

**A RECORD OF BROWN PAPER NAUTILUS *ARGONAUTA HIANS*
LIGHTFOOT, 1786 (FAMILY: ARGONAUTIDAE) (LAMARCK, 1809) OFF
THOOTHUKUDI COAST OF GULF OF MANNAR FROM INDIA
(08° 35' 22.5" N 78° 27' 40.9" E and 08° 31' 91.2"N 78° 25' 32.7"E)**

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ABSTRACT

The brown paper nautilus, Argonauta hians Lightfoot, 1786 was recorded for the first time from Indian waters while investigating the biodiversity of the molluscs of Gulf of Mannar during June, 2011. One specimen of the said species was collected as an incidental by-catch in the trawl catch off Thoothukudi coast of Gulf of Mannar, from India, between 08° 35' 22.5" N 78° 27' 40.9" E and 08° 31' 91.2"N 78° 25' 32.7"E at a depth of 305-310 m.

Keywords: *Argonauta hians* - First record - Indian waters - Argonautidae

INTRODUCTION

The brown paper nautilus, *Argonauta hians*, Lightfoot, 1786 is an epipelagic octopod which has been reported from tropical and subtropical oceans (Beesley *et al.*, 1998; Roper and Young, 1975; Roper *et al.*, 1984). Among the six known species of the monotypic family Argonautidae, *A. argo* is the largest. Female attained a maximum size of nearly 300 mm shell diameter (Thomas Heeger *et al.*, 1992; Pischer, 2005; Nesis, 1982 and 1897). The paper nautilus has a slender body, narrow head, and unequal arm length. According to Norman (2000), *A. hians* has the longest mantle length

which can reach up to 500 mm in female and 200 mm in male. Pischer (2005) observed that the species *Argonauta bottgeri* attained maximum size of 67 mm. Paper nautilus has eight arms, each arm with two rows of sucker; the number of suckers on the arm is different among species. Dorsal arms in female are with laterally enlarged membrane. The hectocotylus was first described as a worm parasitic on the female (Delle Chiaje, 1825). Male third left arm is hectocotylized, which is huge by comparison and detachable. The hectocotylus of paper nautilus consists of three parts; a basal spermatophore reservoir, a central section bearing suckers and distally, a long lash like

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'penis' (Beesley *et al.*, 1998). During copulation, the hectocotylus detached, formed an active, autonomous spermatophore carrier remaining in the mantle cavity of the female (Hanlon and Messenger, 1996; Illiffe, 1982). Argonauts exhibited extreme sexual dimorphism in size. The male is dwarf and much smaller than female (Roper *et al.*, 1984; Nesis, 1987). The occurrence of this species *A. hians* from Thoothukudi coast of Gulf of Mannar from India is reported for the first time.

Family: Argonautidae Lamarck, 1809

Genus: *Argonauta* Linnaeus, 1758

Argonauta hians Lightfoot, 1786

Argonauta hians Nguyen Ngoc Thach, 2005, pl.77, No. 7 & 10

Argonauta hians Michael Vecchinone *et al.*, 2001; 152, text figs, 35, 36

Argonauta hians, Charuay Sukhsangchan *et al.*, 2009; fig 1

Argonauta hians, Charuay Sukhsangchan and Jaruwat Nabhitabhat, 2007; observed stage figs 1-17

MATERIALS AND METHODS

One female specimen (total length 63 mm; width of shell 37 mm; weighing about 20 gm) collected from Thoothukudi beach (08° 35' 22.5" N 78° 27' 40.9" E and 08° 31' 91.2"N 78° 25' 32.7"E/305-310 meters/34 miles) Thoothukudi district, Tamil Nadu, India. The reference materials are deposited in the museum collections of the Department of Fisheries Biology and Resource Management, Fisheries College and Research Institute, Tamil Nadu Fisheries University, Thoothukudi, Tamil

Nadu, India. The brown paper nautilus was collected from the pelagic octopod shells of *Argonauta hians*.

REMARKS AND DISCUSSION

Argonauta hians, also known as the muddy argonauta has calcareous structured shell which is thin and laterally compressed. Shells vary from white with brownish black tint on the nodules and adjacent ribs to light brown with sooty brown pigmentation over most of the surface of the shell (Voss and Williamson, 1971). The description given by Nguyen Ngoc Thach (2005) agrees with the present specimen. The keel is wide and bears the characteristic 15 to 23 prominent, large and blunt nodules placed in pairs over the keel. Great variations exist in size and form of the nodules. The ribs and sides of the shell extending from the cranial knobs are less numerous when compared to the other species with less bifurcation. There are two types of ribs present, the long and full sized ribs extending from the nodules to the nucleus which are in regular alternating series with the secondary ones; the latter are short and extend upto half way from the nodules. Identification was based on the distinctive and unique shell (Figure 1).

Argonauta hians is widely distributed in the Indo-Pacific from Khanh Hoe, Vietnam and Thailand (Nguyen Ngoc Thach, 2005; Charuay Sukhsangchan and Jaruwat Nabhitabhat, 2007; Charuay Sukhsangchan *et al.*, 2009). These molluscs are known to be circumtropical (Abbott, 1974). They have been reported from Jamaica by Humfrey (1975), Bermuda by Illiffe (1980) and Caribbean sea

by Ernest Williams and Lucy Bunkely – Williams (1995). The present record of this species is collected from the incidental by-catch in the trawl catch off Thoothukudi coast of Gulf

of Mannar from India. It shows its extended distribution in the western North Atlantic Ocean to Indian coast is a very rare specimen and is the first record from Indian waters.



Fig 1. *Argonauta hians*

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