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STUDIES ON INDIAN ECHINODERMS - 7. ON A NEW FAMILY LABIDODEMATIDAE (HOLOTHURIOIDEA : ASPIDOCHIROTIDA) WITH A DETAILED DESCRIPTION OF *LABIDODEMAS RUGOSUM* (LUDWIG) FROM THE ANDAMANS*

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ABSTRACT

The genus *Labidodemas* Selenka which was hitherto included in the family Holothuriidae has been removed to a new family Labidodematidae due to the presence of pedicels and papillae confined to the ambulacral areas and also due to the highly dissimilar radial and interradial plates. A detailed description *Labidodemas rugosum* (Ludwig) from Andamans is given with notes on its habits.

INTRODUCTION

THE FAMILY Holothuriidae has such heterogenus genera as *Holothuria* Linnaeus, 1764, *Actinopyga* Bronn, 1860, *Bohadschia* Jager 1833 and *Labidodemas* Selenka, 1867. The genus *Labidodemas* stands out distinctly from the other genera in having pedicels and papillae confined to ambulacral areas and in having radials and interradials very dissimilar in size and hence it is removed to a new family Labidodematidae. In fact Rowe (1969) in his review of the family Holothuriidae, expressed the opinion that the genus *Labidodemas* may prove to warrant separation at the family level.

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FAMILY : *Labidodematidae* nov.

Diagnosis : Body cylindrical to vermiform; pedicels and papillae long (5-10 mm) and confined to five ambulacral regions; calcareous ring with radials and interradials markedly dissimilar in size; body translucent.

Type genus : Labidodemas Selenka, 1867.

Genus **Labidodemas** Selenka, 1867

Labidodemas Selenka, 1867; Semper, 1868; Ludwig, 1875; Sluiter, 1901; H. L. Clark, 1921; Deichmann, 1958; Clark and Rowe, 1971; James, 1983.

Diagnosis : Body cylindrical or vermiform; size moderate upto 250 mm long; body wall soft or leathery, translucent; tentacles 20; pedicels and papillae usually confined to ambulacral areas; radials and interradials markedly dissimilar in size and shape; spicules usually few, tables scattered, variously developed, either with disc reduced and spire low, ending in a ring of spines or disc well developed and spinose with spines of moderate height usually also very spinose, buttons when present smooth, irregular, often incomplete or deformed suggesting clumsy C-shaped bodies, minute rods sometimes present.

Remarks : Until now only three species are considered referrable to *Labidodemas* these being *L. semperianum* and *L. rugosum* from the Indo-west Pacific region and *L. americanum* from the east Pacific region including the Galapagos Islands.

Labidodemas rugosum Rowe, 1969, p. 133. A. M. Clark and Rowe, 1971, p. 176. Mary Bai, 1980, L. & James, 1983, p. 86: Port Blair (Andamans)

Material : Several specimens from intertidal areas, Port Blair (South Andamans).

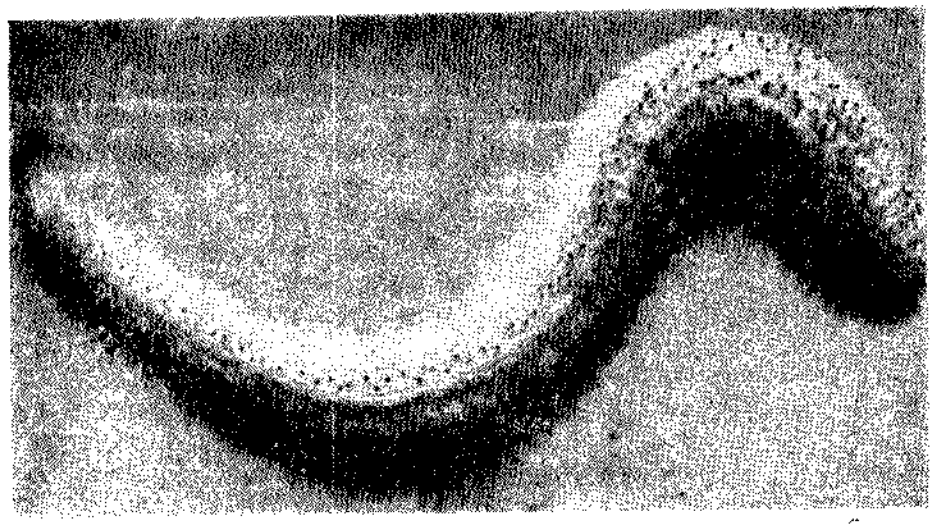

Fig. 1. *Labidodemas rugosum* (Ludwig) after evisceration showing the arrangement of pedicels on the ambulacral areas.

KEY TO THE INDIAN SPECIES OF THE GENUS

Tables spinose with spinose spines of moderate height.....*L. rugosum* (Ludwig, 1875)

Tables not spinose, spines smooth and short .....*L. semperianum* Selenka, 1867

Labidodemus rugosum (Ludwig, 1875) (Fig. 1)

Holothuria rugosa Ludwig, 1875, p. 110 : South Pacific Islands. Ludwig, 1882, p. 137: Waigeau. Theel 1886, p. 266: Navigator Island. Koehler and Vaney, 1908, p. 15: Great Cocos Island (Andaman Island) Pearson, 1913, p. 82: Maldives. H. L. Clark, 1921, p. 181 : Torres Strait. H. L. Clark, 1946, p. 435 : Australia. James, 1969, p. 61: Port Blair (Andamans)

Holothuria tricinis Sluiter, 1901, p. 19:East Indies.

Holothuria (Holothuria) rugosa Panning, 1934, p. 75.

Description : The length of the specimens examined varied from 90 mm to 250 mm. The body is long, narrow and cylindrical. The arrangement of podia as distinct bands is more clearly discernible in small specimens. In a specimen of 90 mm length the pedicels are arranged in three distinct bands on the ventral side. In the same specimen the papillae are arranged in two distinct bands each band having two rows of papillae. In large specimens (above 200 mm in length) the pedicels are arranged in three bands, but only two rows of pedicels are distinct in the central band only. The papillae appear to be arranged in two indistinct rows. The length of the papillae is *c* 5 mm and the length of the pedicels is *c* 10 mm. The tentacles are very small.

The calcareous ring consists of large radials and very small interradials (Fig. 2 a). The radials have a distinct notch at the anterior end. The interradials are small, short and stump-like. There is a single polian vesicle and single stone canal. The *rete mirabile* are well developed. The respiratory trees are peculiar in that their short branches are bunch-like. The left respiratory tree is longer than the right one and extends almost right upto the anterior end of the body. The gonadial tubules are ribbon-like and all of them join at the base of the dorsal mesentery to form the gonoduct. The water vascular ring is very distinct with a number of dark spots on it.

The colour in the living condition is translucent pink with the tips of the pedicels yellow. In small specimens the anterior end for about 10 mm is purple in colour. The tentalces are light pink in colour.

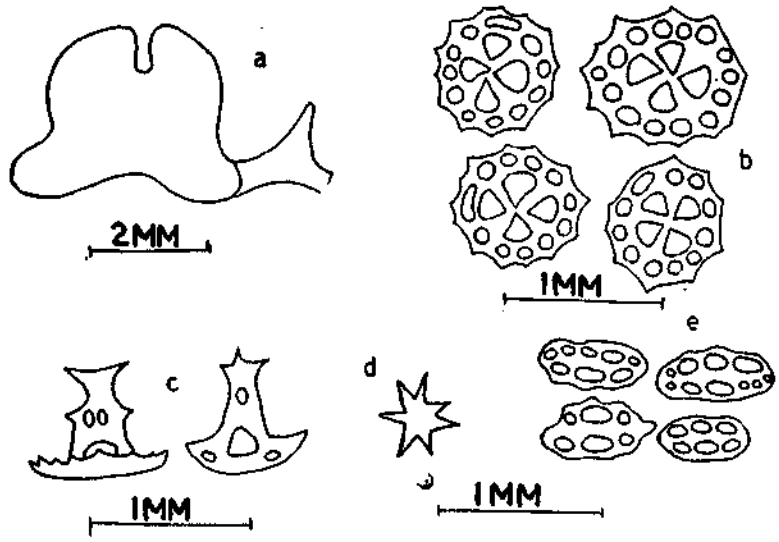

Fig. 2. a. Radial and interradial plate of calcareous ring, b. Disc of tables, c. Tables, d. Top of table and e. Buttons.

The spicules consist of tables and buttons. The disc of the tables (Fig. 2 b) consist of a central hole and twelve or more peripheral holes. The margin of the disc is round spinous. The spire of the table (Fig. 2 c) is well developed having generally four upright rods which converge towards the summit of tower and are joined by a cross piece. The top of the spire (Fig. 2 d) shows a number of long spines. The sides of the spires have 0-3 spines on either side. The margin of the disc is slightly raised upwards which is clearly seen in the lateral view. Many of the tables show signs of disintegration. The diameter of the disc varies from 0.077 to 0.087 mm. The buttons (Fig. 2 e) are very delicate, irregular and have generally four or more pairs of holes. Sometimes the arrangement of the number of holes in the buttons is asymmetrical. The length of the buttons varies from 0.035 to 0.091 mm and the breadth varies from 0.021 to 0.042 mm.

Habits : It is always found completely buried inside sand under big stones. The long papillae and pedicels help in burrowing. It is usually found from the midlittoral to low water mark. Full specimens can easily be pulled out of sand. Specimens (5-10 per 25 sq. m) have been collected from South point at Port Blair (James, 1983).

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