



Occurrence of Nudibranch [*Dendrodoris atromaculata* (Alder and Hancock, 1864)] from the Pulicat lake along Bay of Bengal, India

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ABSTRACT

One specimen of *Dendrodoris atromaculata* was collected from Pulicat Lake along Bay of Bengal at a depth range of about little more than 1 m (13°33'25.73" N 80°10'29.3" E) through a drag net operation in a traditional fishing craft. A literature review on the distribution of this species revealed that this is the first report of *Dendrodoris atromaculata* from Pulicat Lake along Bay of Bengal, India. A note on the morphological features of this specimen is detailed in this paper.

Key words: Sea slug, *Dendrodoris atromaculata*, nudibranch, Pulicat lake

INTRODUCTION

Nudibranchs molluscan are commonly known as sea slugs or sea hares showed diversities of colors and body forms. *Dendrodoris atromaculata*, a species of marine opisthobranch gastropod molluscs belongs to family of Dendrodorididae and an order Nudibranchia. This species is widely distributed in Tropical Indo-West Pacific region (Fig.1). *Dendrodoris atromaculata* is a large tropical nudibranch first described from the south-eastern coast of India long back and barely reported thereafter (Eliot 1906; Willan and Coleman 1984). However, several reports regarding the other, opisthobranch fauna of India have been reported. Report on the occurrence of sea slug, *Kalinga ornata* along the inshore waters of Bay of Bengal

off Chennai, India has been described by Sethi *et al.*, (2012). Similarly, new records of occurrence of several other species such as black-margined nudibranch, *Doriprismatica atromarginata* from the inshore waters of Bay of Bengal along Karaikal coast, Wedge Sea Hare, *Dolabella auricularia* from Kayalpatinam, Gulf of Mannar, in the southeast coast (Sethi and Otta 2014), Side-gilled slugs, *Pleurobranchus mamillatus* off Tuticorin, (Ranjith *et al.* 2014), first record of Ragged Sea Hare, *Bursatella leachii* Blainville, 1817 Opisthobranchia: Euopisthobranchia: Aplysiidae) in Pulicat lake and occurrences and distribution of Geographic Sea Hare, *Syphonota geographica*, Adams and Reeve, 1850, in Pulicat Lake, TN. (Sethi *et al.*

2015) east coast of India have also been reported. The present finding is the occurrence of a live form of this specimen from the Pulicat Lake along Bay of Bengal, Coromandal coast of India.

MATERIALS AND METHODS

While engaged in a study on marine molluscs groups from the Pulicat lake, we have come across of this *Dendrodoris atromaculata*, quite uncommon for this coast until now and the sea slug was caught approximately 3 km southeast off Pulicat lake with a depth range of 0.8 m to 1 m (13°33'25.73" N 80°10'22.93" E) by using a drag net. A specific taxonomic feature was used for species identification. The collected specimens were preserved in 70% (v/v) ethanol. Cross examination of the specimen was done by Mr. Gary Cobb and David Mullins of the Sea Slug Forum of Australia. For photographic documentation and detailed study, Cyber-Shot Sony 16.2 Megapixel camera was used.

RESULTS AND DISCUSSION

The taxonomical analysis of the species is presented here under.

Phylum: Mollusca

Class: Gastropoda

Infra-class: Opisthobranchia

Order: Nudibranchia

Family: Dendrodorididae

Genus: *Dendrodoris*

Species: *atromaculata* (Alder and Hancock, 1864)

The specimen was collected from the sea weeds (*Gracilaria edulis*) and in live condition. *D. atromaculata*, a tuberculate sea slug, possessing a relatively high body profile is large and broad in comparison to several other members of the genus that are relatively smooth and elongate e.g. *D. nigra* (Stimpson, 1855). Body of this specimen had yellow background with black patches on dorsal side. Tree like branches, known as rinophores were present on posterior anterior-dorsal side of the animal while the fascinating gills were located on the posterior sides (Fig.2 and 3).

The crawling length and width of living slug was 35 and 23mm respectively. The body is soft but firm and weighed was 4.5g. The dorsum is covered in irregular "star-like" compound tubercles,

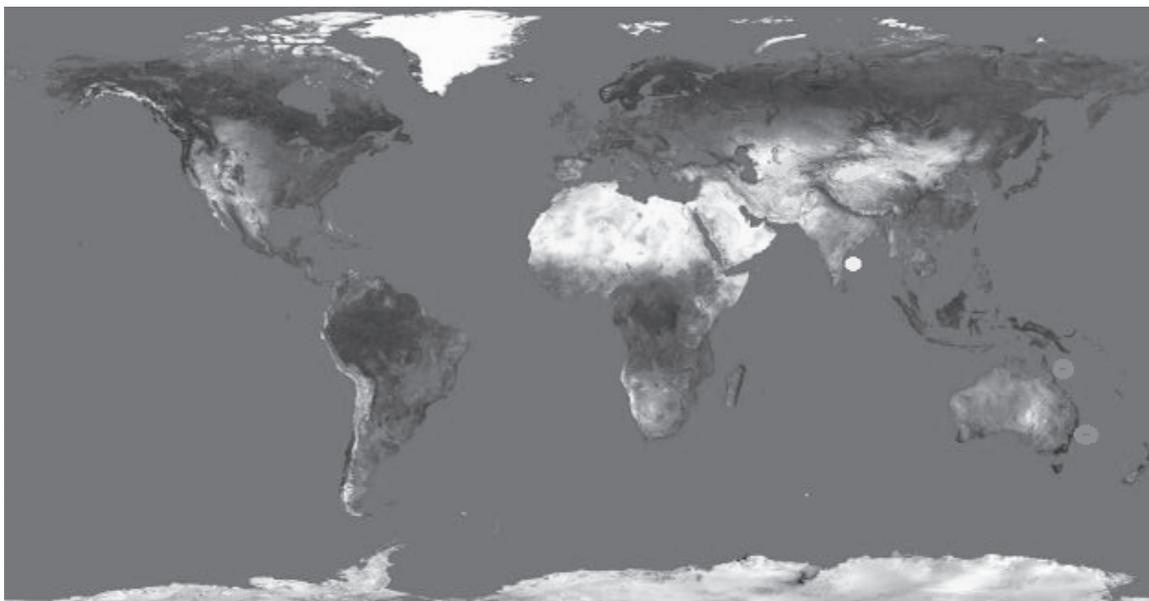


Fig. 1. Distribution of *Dendrodoris atromaculata* in the Tropical Indo-West Pacific and other parts of the world. Red filled circles denote the earlier records and an open yellow circle depicts a new report from the Pulicat Lake, along Bay of Bengal of India.

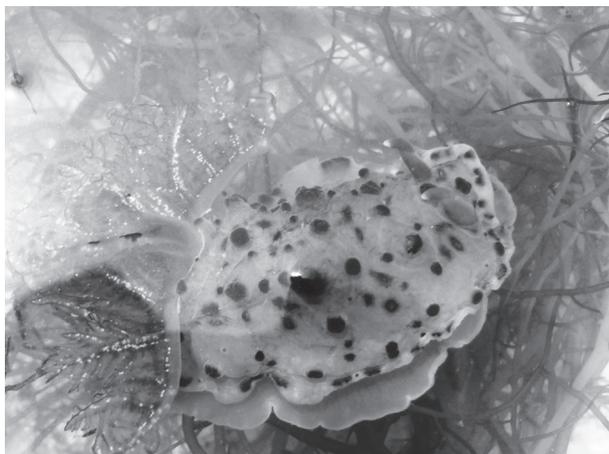


Fig. 2. Live sea slug, *D. atromaculata* collected from the Pulicat Lake, on *Gracillaria verrucosa* seaweeds beds.

each consisting of a cluster of finger-like papillae of different heights that taper to rounded apices (Fig.4 &5). The apex of these subsidiary papillae is often pinkish in colour and the central papilla is generally larger than the rest. The notum is pale yellow, sometimes darkening to orange centrally.

Key identification features of *Dendrodoris atromaculata*

Dendrodoris atromaculata possess finger-like notal papillae, large dense notal spicules and a gill plume that is cross-like appearance (Fig.3-5). External Characters of *D. atromaculata* were presence of large size with high body profile, Extraordinary gills on dorsal-posterior side of the body, Yellow body colour with black patches, Lack of oral tentacles, Finger-like papillae found over the notum, Star-like dorsal tubercles and Large cross-like gill plume. The total body length and width was 35 mm and 23 mm respectively. Total body weight was 4.5g (Fig.3-5).

Sea slugs are considered as a low value fish by-catch in India and mostly used for fish feed and Poultry feed preparation. However, they are known to possess novel compounds such as anti-tumor, anti-cancer and anti-viral drugs and therefore extensively used in the pharmacological industry in other parts of the world. Kahalalide F, Synthadotin/ILX651, Soblidotin (Dolastatin-10 derivative), and Cemadotin are marine natural anti-cancer compounds derived from sea slugs or sea hare

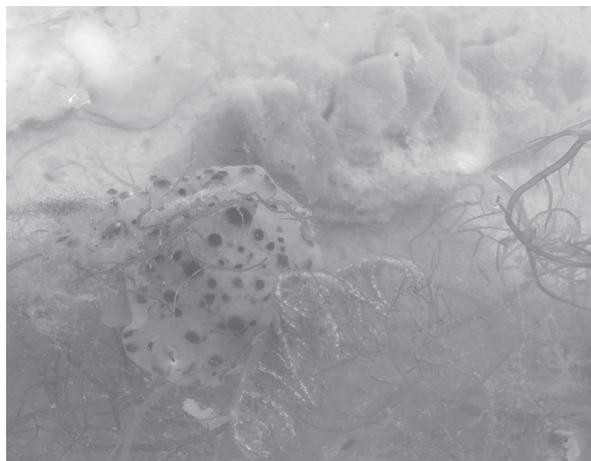


Fig. 3. Natural habitat of *D. atromaculata* with Orange sponges and seaweed, *Gracillaria verrucosa* at Pulicat Lake Bay of Bengal India.

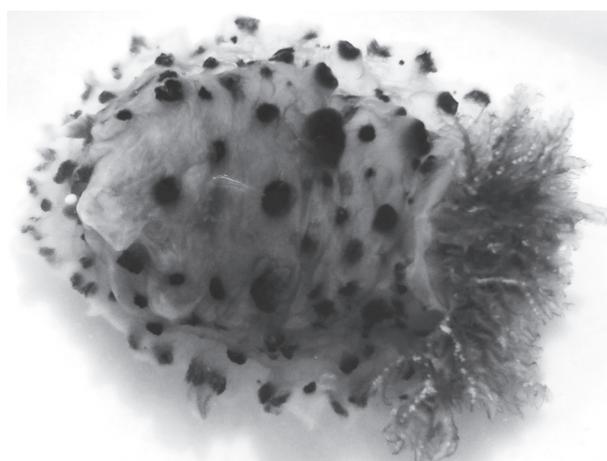


Fig. 4. Dorsal view of the sea slug, *D. atromaculata* collected from the Pulicat Lake, Bay of Bengal India.

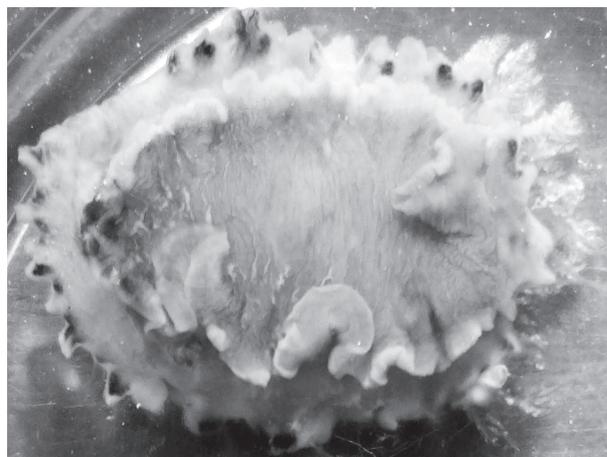


Fig. 5. Ventral view of the sea slug, *D. atromaculata* collected from the Pulicat Lake, Bay of Bengal, India.

which are under various stages of clinical trials (Haefner, 2003).

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