

NOTES

ON THREE OPISTHOBRANCHS FROM THE SOUTH-WEST COAST OF INDIA

MOST of the information available on the Indian opisthobranchs are pertaining to the East and South-east Coast forms. Records on these gastropods from the West Coast of India are limited to the works of Eliot (1905 and 1909), Patil (1952), Gideon *et al.* (1957), Menon *et al.* (1961) and Narayanan (1968). All the above authors, except Patil (1952), have confined their studies to the opisthobranchs of the North-west Coast. In the present note, the author reports three opisthobranchs collected from Thankassery Coast (Kerala State) on the South-west Coast. The classification followed is that of Taylor & Sohl (1962).

Order NOTASPIDEA

Family PLEUROBRANCHIDAE

Pleurobranchus (Susania) ceylonicus White

Body in the preserved condition is 73 mm. long and 47 mm. broad and broadly ovate in outline. Mantle thick and ovate and is ample so as to extend on all sides beyond the foot. It is notched along the mid anterior area. Original colour pattern is not known, but traces of chocolate brown remains on the mantle, which is on the whole, flesh-coloured. Ventral portion of mantle, dorsal pedal region and ctenidium are blackish brown. Mantle is spiculate and has a tuberculated appearance. There are numerous oval round markings on the mantle but those on the middle region are not clear. Anterior to the mantle is a roundish velum, measuring about 17 mm. in length and 9 mm. in breadth, with two rolled-up tube-like tentacles dorsal to it. These tentacles are 9 mm. long, open laterally and are chocolate brown in colour. Foot is oval and measures 63 mm. in length and 45 mm. in breadth. Pedal margin is highly wrinkled and the sole is chocolate brown in colour. At about two-third of the body from the anterior end, is a round patch of pale colouration, probably denoting the position of the pedal glands. The foot sole is rough with many protuberances. The ctenidium on the right lateral side starts at about the two-thirds of the body, closely behind the genitalia. It is pinnate in nature and blackish brown in colour with approximately ten plumes on either side of the rachis. On the postero-lateral portion on the left side in between the foot and mantle is the anus. The genitalia are confined to the right lateral side, the male organ being anterior to the ctenidium and the female organ approximately above the beginning of the free margin of the ctenidium. Jaw plates are transparent and bear many denticles with hook-like ends (Fig. 1). Radula has approximately 135 rows of hamate teeth; each half row bears 250-350 teeth.

The present form resembles *Pleurobranchus (Susania) ceylonicus* White (1948). This is the first record of this species from the West coast of India, even though other pleurobranchids like *Pleurobranchea* sp. (Eliot, 1905), *Pleurobranchus* sp. (Eliot, 1909), *Berthellina minor* Bergh (Narayanan, 1968) and *Pleurobranchea morula* Bergh

(Narayanan 1968) have been recorded from this coast. Also, the author is not aware of any record of this species from any other coast of the Indian subcontinent.

Order NUDIBRANCHIA

Family DORIDAE

Platydoris tabulata (Abraham)

Body is oval, measuring 65 mm. in length and 35 mm. in breadth, yellowish white with traces of greenish black, especially on the margin of the mantle and foot. Mantle is oval, wrinkled and plenty and over-hanging foot on all sides. Dorsal surface is tuberculated. Spicules are present in the mantle tissue. Margin of mantle is folded and greenish black in colour. Rhinophores are pinnate and colourless, situated in a pouch, the opening of which is surrounded by tubercles and supported by hard, chitin-like material. The opening of the rhinophoral sheath is slightly raised above the mantle. There are six greenish tripinnate gills but there are no traces of a gill pouch. Anal papillae are about 7 mm. long and yellowish in colour. The branchial circle is incomplete. Foot is oval and measures 50 mm. in length and 20 mm. in breadth and is shaded greenish. The anterior margin is split into two flaps, both of which are notched along the median line. Oral tentacles are rather flat, colourless with greenish tips. There are no indications of a labial armature. Radula bears simple hamate teeth arranged in 43 rows. The formula of teeth in each row is (75-82)-0-(82-75).

The characters of the present specimen agree with those of *Platydoris tabulata* (Abraham), and hence recorded under that species. White's (1950) specimen of *P. tabulata* from Seychelles bears close resemblance.

The present species is a new record to the Indian coast.

Order NUDIBRANCHIA

Family HEXABRANCHIDAE

Hexabranhus flammulatus (Quoy & Gaimard)

The specimen is quite large, measuring 17 cm. in length and 14 cm. in breadth, with a flat and rather oval body. The colour is uniform pale white, turning to a rosy shade. Margin of the mantle is wavy. Dorsum is smooth without any protuberances. Rhinophores, also of the same colouration as the body, are clavate and their clubs measure 8 mm. in length. They originate from a cavity, which is protected by a round ring-like structure. Tripinnate gills arranged in six bundles around the anus, do not appear to be withdrawable. There are two bundles of gills anterior and four posterior to anus, which appears as a round opening. Oral tentacles are flat, oval in shape and plate-like, measuring 25 mm. in length and 20 mm. in breadth. Smooth, oval foot measuring 15 × 5 cm. does not have any indications of the demarcation of any anterior flaps but are slightly notched. The lips are protected by a pair of brown, rather elongated structures, each of them bearing 13 ridge-like thickening on it (Fig. 2). Radula contains simple hamate teeth arranged in 45 rows. The formula for each row is approximately 80.0.80.

The characters of the present specimen agree with those of *Hexabranhus flammulatus* (Quoy & Gaimard, 1832). Even though this species is reported to be a very common Indo-Pacific nudibranch and Kelaart (1859) has reported it as *Doris gloriosa*

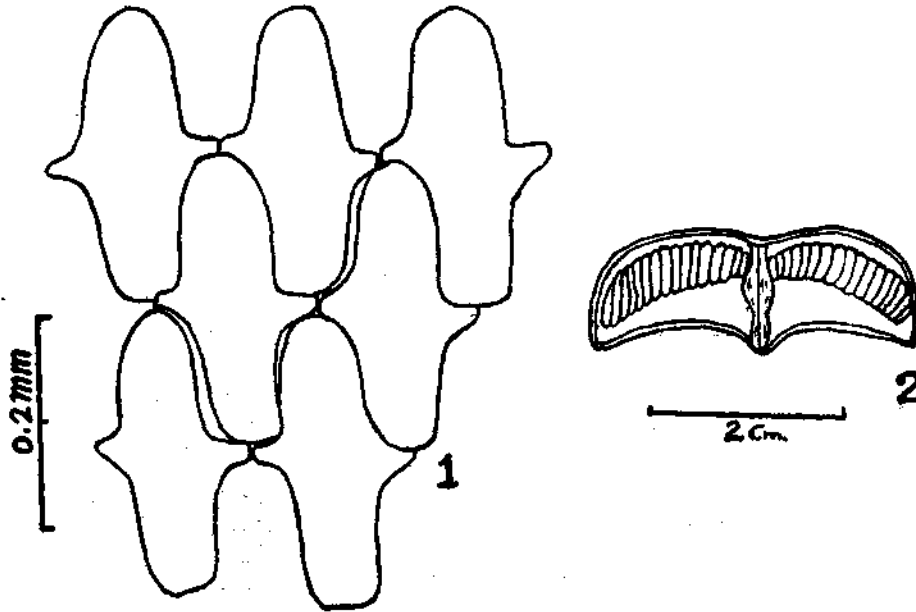


FIG. 1. *Pleurobranchus (Susania) ceylonicus* White, Denticles on jaw plates.

FIG. 2. *Hexabranhus flammulatus* (Quoy & Gaimard). Labial armature.

from Ceylon, the present account appears to be the first record of this species from the Indian coasts.

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Fisheries Research Station,
Government of Gujarat,
Jamnagar-1.

K. R. NARAYANAN

REFERENCES

ELIOT, CHARLES. 1905. *J. Conch.* 8: 237-65.

———. 1909. In James Hornell's *Report on the Marine Zoology of Okhamandal in Kathlawar*, Part I: 137-145.

- GIDEON, P. W., MENON, P. K. B., RAO S. R. U., AND JOSE, K. V. 1957. *J. Bombay nat. Hist. Soc.* **54** (3) : 690-706.
- KELAART, E. F. 1859. *Ann. Mag. Nat. Hist.* I, *Sr.* III. 3 : 291.
- MENON, P. K. B., DATTAGUPTA, A. K. AND DASGUPTA, B. 1961. *J. Bombay nat. Hist. Soc.* **58** (2) : 475-94.
- NARAYANAN, K. R. 1968. *Proceedings of the Symposium on Mollusca, Part I* : 188-213. The Marine Biological Association of India.
- PATIL, A. M. 1952. *J. Bombay nat. Hist. Soc.* **50** (3) : 557.
- TAYLOR, D. W. AND SOHL, N. F. 1962. *Malacologia*, **1** : 7-32.