lobes contains clubs, 0.10 to 0.16 mm long, few clubs are up to 0.21 mm long; the clubs have wide heads with blunt warts, some warts are leaf like with toothed edges; the handles are stout and having small warts. The surface layer of the stalk contains many clubs, 0.11 to 0.17 mm long; few clubs are up to 0.24 mm long. The crosses with two prominent heads. Interior of the lobes and stalk contains slightly curved and unbranched, blunt ended spindles, rarely bifurcated at one end; the spindles are measuring up to 2.32 mm long. In addition, the stalk contains small multiradiate irregular forms; the warts on the sclerites are crenellated and widely distributed.

Colour : Light grey.

Habitat : Found in shallow reef and rocky areas.

Distribution : India (Little Andaman), New Caledonia.

52. *Sinularia polydactyla* (Ehrenberg, 1834)

1834. *Lobularia polydactyla* Ehrenberg, *Abhandl. K. Akad. Wiss. Berlin*, 1832 (1): 58.

1980. *Ainularia polydactyla*: Verseveldt, *Zool. Verhand.*, Leiden, (179): 108, fig. 57.

1996. *Sinularia polydactyla*: Jayasree *et al.*, *J. Bombay nat. Hist. Soc.*, 92: 202-209.

Diagnostic features : Colony encrusting with short tough stalk; lobes crowded, large and arborescent with finger like branches. Surface layer of the lobes contains 0.07 to 0.19 mm long clubs have warty heads, the handles of the clubs are slender and pointed with small warts, but few clubs have central wart. Clubs of the surface layer of the stalk are similar to the clubs of the lobes but their handles are stout and short; the handles of the larger clubs are straight or slightly curved; few crosses are also present. The coenenchymal sclerites are straight or curved pointed spindles, up to 4.5 mm long; smaller sclerites are bifurcated at one end; the warts on the spindles are low, rounded and thickly set.

Colour : Colonies are creamy brown.

Habitat : Found in shallow reef regions.

Distribution : India (South and Middle Andamans, Gulf of Mannar). Wide spread in Indo-Pacific region.

53. *Sinularia vrijmoethi* Verseveldt, 1971.

1971. *Sinularia vrijmoethi* Verseveldt, *Zool. Verhand.*, Leiden, (117): 41-43, figs. 25-27, pl. 10 fig. 2.

Sinularia vrijmoethi: Jayasree *et al.*, *J. Bombay nat. Hist. Soc.*, 92: 202-209.

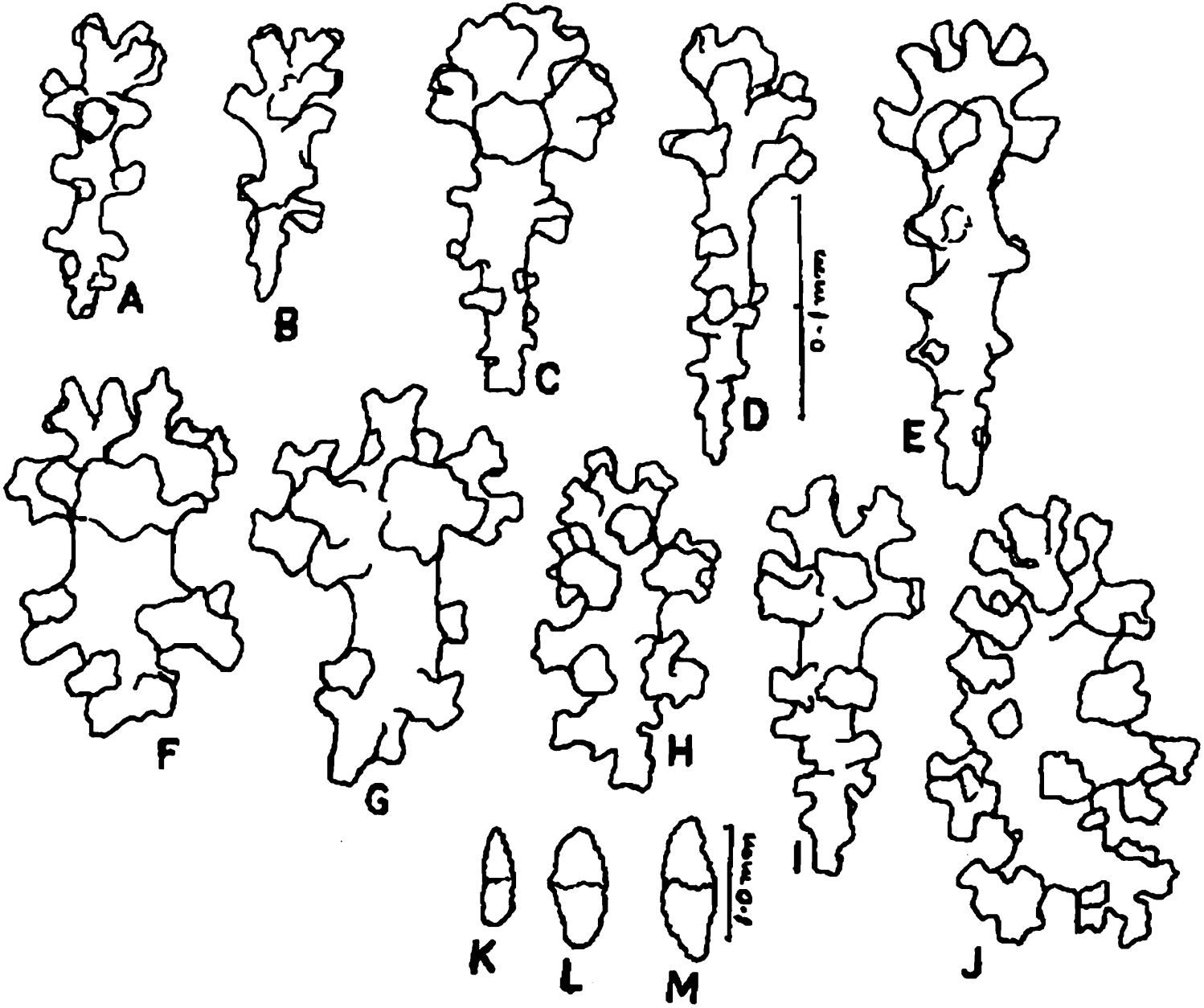


Fig. 45. *Simularia ovispiculata* Tixier-Durivault A-E, sclerites from surface layer of a lobe; F-J, sclerites from surface layer of the stalk; K-M, sclerites from interior of a lobe. (Enlargement of A-J by 0.1 mm scale and K-M by 1.0 mm scale).

Diagnostic features : Colony with distinct stalk and have longitudinal grooves; the lobes long and arborescent with long digitiform secondary lobes, short knob like side branches are also present. Surface layer of the lobes contains long and heavy clubs measuring 0.13 to 0.26 mm long; the club heads are tuberculate, and handles are long, spiny and pointed. Clubs of the surface layer of the stalk are up to 0.29 mm long, stout with thick and strongly warted heads. Stalk interior contains spindles up to 1.80 mm long; some are irregularly branched; the spindles are covered with numerous large, coarse warts distributed irregularly. Spindles of the interior of the lobes are up to 1.80 mm long, more slender and pointed covered with spines or low cones.

Colour : Colonies are grayish-brown.

Habitat : Shallow intertidal reefs.

Distribution : India (Andamans), Madagascar.

Family NEPHTHEIDAE
Genus *Capnella* Gray, 1869

*54. *Capnella parva* Light, 1913 (fig. 47, Plate II fig. 8)

1913. *Capnella parva* Light, *Philipp. J Sci.*, 8(6): 446-448, pl. 1, fig. 8, pl. 3, fig. 3a,e.

1976. *Capnella parva*: Verseveldt, *Rev. Zool. Afr.*, 90 (3): 509, fig. 5.

Material examined : Little Andaman, 15.iii.1995, D.V.Rao, Reg. No. 3540; Havelock Is. (Ritchie's Archipelago), 5.iv.1996, D.R.K.Sastry, Reg. No. 3541; Phongibalu (South Andaman), 4.ii.1996, D.R.K.Sastry, Reg. No. 3542.

Description : Colony has numerous oviform lobes are densely covered with zooids; sterile stalk longitudinally striped. Spicules of the lobe are clubs have spiny heads, the spines are long and directed one side; small slender clubs with fewer heads are also present. Surface layer of the stalk has small thick rods and clubs. The rods of 0.10 to 0.15 mm long have two girdles of warts and the clubs of 0.13 to 0.18 mm long have spiny heads.

Colour Colony light brownish-gray. Preserved specimen light gray in alcohol.

Habitat : Found in intertidal to sub-tidal reef flats.

Distribution : India (Little Andaman), Seychelles and Comoro Islands.

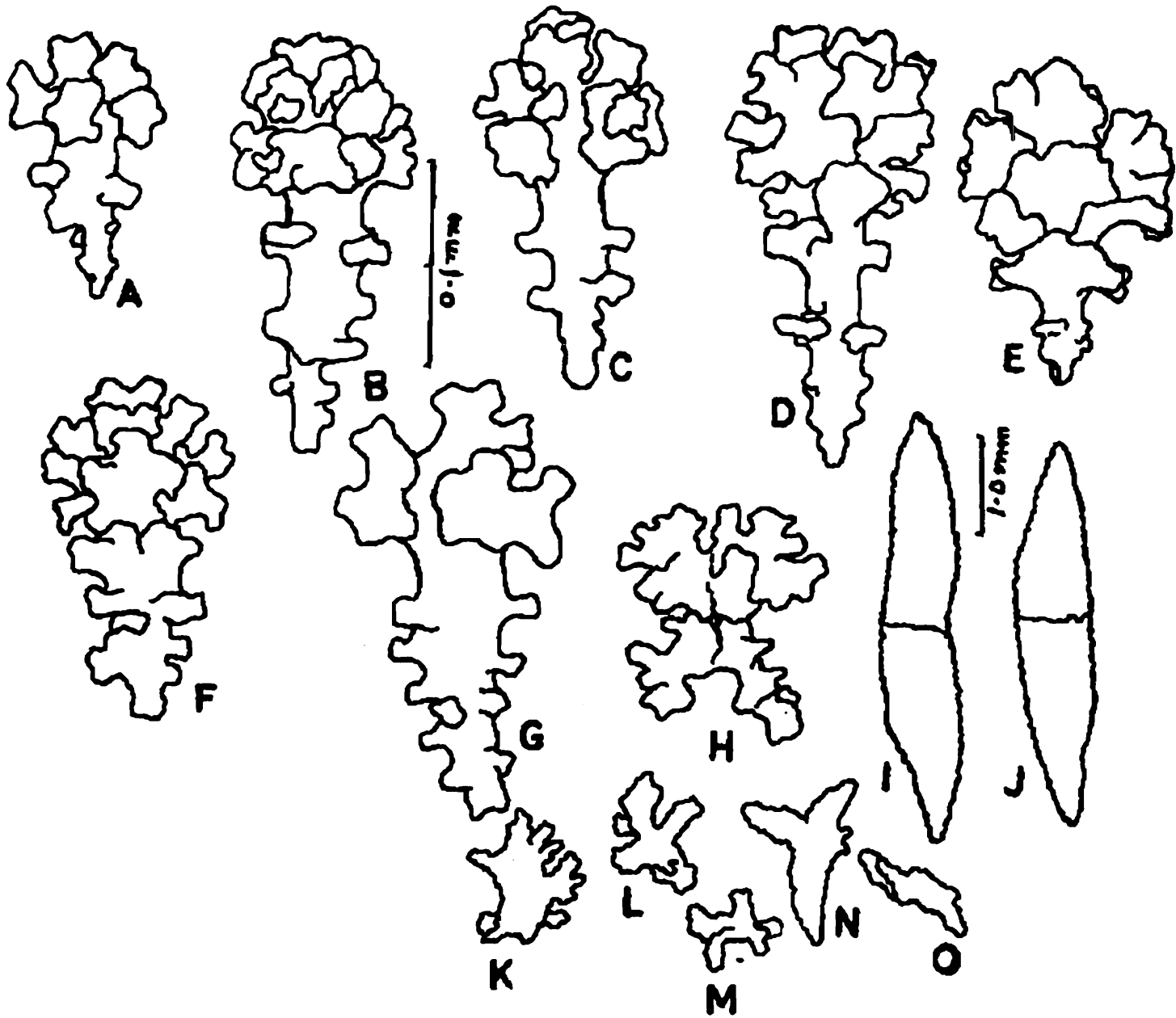


Fig. 46. *Sinularia peculiaris* Tixier-Durivault A-D, sclerites from surface layer of a lobe; E-H, sclerites from surface layer of the stalk; I-O, sclerites from interior of the stalk. (Enlargement of A-H by 0.1 mm scale and I-O by 1.0 mm scale).

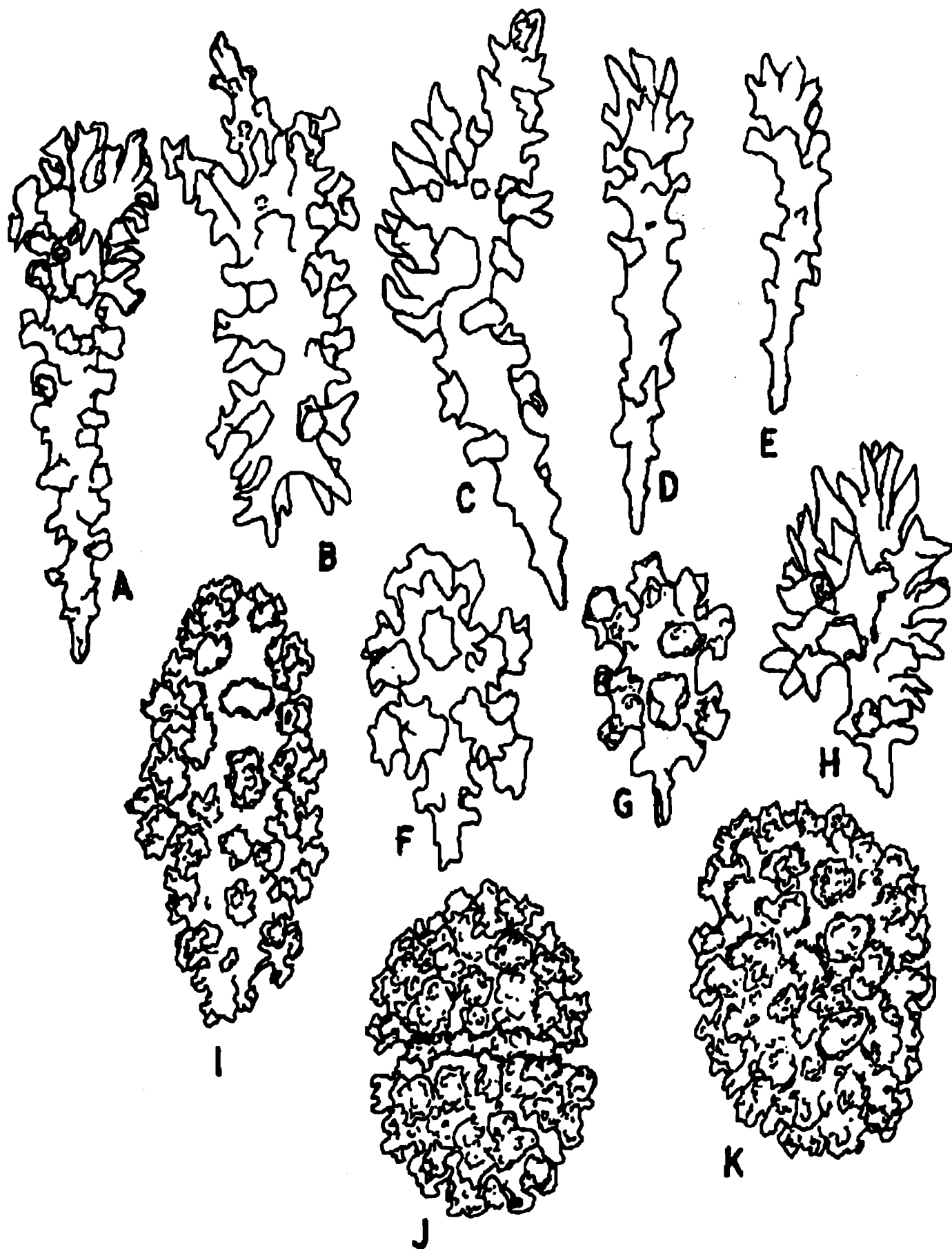


Fig. 47. *Capnella parva* Light A-E, anthocodial spicules; F-H, surface layer of the stalk; I-K, interior of the stalk.

ECOLOGY

Soft corals are the most common and widely distributed group after stony corals on the reefs that occupy a great variety of ecological situations. Their habitat range from inter-tidal exposed reefs to deeper reef slopes. Their distribution and abundance depends on wave exposure, depth, slope of substratum, turbidity etc. Most of the species belonging to Alcyoniidae are found up to 10-12ms depth in abundance, but species belonging to Nephtheidae and Xiniidae are found on reef slopes below 8m depth. Many of the species are able to tolerate the conditions like desiccation, heavy sedimentation and low salinity. Almost all the alcyonaceans are directly fixed by a basal attachment to hard substratum or some solid object, but a few species have developed other adaptations for holding the colony. Some alcyonaceans enclose a lump of mud in a basal expansion and some species develop root like rhizoid attachment. The extent to which these soft corals contribute to the formation of the reef limestone is not known, but it is certain that they are extensive calcium carbonate producers. Since this material is in the form of minute spicules, easily dissolves in the water and is carried away by the currents. Probably a low percentage of it gets actually incorporated into the reef building. The growth rate and productivity of the soft corals are comparatively lower than those of the hard corals. The massive alcyonaceans possess densely spiculed coenenchyme and the lower dead part gets consolidated with reef while the upper parts of the colonies remain alive.

Interaction with other organisms

Generally competition for living space is highly inter-linked with competition for other resources in sessile marine organisms. The slow growing species are in danger of being smothered by the species that grow faster. The sponges and algae grow faster than soft corals thus creating a problem of space for soft corals whose growth is slower. The coexistence of soft and stony corals together dominates many reef communities due to differences in the utilization of food resources. It is found that mechanism of aggression or defence by stony corals seem to be ineffective against neighboring soft corals (Sheppard, 1979). Therefore, the aggressive interactions between soft and hard corals may be a rare phenomenon on the reefs. In general, when the living stony corals density is more, there are fewer alcyonaceans and vice-versa (Fishelson, 1970). The selective occurrence of these groups on the reefs seems to be controlled by environmental factors or by competition.

Competitive interactions with other organisms play an important role in determining the distribution of soft corals (Benayahu and Loya, 1981). The most common associates are reef fishes, crabs, shrimps, sea cucumbers, brittlestars, anemones, sponges, molluscs, copepods and seaweeds. But their exact symbiotic relationship with the alcyonaceans is still

not much known. The seaneemone, *Preactis millardae* found in South Africa is a species-specific predator on the soft coral *Capnella thrysoides*. The most common and complicated relationship has been found in the case of ovulid gastropods, which seem completely dependent upon their alcyonacean hosts. The mollusc may feed on the polyps without causing much damage and death of the colony or may only feed foreign materials that collect on the colony. Alcyonaceans infested with ovulid snails never seem to be unhealthy or damaged in any way. The other interesting soft coral - mollusc relationship is the one between the species of *Sinularia* and *Rapa* snail. The gastropods living imbedded deep in the fleshy tissue of the soft coral virtually cause no damage to the host. Small dorid nudibranchs are found common on many alcyonaceans.

Distribution

Distribution of soft corals is governed by a multitude of factors and is difficult to predict. One of the interesting features of the different alcyonaceans is patchy distribution in the habitat. This is because of short phase of the planulae and their settlement (Benayahu and Loya, 1984). Asexual reproduction which is a common feature of the soft corals is one of the reasons for wide spread growth of monospecific colonies like *Sarcophyton trocheliophorum* and, *Lobophytum* sp. Larval settlement involves a certain amount of choice of substrate and location which are the limiting factors for their distribution. Reef flats with dead coral rocks, silt-sand and sand-rubble shallow habitats of inter-tidal regions offer suitable substratum for quick settlement of larvae. It is found that in some areas of the islands soft coral density is high where hard coral cover is less than in areas of high live coral cover. Experimental evidence showed that most of the coral species are not constrained for space with stony corals (Fabricius, 1995). This may be because of the ability of hard corals to reestablish successfully before an increase in soft coral abundance.

It is found that the soft coral dominance follows the stress on reefs by increased sedimentation (Nishihira and Yamazato, 1974, Chou and Yamazato, 1990). Therefore, natural and human induced damages that cause considerable destruction of coral reefs may promote abundance of soft corals to some extent. In addition to the above limitations, environmental factors such as depth, type of substrate, physical conditions also play a part both in successful establishment and subsequent growth of soft corals on reefs. Soft corals are passive suspension feeders and dependent on water flow for particle transport. It is found that very slow and very fast flow of water reduces the feeding efficiency and growth rate of soft corals (Fabricius, *et al.* 1995).

Biodiversity values

The corals and their associated fauna particularly the sponges, molluscs, gorgonids, soft

corals, etc. are the store houses of many bio-active compounds which possess antimicrobial, antiviral, antihelmenthic, anticoagulant, antispasmodic, antidepressant, antihypertensive, bronchiodilator, antileukemic and other properties. Currently, world over, intensive studies are on way to establish the therapeutic properties of the bioactive compounds of the soft corals. In India, Central Drug Research Institute, Lucknow, Indian Institute of Chemical Technology, Hyderabad and Dept. of Chemistry, Andhra University, Visakhapatnam are actively involved in isolating bioactive compounds from soft corals. preliminary investigations revealed the presence of various chemicals such as Lobolide, Sarcophine, Lobophytollide, Crassolide, Sinulariolide, Sinularin, Cassinacetate. etc. in the species of *Lobophytom*, *Sarcophyton*, *Sinularia*, etc., which exhibit very interesting biodynamic and anti-neoplastic properties. These discoveries may lead to the synthesis of 'miracle drugs'

ACKNOWLEDGEMENTS

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OCTOCORALS OF ANDAMAN & NICOBAR ISLANDS

Following is the list of Octocorals of Andaman and Nicobar Islands given with the details of their locality (A - Andamans, N - Nicobars. A & N - Andaman & Nicobar); habitat (L - Littoral, DS - Deep Sea, SIR - Shallow Intertidal Reefs, SR - Shallow reefs); status (C - Common, Ab - Abundant; R - Rare) followed by associated fauna.

Phylum CNIDARIA
 Class ANTHOZOA
 Subclass OCTOCORALLIA
 Order HELIOPORACEA
 Family HELIOPORIDAE

1. *Heliopora caerulea* Pallas - A & N; L; C; Crustaceans, molluscs.

Order STOLINEFERA
 Family CORNULARIIDAE

2. *Sympodium decipiens* Thomson & Henderson - A; DS
 3. *S. incrustans* Thomson & Henderson - A; DS.
 4. *S. indicum* Thomson & Henderson - A; DS.
 5. *S. decipiens* Thomson & Henderson - A; DS.

Family CLAVULARIIDAE

6. *Telesto arborea* Wright - A & N; L.
 7. *T. rubra* Hickson - A; DS.

Family TUBIPORIDAE

8. *Tubipora musica* Linnaeus - A & N; L.

Order ALCYONACEA
 Family ALCYONIIDAE

9. *Anthomastis aberranus* Thomson & Henderson - A; D S; R.
 10. *Alcyonium klunzinger* Thomson and Simpson - A; L, 8-10 m; R; Sponges.

11. *Cladiella australis* (Macfadyen) - A; L, 1-5m; C; Seaweeds, crabs, shrimps.
12. *C. krempfi* (Hickson) - A; SIR; C; Seaweeds, crabs, shrimps.
13. *C. laciniosa* (Tixier-Durivault) - A; SIR; C; Seaweeds, crabs, shrimps.
14. *C. pachyclados* Klunzinger - A; SIR, 1-3 m; Ab; Seaweeds, crabs, shrimps, sponges.
15. *Lobophytum altum* Tixier-Durivault - A; SIR; R; Seaweeds, crabs, shrimps, sponges.
16. *Lobophytum bataram* Moser- A & N; L, 3-9m; Ab; Echinoderms, sponges, fishes.
17. *L. catalai* Tixier-Durivault - A & N; SIR, 3-6 m; C; Echinoderms, sponges.
18. *L. crassum* Von Marenzeller - A; SIR; C; Echinoderms, sponges, molluscs, crabs.
19. *L. crebriplicatum* Von Marenzeller - A; SIR; R; Sponges, molluscs, crabs, shrimps.
20. *L. hirsutum* Tixier-Durivault - A & N; SIR, 2-3m; Ab; Sponges, crabs, shrimps.
21. *L. pauciflorum* (Ehrenberg) - A & N; SIR, 2-4 m; C; Seaweeds, fishes, shrimps, crabs, sponges, clams.
22. *L. planum* Tixier-Durivault - A; SIR; R; Shrimps, crabs. sponges.
23. *L. pusillum* Tixier-Durivault - A; SIR, 2-3m; Ab; Seacucumbers, shells, shrimps, fishes.
24. *L. sarcophytoides* Moser- A; SR; R; Sponges, crabs, shrimps.
25. *L. strictum* Tixier-Durivault - A & N; SR, 2-4 m; C; Crinoids, holothurians, clams, sponges.
26. *L. tecticum* Aiderslade & Shriwaiker - A; SR; R; Sponges, shrimps, crabs.
27. *L. variatum* Tixier-Durivault - A; SIR; R; Algae, molluscs, shrimps.
28. *Sarcophyton andamanensis* Jaya Sree - Bhatt & Parulekar - A; SR; R; Seaanemone, crabs, holothurians.
29. *S. buitendijki* Verseveldt - A & N; SIR; A; Crabs, shrimps, holothurians.
30. *S. boettgeri* Schenk - A; SL, 3-8m; R; Sponges, shrimps, holothurians, molluscs.
31. *S. cherbonnieri* Tixier-Durivault - A; SIR; R.
32. *S. crassocaula* Moser - A & N; SIR; C; Holothurians, shrimps, seaweeds.
33. *S. crassum* Tixier- Durivault - A; SIR; C; Seaweeds, holothurians, molluscs, shrimps, crabs.
34. *S. digitatum* Moser - A; SR; C; Seaweeds, holothurians, molluscs, shrimps, crabs.
35. *S. ehrenbergi* Von Marenzeller - A; SR; C; Seaweeds, holothurians, molluscs, crabs.
36. *S. elegans* Moser - A; SR, 2-4m; C; Sponges, crabs.
37. *S. glaucum* (Quoy & Gaimard) - A; SL; C; Sponges, crabs.

38. *S. infundibuliforme* Tixier-Durivault - A; SR; R; Sponges, crabs.
39. *S. roseum* Pratt - A; SIR; R; Sponges, crabs, molluscs.
40. *S. stellatum* Kukenthal - A; SR, 3-6m; Ab; Clams, crinoides, holothurians, starfishes, small fishes.
41. *S. tortuosum* Tixier-Durivault - A; SIR; C; Sponges, crab, molluscs.
42. *S. trocheliophorum* Von Marenzeller - A & N; SR, 2-9m; C; Sponges, anemones, shrimps.
43. *Sinularia abrupta* Tixier-Durivault - A; Moderate to Deep; C; Sponges, anemones, shrimps.
44. *Sinularia andamanensis* Thomson and Simpson - A; SIR; R; Sponges, seaweeds.
45. *S. brassica* May - A; SR; R; Sponges, seaweeds.
46. *S. capitalis* Pratt - A; SIR; R; Sponges, crabs, seaweeds.
47. *S. conferta* (Dana) - A; SIR; C; Sponges, crabs, shrimps.
48. *S. cristata* Tixier-Durivault - A; SR; R; Sponges, shrimps, crabs.
49. *S. densa* (Whitelegge) - A; L; R; Sponges, shrimps.
50. *S. depressa* Tixier-Durivault - A & N; SIR; A; Sponges, crabs, fishes.
51. *S. flexibilis* Quoy & Gaimard - A; SR, 2-5m; C; Sponges, crabs.
52. *S. gibberosa* Tixier-Durivault - A; L, 3-6m; Ab; Holothurians, sponges.
53. *S. granosa* Tixier-Durivault - A & N; SIR, 2-4m; C; Seaweeds, holothurians, molluscs.
54. *S. hirta* (Pratt) - A & N; SR, 4-8m; C; Sponges, crabs, seaweeds.
55. *S. inelegans* Tixier-Durivault - A; SIR; A; Sponges, crabs, seaweeds.
56. *S. leptoclados* (Ehrenberg) - A & N; SR, 1-6m; C; Sponges, echinoderms, seaweeds.
57. *S. lochmodes* Kolonko - A; SIR; C; Sponges, echinoderms, seaweeds.
58. *S. mannarensis* Verseveldt - A; SIR; C; Sponges, crabs, fishes.
59. *S. maxima* Verseveldt - A; SR, 1m; C; Sponges, seaweeds.
60. *S. microclavata* Tixier-Durivault - A; SR; R.
61. *S. muralis* May - A; SR; R.
62. *S. ornata* Tixier-Durivault - A & N; SIR; Ab; Seaweeds, holothurians, sponges.
63. *S. ovispiculata* Tixier-Durivault - A; SIR; C; Sponges; shrimps, fishes.
64. *S. peculiaris* Tixier-Durivault - A; SIR; C; Sponges, crustaceans, fishes.
65. *S. polydactyla* (Ehrenberg) - A; SIR, 2-8m; Ab; Seaweeds, sponges.
66. *S. querciformis* (Pratt) - A; L; R; Sponges, shrimps, crabs, holothurians.

67. *S. sandensis* Verseveldt - A; SIR, 1-3m; R; Sponges, seaweeds
 68. *S. vrijmoethi* Verseveldt - A; SIR, 1-4M; Ab; Sponges, shrimps, brittlestars, seaweeds

Family VIGUIERIOTIDAE

69. *Studeriotetes mirabili* (Thomson) - A; L, below 10 m; R.

Family NEPHTHEIDAE

70. *Capnella parva* - A; L; C; Sponges, crabs, molluscs.
 71. *Dendronephthya albogilva* Henderson - A; L, below 20m; C.
 72. *D. andamanensis* Henderson - A; L, below 20m; C.
 73. *D. arbuscula* Henderson - A; L, below 20m; C.
 74. *D. booleyi* Henderson - A; L, below 20m; C.
 75. *D. brachycaulos* Henderson - A; L, below 20m; C.
 76. *D. brevirama* var. *andamanensis* Henderson - A; L, below 20m; C.
 77. *D. cervicornis* Henderson - A; L, below 20m; C.
 78. *D. conica* Henderson - A; L, below 20m; C.
 79. *D. costatorubra* Henderson - A; L, below 20m; C.
 80. *D. delicatissima* Henderson - A; L, below 20m; C.
 81. *D. divaricata* Henderson - A; L, below 20m; C.
 82. *D. elegans* Henderson - A; L, below 20m; C.
 83. *D. foliata* Henderson - A; L, below 20m; C.
 84. *D. gilva* Henderson - A; L, below 20m; C.
 85. *D. harrisoni* Henderson - A; L, below 20m; C.
 86. *D. irregularis* Henderson - A; L, below 20m; C.
 87. *D. kollikeri* var. *andamanensis* Henderson - A; L, below 20m; C.
 88. *D. lanxifera* Holm - A; L, below 30m; C.
 89. *D. lanxifera* var. *andamanensis* Henderson - A; L, below 30m; C.
 90. *D. longispina* Henderson - A; L, below 20m; C.
 91. *D. macrocaulis* Henderson - A; L, below 70m; C.
 92. *D. masoni* Henderson - A; L, below 20m; C.
 93. *D. microspiculata* var. *andamanensis* Henderson - A; L, below 20m; C.
 94. *D. mirabilis* Henderson - A; L, below 20m; C.

95. *D. multispinosa* Henderson - A; L, below 20m; C.
 96. *D. nicobarensis* Henderson - A; L, below 20m; C.
 97. *D. ochracea* Henderson - A; L, below 20m; C.
 98. *D. orientalis* Henderson - A; L, below 20m; C.
 99. *D. pallida* Henderson - A; L, below 20m; C.
 100. *D. pellucida* Henderson - A; L, below 20m; C.
 101. *D. pentagona* Henderson - A; L, below 20m; C.
 102. *D. purpurea* Henderson - A; L, below 20m; C.
 103. *D. quadrata* Henderson - A; L, below 30m; C.
 104. *D. rubescens* Henderson - A; DS; C.
 105. *D. rubeola* Henderson - A; L, below 30m; C.
 106. *D. variata* Henderson - A; L, below 30m; C.
 107. *D. varicolor* Henderson - A; L, below 30m; C.
 108. *Nephtea tenuispina* Thomson & Simpson - A; L, below 15m; C.
 109. *Spongodes uliginosa* Thomson & Simpson - A; DS.

Family NIDALIDAE

110. *Chironephthya asperula* - A; L; C.
 111. *C. variabilis* Hickson - A; L; C.
 112. *N. alciformes* (Simpson) - A; L; C.
 113. *Nidalia celosioides* (Simpson) - A; L; C.
 114. *Siphonogorgia media* Thomson Simpson & Henderson - A; L; C.
 115. *S. mirabilis* Klunzinger - A; L; C.
 116. *S. palmata* Thomson *et al.*, - A; L; C.
 117. *S. rotunda* Harrison - A; L; C.
 118. *S. variabilis* (Hickson) - A; L, below 30m; C.
 119. *Stereacanthia armata* Thomson, Simpson & Henderson - A; L; C.
 120. *S. indica* Thomson & Henderson - A; L; C.

Order GORGONACEA

Suborder SCLERAXONIA

Family ANTHOTHELIDAE

121. *Solenocaulon sterrokoloneum* Germanos - A; L.

122. *S. tortuosum* (Gray) - A; L.

Family SUBERGORGIIIDAE

123. *Keroeides gracilis* Whitelegge - A; DS.

124. *K. koreni* Wright & Studer - A; DS.

125. *Subergorgia kolliker* var. *ceylonensis* Thomson - A; DS.

126. *S. ornata* Whitelegge - A; DS.

Family MELITHAEIDAE

127. *Melitodes ornata* Thomson, Simpson & Henderson - A; DS.

128. *M. philippinensis* Wright & Studer - A; DS.

129. *M. variabiles* (Hickson) - A; DS

Family PARISIDIDAE

130. *Parisia fruticosa* Verrill & Henderson - A; DS.

131. *P. indica* Thomson - A; DS.

Suborder HOLAXANIA

Family PARAMURICEIDAE

132. *Acamptogorgia ceylonensis* Thomson & Henderson - A; L.

133. *A. rubra* Thomson - A; L.

134. *A. tenuis* Thomson, Simpson & Henderson - A; L

135. *Acis ceylonensis* Thomson & Henderson - A; L.

136. *A. indica* Thomson & Henderson - A; L.

137. *A. pustulata* Wright & Studer - A; L.

138. *A. rigida* Thomson, Simpson & Henderson - A; L.

139. *A. spinosa* Thomson & Henderson - A; L.

140. *A. ulex* Thomson, Simpson & Henderson - A; L.

141. *Bebryce mollis* Phillipi - A; L.

142. *Calicogorgia tenuis* Thomson, Simpson & Henderson - A; L.

143. *Echinogorgia flabellum* Esper - A; L.

144. *E. intermedia* Studer - A; L.
145. *E. macrospiculata* Thomson, Simpson & Henderson - A; L.
146. *E. multispinosa* Thomson & Henderson - A; L.
147. *E. ramulosa* Gray - A; L.
148. *E. reticulata* (Esper) - A; L.
149. *Echinomuricea andamanensis* Thomson; Simpson and Henderson - A; DS.
150. *E. ochracea* Thomson, Simpson & Henderson - A; L.
151. *E. reticulata* Thomson, Simpson & Henderson - A; L.
152. *E. splendens* Thomson; & Henderson - A; L.
153. *Elasmogorgia flexilis* Hickson - A; L.
154. *Eumuricea ramosa* Thomson, Simpson & Henderson - A; L.
155. *Menacella gracilis* Thomson, Simpson & Henderson - A; L.
156. *Muricella bengalensis* Thomson, & Henderson - A; L.
157. *M. complanata* Wright & Studer - A; DS.
158. *M. ramosa* Thomson, & Henderson - A; DS.
159. *M. robusta* Thomson, Simpson & Henderson - A; DS.
160. *M. rubra* Thomson - A; DS.
161. *Paramuricea indica* Thomson & Henderson - A; DS.
162. *Placogorgia indica* Thomson, & Henderson - A; DS.
163. *P. orientalis* Thomson, & Henderson - A; DS.

Family PLEXAURIDAE

164. *Plexaura indica* Ridley - A; L.
165. *Plexauroides praelonga* (Ridley) - A; L.
166. *Psammogorgia ridleyi* Thomson & Simpson - A; L.

Family ACANTHOGORGIIDAE

167. *Acanthogorgia glomerata* Thomson, Simpson & Henderson - A; DS.
168. *A. muricata* Thomson, & Henderson - A; L.
169. *A. murrilli* Thomson, & Henderson - A; DS.
171. *Anthogorgia glomerata* Thomson, Simpson & Henderson - A; L.
172. *A. racemosa* Thomson, & Simpson - A; L.

173. *A. verrilli* Thomson, & Henderson - A; DS.

Family ELLISELLIDAE

174. *Ellisella andamanensis* (Simpson) - A; L.

175. *Gargonella flexuosa* Klunzinger - A; L.

176. *G. granulata* Esper - A; L.

177. *G. umbrachulum* (Ell. & Sol.) - A; DS.

178. *Juncella racemosa* Valencennes - A; DS.

179. *J. trilineata* (Young) - A; L.

180. *Nicelia flabellata* Thomson & Henderson - A; DS.

181. *N. pustulosa* Thomson, Simpson & Henderson - A; L

182. *Scirpearia filiformis* Toeplitz - A; DS.

183. *S. hicksoni* - A; DS.

184. *S. verrucosa* - A; DS.

Family GORGONIDAE

185. *Callistephanus koreni* Wright & Studer - A; DS.

186. *Lophogorgia lutkeni* Wright & Studer - A; L.

Family CHRYSOGORGIIDAE

187. *Chrysogorgia dichotoma* Thomson & Henderson - A; DS.

188. *C. flexilis* Wright & Studer - A; DS.

189. *Lepidogorgia verrilli* Wright & Studer - A; DS.

Family PRIMNOIDAE
Subfamily PRIMNOINAE

190. *Caligorgia flexilis* Hickson - A; DS.

191. *C. indica* Thomson & Henderson - A; DS.

192. *Stenella horrida* Thomson & Henderson - A; DS.

Family ISIDIDAE
Subfamily ISIDINAE

193. *Isis hippuris* Linnaeus - A & N; L.

Subfamily KERATOISIDINAE

194. *Acanella robusta* Thomson & Henderson - A; DS.

195. *Keratoisis gracilis* Thomson & Henderson - A; DS.

Order PENNATULACEA

Family KOPHOBELEMNIDAE

196. *Bathypulum indicum* Thomson & Henderson - A; DS.

Family UMBELLULIDAE

197. *Umbellula dura* Thomson & Henderson - A; DS.

198. *U. indica* Thomson & Henderson - A; DS.

199. *U. pendula* Thomson & Henderson - A; DS.

200. *U. purpurea* Thomson & Henderson - A; DS.

201. *U. radiata* Thomson & Henderson - A; DS.

Family VIRGULARIIDAE

202. *Pavonaria willemoesii* Kolliker - A; DS.

203. *Scytalium martensii* var. *magniflora* Thomson, Simpson & Henderson - A; L.

204. *Virgularia fusca* Simpson & Henderson - A; L.

205. *V. juncea* Pallas - A; L.

206. *V. ornata* Thomson, Simpson & Henderson - A; L.

Family PENNATULIDAE

207. *Pennatula pendula* Thomson & Henderson - A; DS.

208. *P. splendens* Thomson & Henderson - A; DS.

Family PTEROEIDIDAE

209. *Pteroeides andamanensis* Thomson, Simpson & Henderson - A; L.

210. *P. chinense* - A; L.

211. *P. crassum* Kolliker - A; L.

212. *P. esperi* var. *armatum* Thomson, Simpson & Henderson - A; L.

213. *P. hymenocaulon* Bleeker - N; L.

RAO AND DEVI : *Studies on the soft corals... Andaman Islands*

214. *P. intermedium* Thomson, Simpson & Henderson - A; L.

215. *P. lacazii* var. *spinosum* Kolliker - A; L.

216. *P. macandrewi* Kolliker - A; L.

217. *P. robustum* Thomson, Simpson & Henderson - A; L.

Family VERTELLIDAE
Subfamily CAVERNULARINAE

218. *Cavernularia andamanensis* Thomson, Simpson & Henderson - A; L.

219. *C. obesa* Valenciennes - A; L.

Subfamily LITUARINAE

220. *Lituarina phalloides* (Phallas) - A; L.

221. *Policella australis* Gray - A; L.

PLATE-I

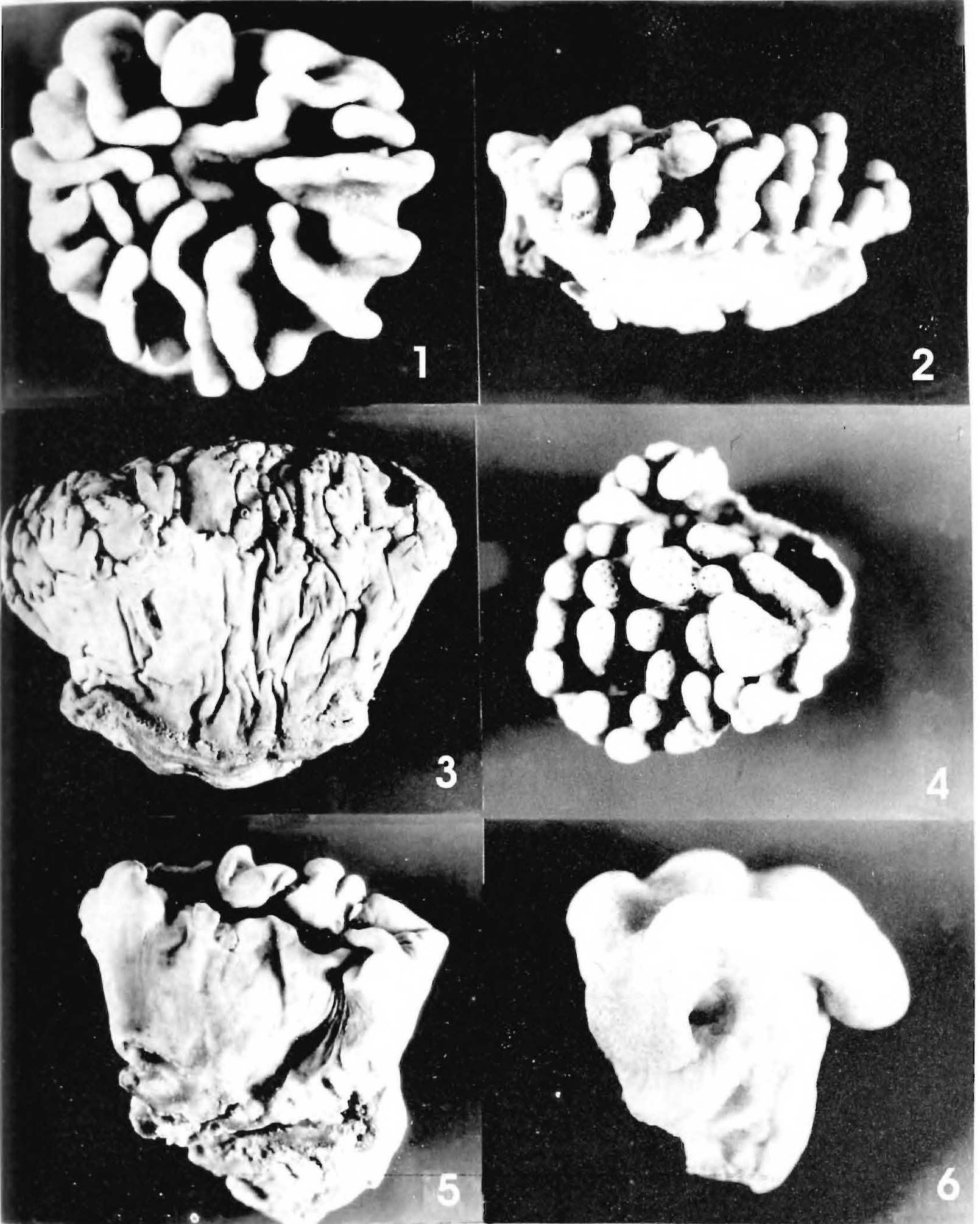


Fig. 1. *Lobphytum catalai* Tixier-Durivault; Fig. 2. *L. crassum* Von Marenzeller;
Fig. 3. *L. hirsutum* Tixier-Durivault; Fig. 4. *L. pauciflorum* (Ehrenberg); Fig. 5. *Sarcophyton infundibuliforme* Tixier-Durivault;
Fig. 6. *S. trocheliophorum* Von Marenzeller.