

NOTE

First report of a simple ascidian - *Phallusia arabica* Savigny, from Tuticorin coast of India

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Abstract

An ascidian, *Phallusia arabica* belonging to the family Ascidiidae is reported for the first time from Tuticorin coast of India.

So far only two species of the genus *Phallusia*, *Phallusia nigra* (Savigny, 1816) and *Phallusia polytrema* (Herdman, 1906) have been reported from India (Meenakshi, 1998; Meenakshi and Renganathan, 1999). The present report adds one more species *Phallusia arabica* Savigny, 1816 to Indian waters.

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Description

Systematic position: Class: Ascidiacea; Order: Enterogona; Suborder: Phlebobranchia; Family: Ascidiidae; Genus: *Phallusia*.

Phallusia arabica Savigny, 1816

Occurrence: This species occurs as an important component of the biofouling

community and has been collected from the materials used for pearl culture like buoys, rafts, cages, ropes, etc. of Tuticorin farm and also from the hull of barges, coral reef and various other harbour installations.

Tuticorin is a major cargo port of India. This species has been found to occur in the bay throughout the year in abundance. It is a new entrant to the Tuticorin harbour area as it has been encountered only from 2000 onwards. Monthly survey carried out by the author from 1994-1999 showed the presence of only *P. nigra* in the Indian seas, indicating that *P. arabica* would have been transported on the hull of ships or along with ballast water.

Distribution : New record — India (Tuticorin). This species has been previously recorded from Queensland Northwest I. - (Kott, 1966); Heron I, Erscine I, Lizard I, Trinity Bay, (Kott, 1985), Arafura Sea (Tokioka 1952), Philippines (Van Name, 1918; Tokioka, 1970; Millar, 1975), Sri Lanka (Heller, 1878), Red Sea, Gulf of Suez (Savigny, 1816; Hartmeyer, 1915;

Michaelsen, 1919).

External appearance. The length of the mature specimen collected varied from 2.5 cm to 6.5 cm (Fig.1). The individuals are fixed upright to the substratum by the posterior end of the body or by the posterior left side. They are oval to elongate with a slightly laterally compressed body. The surface test is naked, free of epibionts with longitudinal ridges extending from the siphons to the middle of the body. Generally, the test is thicker around the dorsal side than the other regions, but thinner where it is attached to the substrate. The test is firm, rigid, smooth and translucent. The colour of the specimen is generally smoke grey to dark brown. Young individuals are translucent white. The branchial aperture is terminal. The branchial siphon is long, cylindrical and thick. The atrial siphon is short, cylindrical and lies halfway along the dorsal surface. Both the siphons are ridged. The atrial siphon is usually directed anteriorly or to the sides whereas the branchial siphon is rarely directed laterally and never



Fig. 1. *Phallusia arabica*

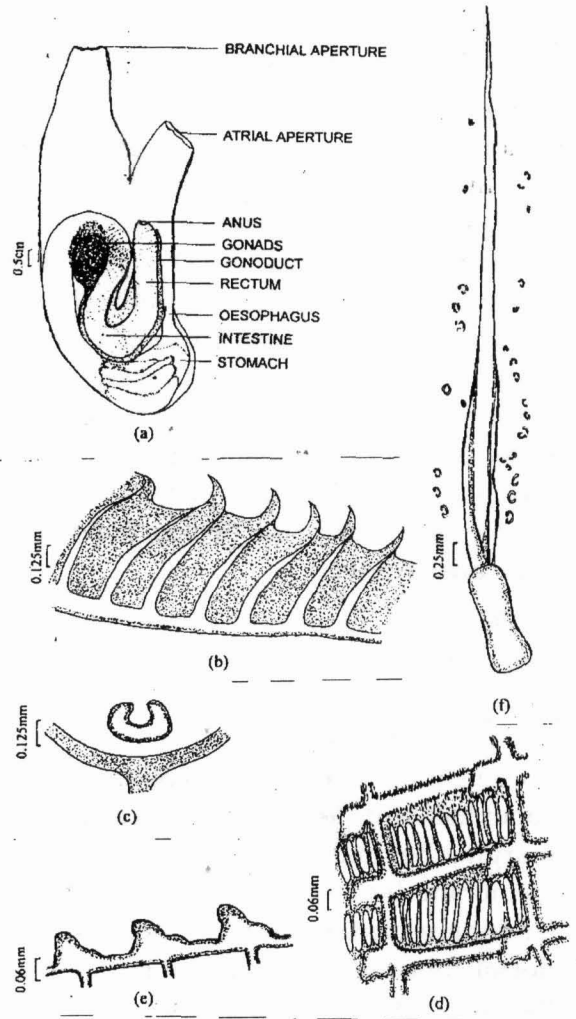


Fig. 2. *Phallusia arabica* - a) left side of the body showing gut and gonad, b) dorsal lamina, c) dorsal tubercle, d) a portion of branchial sac, e) branchial papilla, f) accessory openings of the neural gland.

posteriorly. There are 6-9 branchial lobes and 5-9 atrial lobes with ocelli between them. Minute tentacular fringes were observed on the lobes in few specimens. The main test vessel enters the test halfway from the anterior end to the left side of the ventral line. The vessels branch and small terminal vessels are evenly distrib-

uted on the test. The surface test has mass of pigments giving a prominent marking.

Internal structure: (Fig.2a to f). The siphons are very long and prominent in the animal removed from the test. Both the siphons have well-developed circular and longitudinal muscles. The right side of the body has strong longitudinal and transverse muscle bands forming a mesh-work, musculature on the left side is feeble. Mantle is light brown to translucent. Anterior part of the mantle is thicker but becomes thin and delicate posteriorly. The muscle bands are also thicker anteriorly than posteriorly.

There are about 50-70 branchial tentacles of two sizes, long and short. The narrow prebranchial area is papillated. No V-shaped peritubercular area. The dorsal lamina is a double membrane upto about half of its length with ribs along the margin. Beyond half of its length the membrane becomes single with tentacular fringes continuous with the ribs. The dorsal tubercle is very small situated at the end of the dorsal lamina with a 'U' shaped slit. The dorsal ganglion situated a little above the base of the atrial siphon is long. There are about 27 small accessory openings of the neural duct lying between the ganglion and the dorsal tubercle.

The branchial sac is deeply plicated. There are about 10-12 stigmata in a mesh. Large tongue shaped branchial papillae are present at the junction of the internal longitudinal vessels with the transverse vessels. The papillae are flattened

anteriorio-posteriorly. They have a small basal projection in the concavity on the dorsal side.

The gut loop is confined to the posterior half of the body. Margin of the gut loop does not extend beyond the base of the atrial siphon and in level with the anus. A short oesophagus arises from the middle of the dorsal lamina. Primary gut loop is more or less vertical and the secondary loop slightly oblique. The axis of the primary gut loop is open. Secondary gut loop passes near the pyloric end of the stomach. The stomach has faint longitudinal striations. The gut is distended with mud. Opening of the anus is smooth in majority of the specimens and with small lobes rarely.

The ovary is highly branched and situated in the primary gut loop. Testis follicles are present surrounding the ovary and also on the surface of the gut. The gonoduct is very thick lying between the limbs of the primary gut loop opening at the base of the atrial siphon very near to the anus.

Remarks: The specimen studied agrees well with the description of *P. arabica* Savigny, 1816 and Kott, 1985 except for a few differences such as its smaller size, more number of branchial tentacles and the absence of anal lobes. The specimen described here cannot be confused with *Phallusia* - *Phallusia nigra* (Savigny 1816) and *Phallusia polytrema* (Herdman, 1906) reported earlier. The former is jet shiny black in colour with lesser number of stigmata and the latter small in size (1 to

1.5cm) with a very thin, glassy and flexible test having large grains of sand, pieces of shell attached to it in contrast to the naked test of *P. arabica*.

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