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STUDIES ON INDIAN SPONGES—III*

TWO SPECIES OF SILICIOUS SPONGES OF THE FAMILY OPHLITASPONGIIDAE DE LAUBENFELS (CLASS : DEMOSPONGIAE SOLLAS, ORDER : POECILOSCLERIDA TOPSENT)

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MANY species belonging to the genus *Mycale* Gray (1867) are recorded from Indian region by previous authors (Carter, 1880, 1887 ; Dendy, 1905 ; Burton and Rao 1932 ; Annandale, 1914 ; Burton 1937 and Rao 1941). The present account deals with a new species of *Mycale*, and a new record of *Carmia sulevoidea* (Sollas) from the Indian region.

Family OPHLITASPONGIIDAE de Laubenfels

Genus *Mycale* Gray

Genus *Mycale* has the typical spiculation of styles or subtylostyles and microscleres, anisochelas of different sizes, sigmas and trichodragmas. Toxas are, as a rule, absent.

The type of genus is *Hymeniacidon lingua* Bowerbank (1866).

Mycale mannarensis n. sp.

(Figs. 1-2)

Material : A good collection of the species lodged in *Halimeda* sp. from Hare Island (Gulf of Mannar).

Description : Sponge encrusting, with maximum thickness of 2 mm. Rather fleshy and slimy to touch.

Colour is black in living condition. In alcohol, black pigment oozes out immediately. Black colour is retained in dry condition to a certain extent.

Oscules and pores are not seen. Surface smooth and slimy.

A well developed reticulation, supporting the dermal membrane, is present in the dermal part. Dermal membrane, not detachable from the underlying part. Pigment granules abundant throughout. Endosome is cavernous.

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Skeletal arrangement : Dermal skeleton is a well developed network of triangular meshes. Megascleres are in conspicuous and continuous bundles. Each bundle interesects the adjacent one at different angles. Apart from these bundles, tracts of raphides also are arranged in definite bundles. These two types of spicules together constitute a well developed dermal reticulation. Anisochelas are in prosettes.

Main skeleton consists of fibres arranged at a slanting angle to the surface. The fibres are ill-defined. Spongin not visible.

Spicules : 1. Tylostyles. Head prominent in some. Shaft straight. Length varies from 0.294 to 0.315 (0.301 mm average) and width from 0.004 to 0.008 (0.0063 mm average). Axial canal prominent in 17% of the spicules examined.

2. Anisochelas. In rosettes. Ordinary type; chord length 0.021 to 0.042 mm breadth 0.016 mm. Not separable into different sets.

3. Sigmas. C or S shaped. Chord length varies from 0.063 to 0.084 (0.075 mm average), and width from 0.001 to 0.004 (0.0031 mm average).

4. Raphides. Slender and straight, middle portion widest. They are arranged in tracts ; dermal. Length varies from 0.376 to 0.528 (0.411 mm average).

Remarks : This species is characterised by the presence of long raphides which are arranged in long and continuous bands supporting the dermal network of megascleres.

Locality, Register No. etc. : Gulf of Mannar (Hare Island), Depth : 1 metre. CMFRI No. 132—16-11-1965.

Genus *Carmia* Gray

This genus differs from *Mycale* in the possession of toxas. Type of the genus *Hymeniacidon macilenta* Bowerbank (1866).

Carmia sulevoidea is recorded here from the Indian region. It has been reported previously from the Red Sea (Burton, 1959), Aldabra (Levi, 1961), Malay Peninsula (Sollas, 1902) and Aru Islands (Hentschel, 1912).

Carmia sulevoidea (Sollas)

(Figs. 3-4)

Esperella sulevoidea Sollas, 1902, p. 213, pl. 14, figs. 8-9 ; pl. 15, fig. 10.

Mycale sulevoidea Hentschel, 1912, p. 335, pl. 13, fig. 6 ; pl. 18, fig. 14.
Levi, 1961, p.16.

Mycale (*Mycale*) *sulevoidea* Burton, 1959, p. 228.

Material : Five specimens from Palk Bay. Examined in fresh condition.

Description : Sponge encrusting, maximum thickness 1 mm, spreading irregularly, usually attached to the lower surfaces of rocks. Surface appears netted when viewed under lens.

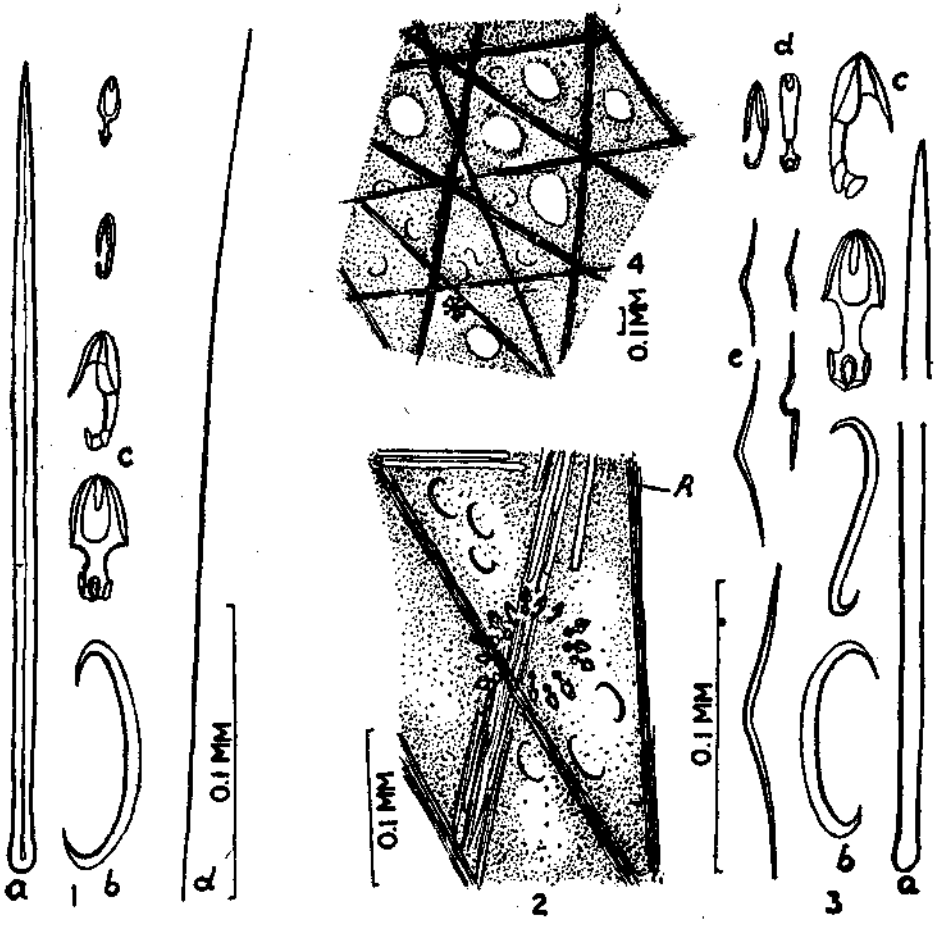

FIG. 1—*Mycale mannarensis* n. sp.—(*a*) Tylostyle. (*b*) Sigma. (*c*) Anisochelas. (*d*) Raphide FIG. 2—Dermal skeleton, R—Raphides in bundle. FIG. 3—*Carmia sulevoidea* (Sollas).—(*a*) Subtylostyle. (*b*) Sigmas. (*c*) Anisochelas. (*d*) Narrow anisochelas. (*e*) Toxas. FIG. 4—Dermal skeleton.

Colour is brick red when living. In alcohol this colour vanishes within 2 to 3 hours. Pale white or yellow when dry. Smooth and slimy to touch, paper-like when dry.

Oscules are not seen but pores are abundantly present in the dermal membrane. They are rounded, oval or triangular in outline. Average diameter 0.126 mm.

Dermal membrane is transparent and is supported by bands of spicules intersecting at different angles. Meshes formed are triangular or polygonal in outline. Endosome is cavernous.

Skeletal arrangement : Dermal reticulation with triangular or polygonal meshes. Tracts of megascleres, often consisting of 1 to 8 spicules in cross section, are rather flattened in outline. Spongin scarcely present. Large anisochelas are in rosettes. Other spicules are scattered throughout.

Main skeleton consists of rather irregular vertical bands of megascleres running towards the surface. Spongin scarcely visible. They are attached to the substratum by spongin cement.

Spicules : 1. Subtylostyles. Head somewhat well developed, shaft straight or slightly undulating, fusiform and sharply pointed. Axial canal well developed in some. Length varies from 0.301 to 0.377 (0.349 mm average) and width from 0.002 to 0.012 (0.008 mm average).

2. Large anisochelas. In rosettes. Chord length varies from 0.050 to 0.058 (0.053 mm average), breadth in well developed form about 0.021 mm.

3. 'Narrow' anisochelas. Quite narrow and in front view resembles duck's bill in shape. Upper tooth long and reach beyond the centre of the spicule (about 0.025 mm in well developed form). Total length varies from 0.025 to 0.033 (0.031 mm average) and breadth 0.008 mm average, thickness 0.008 mm. This spicule has some resemblance to that of *M. obscura* (Carter), figured by Hentschel (1911, p. 303, fig. *d*).

4. Small anisochelas. Chord length from 0.012 to 0.016 (0.013 mm average), irregularly scattered.

5. Sigmas. C or S shaped. Chord length from 0.067 to 0.075 (0.072 mm average) and width from 0.001 to 0.004. Smaller forms were present in one specimen (0.042 mm).

6. Toxas. With a sharp bend at the central portion. In some forms this portion is slightly twisted. Not separable into different sets. Length varies from 0.042 to 0.124 mm, width up to 0.002 mm, tips abruptly pointed.

Distribution : Red Sea, Indian Ocean, Australian region.

Locality, Register No. etc. : Palk Bay. Depth : 1-2 metres. CMFRI—S. 70, 5-1-1965 ; CMFRI—S. 70A, 13-1-1965 ; CMFRI—S. 70B, 8-4-1966.

SUMMARY

A new species of *Mycale* (*Mycale mannarensis*) is described herein. Another species, *Carmia sulevoidea* (Sollas, 1902) is recorded here from Indian Region.

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