

Occurrences of Wedge Sea Hare, *Dolabella auricularia* (Lightfoot, 1786) from Kayalpatinam , Gulf of Mannar, Tamil Nadu, India

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Two specimens of *Dolabella auricularia* were collected from Kayalpatinam, Gulf of Mannar at a depth range of 20 to 50 m (8° 33' 02.23" N and 78°24' 04.77" E) by using a drift gill net in a traditional fishing crafts. A literature review on the distribution of this species revealed that this is the first report of *Dolabella auricularia* from the Gulf of Mannar, Tuticorin coast of India. A note on the morphological features of this specimen is detailed in this paper.

[**Keywords:** Sea Hare, *Dolabella auricularia*, Tuticorin]

Introduction

Nudibranchs or sea slugs are the lesser-known molluscan group and these are one of the most beautiful and diverse creature's displays attractive colors in the ocean. The genus *Dolabella* (Gastropoda: Opisthobranchia: Anaspidae) belongs to the family Aplysiidae is limited to Red Sea, Indian Ocean and Pacific Ocean. Genus *Dolabella* has four [*Dolabella auricularia* (Lightfoot, 1786); *Dolabella californica* Stearns, 1877; *Dolabella cheni* Sun, 1960 and *Dolabella guayaquilensis* G. B. Sowerby II, 1868] valid species² and these are the least studied marine opisthobranch gastropod molluscs in India³. The Wedge Sea Hare, *D. auricularia* is a species of large sea slug in the family of Aplysiidae and it is distributed in the East Coast of South Africa, Madagascar, Mascarene Basin, Mozambique, Red Sea and Tanzania^{1,2}. *Dolabella auricularia* is an herbivorous, nocturnal feeder with a lifespan about 16 months¹⁰ and found to occur in shallow sub tidal areas of mixed sand and boulders⁷. They will often hide in sea grass, sand and mud, feeding on algae. The Global Biodiversity Information Facility⁴ cited that *D. auricularia* is reported from Costa Rica, French Polynesia, USA, Panama, LA PAZ, Mexico, East coast of South Africa, Mauritius, Andaman, Australia, New Caledonia, Indonesia, Fiji, New Guinea, Philippines,

Malaysia, Japan, Madagascar, Mascarene, Mozambique and Tanzania (Fig.1).

In recent past years, many workers^{9,11} studied Opisthobranch fauna from western Indian Ocean. Yonow¹¹ described two new species and ten new records of Opisthobranchs from the western Indian Ocean and Sethi⁹ reported the sea slug, *Kalinga ornata* from the inshore waters of Bay of Bengal along Chennai coast, India. Gravely⁵ recorded *Dolabella scapula* from Krusadai Island which is now re-designated as *Dolabella auricularia*. Satyamurthi⁸ recorded *Dolabella rumphii* from Krusadai Island of Rameswaram which is now re-designated as *Dolabella auricularia*. Apte³ studied Opisthobranch fauna of Lakshadweep Islands, India with 54 new records to Lakshadweep and 40 new records to India and also reported *Dolabella auricularia* from Lakshadweep waters. The present findings show the records from the Kayalpatinam , Gulf of Mannar, TN, India.

Materials and Methods

During our study on marine molluscs from the Gulf of Mannar, we have come across in drift gill net catches of *D. auricularia* which is found to be uncommon for this coast until now and this species were caught approximately 30 km southeast off Tuticorin i.e., Kayalpatinam, Gulf of Mannar at a depth range of 20 to 50 m (8° 33' 02.23" N and 78°24' 04.77" E) by using a drift gill net in a traditional fishing craft (Fig. 2). The specimens were identified as *Dolabella*

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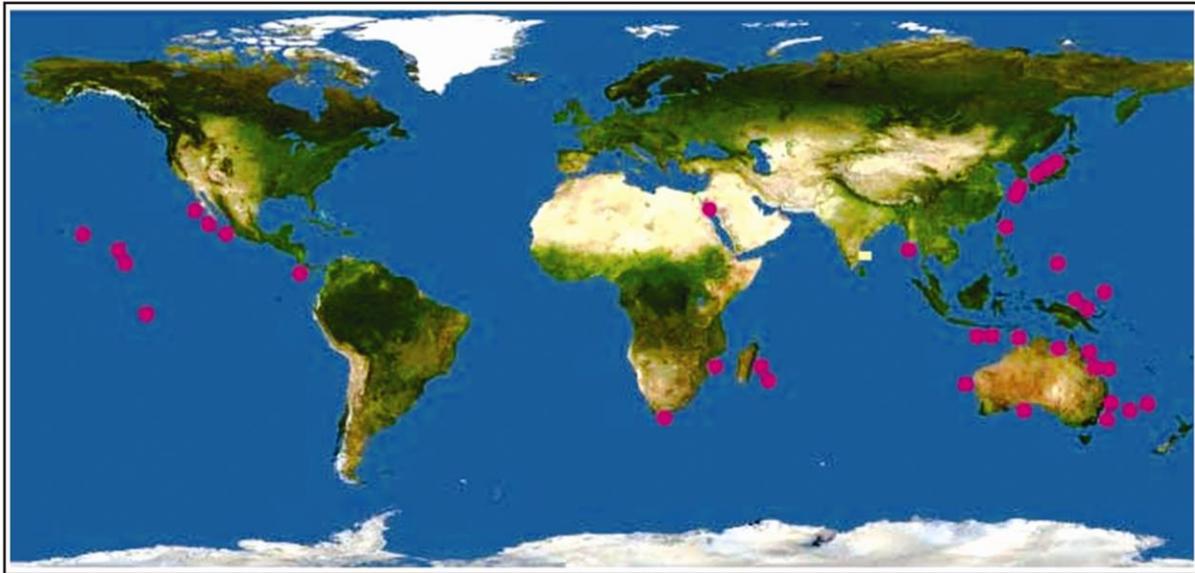


Fig. 1—Distribution of *dolabella auricularia* in the Indo-Pacific region and other parts of the world. Red filled circles denote the earlier records and an open yellow square depict a new report from the Gulf of Mannar, Tuticorin, Tamil Nadu, India.

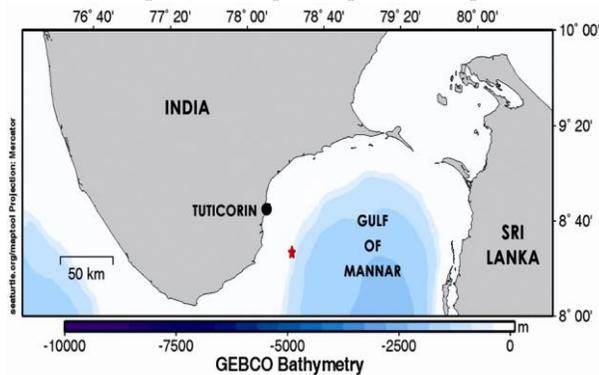


Fig. 2—Map showing the sampling site (Kayalpattinam with red star) of Wedge Sea Hare, *Dolabella auricularia* off Tuticorin, Southeast coast of India.

auricularia and were consistent with the specimens examined by Bombay Natural History Society, BNHS, Mumbai, India. For photographic documentation and detailed study, digital Cannon 10 Megapixel camera was used. The collected specimens were preserved in 70% (v/v) ethanol and deposited in National Biodiversity Referral Museum at CMFRI, Kochi.

Results and Discussion

Material Examined:

Dolabella auricularia (2 specimens; Drift gillnet; Kayalpattinam, Gulf of Mannar, 8° 33' 02.23" N and 78°24' 04.77" E).

Systematic:

Order: ANASPIDEA

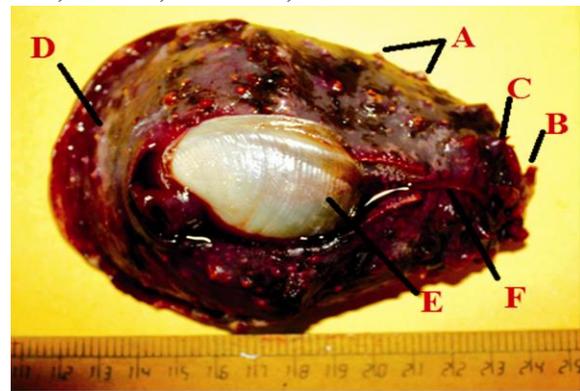


Fig.3—Wedge Sea Hare, *Dolabella auricularia* (Dorsal view) collected from Kayalpattinam (A-Papillae, B-Cephalic Tentacle, C-Rhinophore, D-Posterior Disc, E-Shell, F- Ova- seminal Groove)

Superfamily: APLYSIOIDEA,

Family: APLYSIIDAE,

Genus: *Dolabella*

Species: *auricularia* (Lightfoot, 1786)

Measurements:

The total body length and width was varied from 107.19-115.39 and 67.46-69.47 mm respectively. Total body weight varied from 162-200 gm (Figs. 3&4). The shell length, width and weight were 45.88 - 58.89, 31.23 - 43.23 mm and 2.58 - 4.03 g respectively (Figs. 5 and 6).

Description:

Body is truncated, flattened and sloping posterior, up to 20-40 cm long. Body color is purple brown; cephalic tentacles longer than rhinophores; Body is



Fig.4—Ventral side of Wedge Sea hare, *Dolabella auricularia* collected from Kayalpattinam.



Fig.5—Shell Dorsal view of *Dolabella auricularia* collected from Kayalpattinam.



Fig.6—Shell Ventral view of *Dolabella auricularia* collected from Kayalpattinam.

covered with tubercles and skin flaps; papillae numerous and evenly distributed giving the animals a prickly appearance. It can be easily recognized by a flattened disk on the posterior surface of the animal. This species can be found with soft pustules, leading to a rather knob-like appearance. It has a short and blunt head. The inner shell has a typical earlike form. It gives off purple ink when disturbed. The penis is unarmed (Figs. 3 to 4).

The sea slug is known to possess anti-cancer, anti-tumor and anti-viral compounds which are very useful in the pharmacological industry. In India, sea slugs are been used for the extraction of natural anti-cancer compounds like Soblidotin, Synthadotin/ILX651, Cemadotin, and Kahalalide F⁶. The fishery of sea slug or sea hare was in infancy stage as it not consumed as food in India. However, in most of the times sea hares are been discarded in the sea itself as it is considered as a low or no value catch But nowadays sea hares caught by trawl as by-catch has been used for poultry manure and fish feed preparation.

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References

- 1 Bebbington, A., 1974. Aplysiid species from East Africa with notes on the Indian Ocean Aplysiomorpha (Gastropoda: Opisthobranchia). *Zoological Journal of the Linnean Society* 54(1): 63-99.
- 2 Bouchet, P., 2013. *Dolabella* Lamarck, 1801. Accessed through: World Register of Marine Species at <http://www.marinespecies.org/aphia.php?p=taxdetails&id=204623> on 2013-05-14.
- 3 Deepak, Apte., 2009. Opisthobranch fauna of Lakshadweep islands, India, with 52 new records to Lakshadweep and 40 new records to India: part 1, *J. Bombay Nat. Hist.Soc.*, 106(2), 162-175.
- 4 Global Biodiversity Information Facility 2008. *Biodiversity occurrence data provided by: INBio Especimenes, Costa Rica* (Accessed through GBIF Data Portal, <http://damis.inbio.ac.cr>, 16 September 2008).
- 5 Gravely, F. H., 1927. The mollusca of Krusadai Island 1 Amphineura and Gastropoda. *Bull Madras Govt Mus (Nat Hist)* 1(2): Pt 6, 82-104.
- 6 Haefner, B., 2003. Drugs from the deep: marine natural products as drugs candidates, *Drug Discovery Today*, 8: 536-544.

- 7 Pennings, S. C., Nadeau, M. T. & Paul, V. J., 1993. Selectivity and growth of the generalist herbivore *Dolabella auricularia* feeding upon complementary resources. *Ecology* 74:879-890.
- 8 Satyamurthi, S.T., 1952. The mollusca of Krusadai Island Amphineura and Gastropoda. *Bull Mad Govt Mus* (Nat Hist) 1 (2): 216-251.
- 9 Sethi, S., & Pattnaik, P., 2012. Records of the sea slug, *Kalinga ornata* (Alder & Hancock, 1864) from the inshore waters of Bay of Bengal along Chennai coast. *Indian J. Fish.*, 59(1): 151-154.
- 10 Switzer-dunlap, M., & Hadfield, M. G., 1977. Observations on development, larval growth and metamorphosis of four species of Aplysiidae (Gastropoda: Opisthobranchia) in laboratory culture. *J. Exp. Mar. Biol. Ecol.* 29:245-261.
- 11 Yonow, N., 2012. Opisthobranchs from the western Indian Ocean, with descriptions of two new species and ten new records (Mollusca, Gastropoda). *ZooKeys* 197: 1–129.