

**NEW RECORD OF A HEADSHIELD SLUG  
*PHANEROPHTHALMUS SMARAGDINUS*  
 (GASTROPODA: OPISTHOBANCHIA) FROM  
 ANDAMAN ISLANDS, INDIA**

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Opisthobranchia, a subclass of gastropods, differ from their relatives Prosobranchia by the presence of a thin, reduced or absent shell, and are purely marine animals. The term opisthobranch means “back or rear gills”, which is a feature specific to these groups of animals. They are hermaphroditic animals. Opisthobranchs are small and often cryptic individuals that inhabit mostly sub-tidal regions and have a low numeric density making their study difficult. Studies on opisthobranchs in India are sparse and patchy, and have only recently gained much attention from researchers. Recent works on Indian Opisthobranchia are by Apte (2009), Apte & Salahuddin (2010), Apte et al. (2010), Matwal & Joshi (2011), Sankar et al. (2011), and Bhawe & Apte (2011), who have studied the opisthobranchs off Lakshadweep Islands and Tamil Nadu, Gujarat and Maharashtra coasts.

Studies on the opisthobranchs of Andaman and Nicobar Islands have been reported by Raghunathan et al. (2010), Ramakrishna et al. (2010), Sreeraj et al. (2010, 2012 a,b) and Dhivya et al. (2012).

The genus *Phanerophthalmus* belongs to Cephalaspida, an opisthobranch clade most closely aligned with the shelled prosobranchs. These headshield slugs are most primitive and one of the least modified form of gastropods, and exhibit great morphological

diversity (Behrens et al. 2005). *Phanerophthalmus* species are long, cylindrical animals with very small headshield.

The current article reports a new record of an opisthobranch, *Phanerophthalmus smaragdinus* (Rüppell & Leuckart, 1828) from Andamans, India.

**Materials and Methods:** Sample was collected from intertidal region of Burmanallah, South Andaman, during low tide when most of the area was partially submerged. The animal was brought to the laboratory for further examination and identification. Identification based on morphological characters was carried out following Gosliner et al. (2008) and C.R. Sreeraj (pers. comm. 14 July 2012). Morphology of the live specimen was studied using a stereo-zoom microscope (Leica M205a). The specimen was narcotized using few drops of magnesium chloride solution (72g/L), and transferred into 5% formaldehyde solution. The formaldehyde fixed animal was later transferred to 95% ethanol for long time preservation.

A specimen of the animal has been deposited in the National Zoological Collections of Zoological Survey of India, Andaman and Nicobar Regional Centre, for reference; registration number ZSI/ANRC-7619.

**Results:** The specimen has been identified as *Phanerophthalmus smaragdinus* (Rüppell & Leuckart, 1828) which is the first record of this species from the Andaman Islands. These organisms are known from the western Indian Ocean of South Africa, Madagascar and the Seychells and Lakshadweep Islands (India) to the western Pacific of New Caledonia, Papua New Guinea, Vanuatu, Indonesia, Reunion Island, Philippines, Japan, Guam, Palau. The systematic account of the species



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is given below. The taxonomic hierarchy of Bouchet & Rocroi (2005) is followed.

### Systematics

Informal Group: Opisthobranchia

Clade: Cephalaspidea P. Fischer, 1883

Superfamily: Haminoeioidea Pilsbury, 1895

Family: Smaragdinelidae Thiele, 1925

Genus: *Phanerophthalmus* A. Adams, 1850

*Phanerophthalmus smaragdinus* (Rüppell & Leuckart, 1828)

**Material examined:** ZSI/ANRC-7619, 12.vii.2012, adult hermaphrodite, 11°34.274'N & 92°44.212'E, 0.1m, Burmanallah, South Andaman, Andaman and Nicobar Islands, India, coll. Sumantha Narayana.

**Description:** The animal was long and cylindrical with a very small headshield. The mantle cavity was much reduced and occupied a terminal position at the end of the body. The shell was small, flattened and enclosed by the mantle. The sides of the foot extended into large parapodia which folded over and enclosed the body (Rudman 1972). The uniform light greenish colour of this species is distinctive (Image 1). It was found in the intertidal area, crawling through beds of algae over rocks and dead corals. The morphometric data of the specimen is shown in Table 1.



Image 1. *Phanerophthalmus smaragdinus* (Rüppell & Leuckart, 1828). Scale bar: 2mm.

Table 1. Morphometric analysis data

Body part	Measurements (mm)
Total crawling length	6.232
Maximum width	1.630
Head length	1.539
Head width	1.765
Tail length	1.284
Tail width	0.672
Eyespot diameter	0.075
Distance between two eyespots	0.546

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