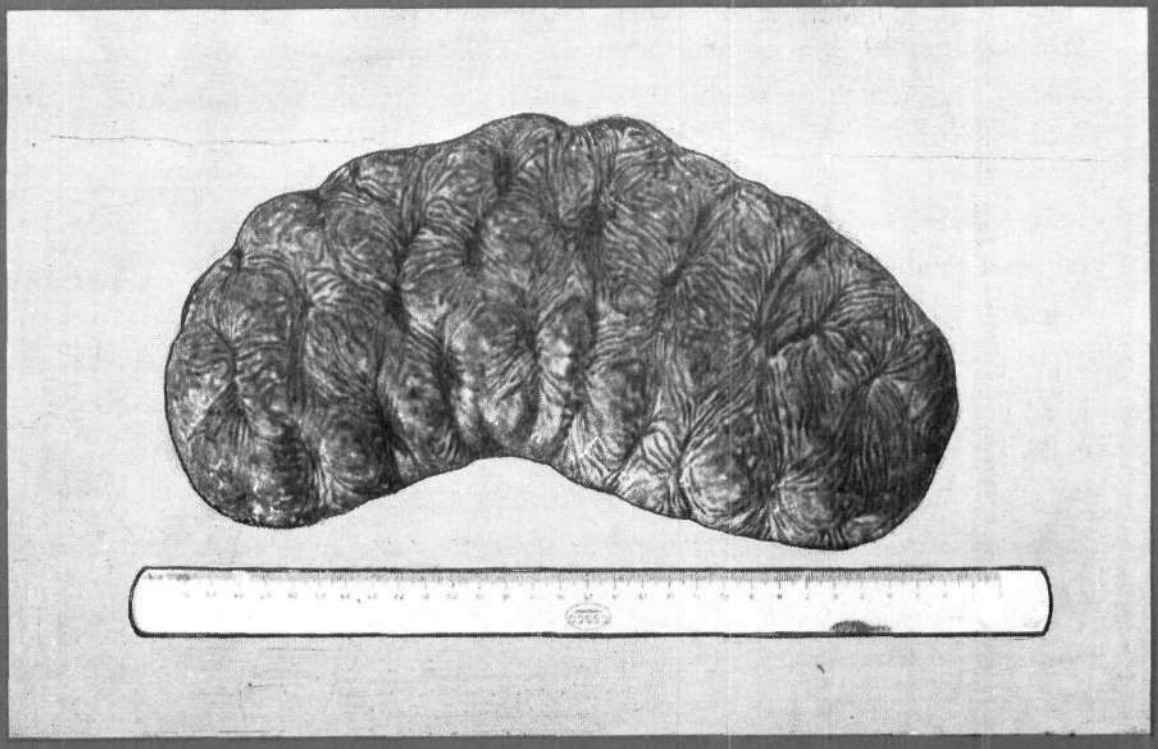
ISSN 0254-380 X

समुद्री मात्स्यिकी सूचना सेवा
MARINE FISHERIES INFORMATION SERVICE

No. 158 DECEMBER 1998



तकनीकी एवं विस्तार अंकावली
TECHNICAL AND EXTENSION SERIES

केन्द्रीय समुद्री मात्स्यिकी अनुसंधान संस्थान कोचिन, भारत
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE COCHIN, INDIA

भारतीय कृषि अनुसंधान परिषद
INDIAN COUNCIL OF AGRICULTURAL RESEARCH

886 ON A LITTLE KNOWN HOLOTHURIAN *STICHOPUS VASTUS* SLUITER WITH NOTES ON OTHER SPECIES OF *STICHOPUS* FROM THE SEAS AROUND INDIA

D.B. James

Central Marine Fisheries Research Institute, Cochin - 682 014, India

Introduction

The genus *Stichopus* was established by Brandt in 1835 with the type species *S. chloronotus* from Japan. The species of the genus *Stichopus* are often massive, with the body quadrangular and with fleshy tubercles projecting along four sides of the body. The gonadal tubules are arranged in two bunches. The bodywall is soft and easily disintegrates on exposure to air. More than 50 species have been recorded under this genus. Clark (1922) revised this genus and reduced the number of the species to about 20.

Stichopus vastus was described by Sluiter (1888) from Batavia, the present day Djakarta. This conspicuous and strikingly different species of *Stichopus* is unfortunately mixed up with *S. variegatus*, all these years and *S. vastus* is not recorded after its first description. *S. vastus* is a distinct and valid species, therefore after more than one hundred years, the name *S. vastus* is re-established here. During a stay at Port Blair (Andamans) in 1975-'78 the author collected several specimens of this species from Wandoor near Port Blair in shallow water of one metre depth. Since there is no description of this species after its first report, a brief description of the same is given here with a photograph. The differences from *S. variegatus* set forth in a Table so that this distinct species in future may not be confused with *S. variegatus*.

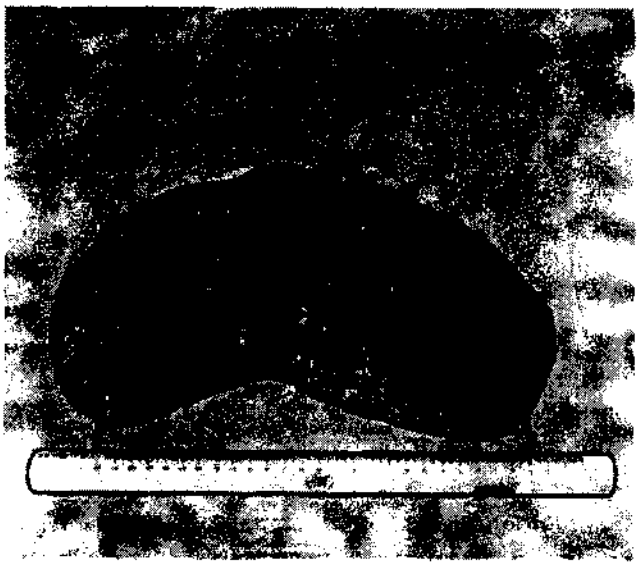


Fig. 1. *Stichopus vastus* Sluiter - dorsal view.

***Stichopus vastus* sluiter**

Occurrence : Wandoor (South Andamans), littoral, less than a metre in depth, several specimens.

Description : The length of the specimens examined varied from 300 to 500 mm. In the living condition the body resembles a giant caterpillar. The dorsal side of the body is thrown into a number of rectangular bulges caused by depressions at the corner of each bulge. On the dorsal side there are four indistinct rows of low projections (15-20 mm in length) which resemble mammae. Of the four rows of projections, the mid-dorsal ones have smaller tubercles than those of the dorso-lateral margins. On the ventro-lateral margin there is a single row of warts on each side which are not very conspicuous.

On the ventral side the pedicels are arranged in four bands. All the bands are more or less of the same width. In each band there are four to six pedicels arranged in a transverse row. The pedicels are 10 mm in length.

The radials are twice the size of the inter-radials. The posterior edge of the radials has a cleft. The inter-radials are arched at the posterior margin. The anterior end of the inter-radials is like a stump.

Spicules are similar to those found in *S. variegatus* but the C-shaped bodies are fewer in number. The pedicels have two types of supporting plates. Colour in the living condition is very striking like a zebra. The general colour on the dorsal side is dull yellow with dirty green stripes arranged in concentric diamond-shaped rings around each projection. All the lines converge near the depressions present at the corner of each rectangular bulge on the dorsal side. The ventral side is pinkish brown with dark brown pedicels. The stocks of the tentacles are white with the tips yellowish-white.

Remarks

In the seas around India only *Stichopus variegatus* and *S. chloronotus* are known. Both the species are recorded from the Andaman and Nicobar Islands and the Lakshadweep (James, 1983, 1989, 1991). These species are also reported from the Gulf of Mannar by James (1988). At Vedalai in the Gulf of Mannar young specimens (100-200 mm) of *S. variegatus* are found on Cymadocea beds. Slightly larger forms are found under coral stones in the Gulf of Mannar, the Andamans and the Lakshadweep. At Port Blair specimens reaching 900 mm are collected from shallow waters. Gravely (1927) reported *S. chloronotus* as common near the inshore fishing station Rameswaram. However, during the last 70 years, this species is not collected from the Gulf of Mannar and Palk Bay. In some of the Islands of the Lakshadweep like Kiltan, this species occurred in large numbers during February, '87.

Clark (1946) stated that despite the large size the species of *Stichopus* seemed to be practically of no value for processing. *S. chloronotus* is listed under non-commercial species and the species of *Stichopus* are reported as of low value for processing (Anon., 1974; 1994). McElroy (1990) lists the species of *Stichopus* as of medium value. In recent years species of *Stichopus* are processed in large numbers and one kg of processed material costs US $ 6-8.

Distribution

This species was first described from

Djakarta in 1888. Presently it is found in Wandoor, near Port Blair. Mr. K. Sachithananthan former Beche-de-mer consultant of the FAO collected this species from South Sea Islands and sent it to the author for identification. It is also found in the Australian waters (Dr. F.W.E. Rowe : personal communication) and Heron Island (Miss. A.M. Clark : personal communication). The author has also seen this species in Male while working as FAO Consultant in the Maldives. Its occurrence in the Lakshadweep is a distinct possibility. It is not distributed in the Gulf of Mannar and Palk Bay but likely to be taken from a number of other localities in the Indo-West Pacific.

I thank Dr. M. Devaraj, Director, C.M.F.R. Institute, Cochin for his interest and encourgement. I also thank Dr. F.W.E. Rowe, formerly of the British Museum (Natural History), London and the Australian Museum, Sydney for his kind comments and suggestions.

References

Anonymous 1974. *Beche-de-mer of the South Pacific Islands - A Handbook for Fishermen. South* Pacific Commission, New Caledonia, 29 pp.

Anonymous 1994. *Sea Cucumbers and Beche-de-mer of Tropical Pacific - A Handbook for fishers. Ibid., 51 pp.*

*Brandt, J.F. 1835. Prodromus description is animalium ab *H. Mertensio* in orbis terrarum circumnavigatione observatorum. *Petropoli*, 1, 75 pp.

Clark, H.L. 1922. Holothurians of the genus *Stichopus. Bull. Mus. Comp. Zool. Harv.* No. 65, 39-74.

Clark, H.L. 1946. The Echinoderm fauna of Australia. *Publs. Carnegie Instn.*, No. 566, 567 pp.

Gravely, F. H. 1927. The littoral faune of Krusadai Island in the Gulf of of Mannar : Echinodermata. *Bull. Madras Govt. Mus. (Nat. Hist.)* : 1(1), 163-173.

James, D.B. 1983. Sea cucumber and sea urchin resources. *Bull. Cent. Mar. Fish. Res. Inst.*, No. 34, p. 85-93.

James, D.B. 1988. Echinoderm fauna of proposed National Marine Park in the Gulf of Mannar. *Proc. Sym. Endangered Marine Animals and Marine Parks.* Marine Biological Association of India, Cochin, p. 403-406.

James, D.B. 1989. Echinoderms of Lakshadweep and their zoogeography. *Bull. Cent. Mar. Fish. Res. Inst.*, No. 43, p. 97-144.

James, D.B. 1991. Echinoderms of the Marine National Park, South Andamans. *J. Andaman Sci. Ass.*, 7(2) : 19-23.

McElroy, S. 1990. Beche-de-mer species of commercial value-an update. *SPC Beche-de-mer Bull.*, No. 2, p.2-7.

Sluiter, C.P. 1888. Die Everbraten aus der Sammlung des Koniglichen Naturwissen schaftlicher Vereins in Niederlandischen Indien in Batavia. Die echinodermen. 1. *Holothuroidea. Natuurk. Tijdschr. Ned. Indie.* 47 : 181-220.

TABLE 1. *Differences between* Stichopus variegatus *and* Stichopus vastus

Character	*S. variegatus*	*S. vastus*
Body form and shape	Loaf-shaped	Body is like a giant caterpillar with a number of rectangular bulges caused by depressions at the corner of each bulge.
Colour	Yellowish-brown	Body with zebra-like markings. Dorsal side dull yellow with dirty green stripes arranged in concentric diamond-shaped rings around each projection. Ventral side is pinkish brown.
Calcareous ring	Calcareous ring with broad and	Calcareous ring short and thick with the radials twice the size of the inter-

	thin radials and inter-radials of the same size.	radials.
Arrangement of pedicels	Pedicels arranged in three distinct bands.	Pedicels arranged in four distinct bands.
Arrangement of	Four rows of low rounded warts, central rows close to dorso-lateral rows.	Four rows of projections resembling mammae. Mid-dorsal rows well separated from doroso-lateral rows.
Spicules dorsal papillae	C-shaped bodies numerous; pedicels with one type of supporting plates.	C-shaped bodies fewer in number; pedicels with two types of supporting plates.

*Not referred to in original.

****

Remarks

Holothuria (Microthele) fuscogilva resembles *Holothuria (Micorthele) nobilis* in every respect except for the colour pattern, absence of cuvierian tubules and habits. *Holothuria (Microthele) nobilis* is common on shallow reef bottoms that are not subject to terrigenous influence. It is collected from Port Blair (Andamans) in the intertidal region and also from the Lakshadweep in the lagoons less than one metre depth.

Distribution

Holothuria (Microthele) fuscogilva is widely distributed in the South Pacific Islands. It is recorded from New Caledonia, Papua New Guinea, Solomon Islands, Fiji, Queenlands, Torres Strait and other places. It was collected by the author from the Maldives. It is likely to be present at Andaman and Nicobar Islands and the Lakshadweep in deeper waters.

Export potential

Holothuria (Microthele) fuscogilva is a high value species for processing. One kg of processed material of this species cost US $ 24.00 in 1990. In fact, *Holothuria (Microthele) fuscogilva* ranks only next to *Holothuria scabra* in value. It is quite likely that there exists a population of this species off Kayalpatnam at a depth of 10 m which can be exploited for processing are processed in different ways. The Chinese introduced processing of sea cucumber to India more than one thousand years back. The processing method they taught is mainly meant for *Holothuria scabra. Bohadschia marmorata* and *Holothuria spinifera* which have more calcareous material in their bodywall are also processed in the same way like *H.scabra.* The correct method of processing for *Holothuria (Microthele) fuscogilva* is given below. The same method can be used for *Holothuria (Microthele) nobilis* also.

The sea cucumbers are first squeezed assuming that the gut entrails have been eviscerated while putting them in heaps. They are introduced one by one slowly into boiling sea water. Relatively fewer number of teatfish should be handled at a time to give individual care during boiling. Teatfish tends to float as it seals water and air inside. This builds up pressure with rising temperature. The bodywall will break if they are not properly attended. Bloated teatfish are taken and punctured in the mid-dorsal region and put back into the boiling pan for the completion of the cooking process. The sea cucumbers should be stirred frequently using a wooden spatula and boiled for 30-45 minutes. Since the material does not become rubber-like, the bouncing test cannot be applied. The teatfish are removed with a long handled ring net. They are then cooled by placing on a raised platform or wooden plank. They are cut open along the mid-dorsal line, leaving some portions at the anterior and posterior ends. If there remain any visceral portions, they are washed out using lukewarm water. Then the product is again boiled for another 15-20 minutes. The product now shrinks and the bodywall becomes hard. Afterwards they are removed using the ring net and cooled. Wooden splinters of 3-4 cm. long are placed between the cut edges of the dorsal wall to expose the inner portion and are then sun dried on drying platforms.

****

888 Note on *Mercia opima*, a venerid clam from Medha creek, Gujarat

The Medha river flows through the low lying plain lands of Porbander and Jamnagar districts in Gujarat and opens into the Arabian Sea between Harshad and Miani (Fig. 1) Saline

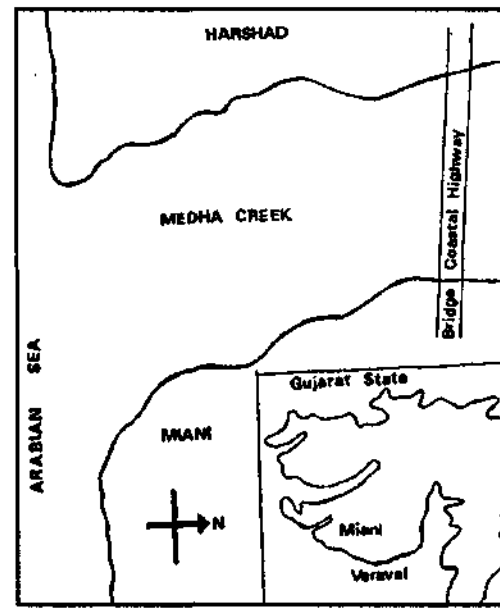


Fig. 1. Sketch map of study area (Medha Creek).