

ON THREE SPECIES OF DEEP-SEA GALATHEID CRUSTACEANS FROM
THE SOUTH-WEST COAST OF INDIA.

ABSTRACT

Three species of galatheid crustaceans, namely, *Munida squamosa* Henderson var. *prolixa* Alcock, *Munida japonica* Stimpson and a new subspecies of *Munidopsis* (*Munidopsis*) *scobina* Alcock were obtained during the exploratory trawling operations carried out by R.V. 'Varuna' along the continental shelf edge and the upper continental slope of the south-west coast of India. Of these, *M. japonica* is reported for the first time from the west coast of India. The new subspecies of *M. (Munidopsis) scobina* is described and its affinities to the typical form discussed.

INFORMATION on the galatheid crustacean fauna of Indian waters is limited to the works of Henderson (1885, 1888), Alcock (1894, 1901), Alcock and Anderson (1894), Anderson (1896), de Man (1902), Lloyd (1905), and Kemp and Sewell (1912). Recently, Tirmizi (1966) has described thirty species and one variety of Galathei-
dae obtained from the Indian Ocean during the 'John Murray' Expedition 1933-34. The present paper deals with galatheids collected during the exploratory cruises of R. V. 'Varuna' along the west coast of India. Three species, two belonging to the genus *Munida* Leach and one to *Munidopsis* Whiteaves, were obtained from trawling operations carried out on the continental shelf edge and upper continental slope off Quilon. Of these, *Munida japonica* Stimpson is recorded for the first time from the west coast of India, and a sub-species, *Munidopsis scobina indica* is described as new.

Family GALATHEIDAE Dana

Sub-Family GALATHEINAE Ortmann

Genus *Munida* Leach

Munida squamosa Henderson var. *prolixa* Alcock

Munida squamosa Henderson var. *prolixa* Alcock, 1894, p. 322; 1901, p. 244-46; Doflein and Bals, 1913, p. 142-43.

Material: 4 ovigerous females [Tl. *—47.0, 48.5, 52.0 (2); c. l. **—19.0, 20.0, 17.0 (2); c.l. +r. ***—22.0 (2), 25.0 (2); ch. l. ****—66.0, 67.0 (3)]; 2 males [Tl.—50.0, 51.0; c. l.—17.0, 17.2; c. l. +r. —22.4, 23.0; ch. l.—80.0 (2).]

*Tl.—Total length from the tip of rostrum to the posterior border of telson. (All measurements are in millimetres).

**c.l.—Carapace length from the orbital border to the posterior margin of carapace.

***c.l. +r.—Carapace length from tip of the rostrum to the posterior margin of carapace.

****ch. l.—Length of cheliped.

Locality : Arabian Sea, off Quilon, 220-360 metres.

Distribution : Arabian Sea, off Ceylon ; Andaman Sea, and Great Nicobar. The present record extends the distribution of the species to further north in the Arabian Sea.

Remarks : The rostrum, the spination on the anterior, lateral and posterior margins and on the gastric and the cardiac regions of the carapace are similar to those described by Alcock (1901). The basal segment of the antennule has 3 spines (Fig. 1a) situated on the outer margin of the segment, the anterior two being long and conspicuous and the posterior one small ; the inner distolateral margin of the segment is pointed. The basal segment of the antenna (Fig. 1b) has a knob-like



Fig. 1 *Munida squamosa* Henderson var. *proluxe* Alcock (a-c)- a. Antennule, b. Antenna, c. Second pleopod of male ; *Munidopsis* (*Munidopsis*) *scobina* Alcock var. *indica* (d-i)—d. Eye and rostrum, e. Antennule, f. Antenna, g. Middle part of third maxilliped, h. First pleopod of male, and i. Second pleopod of male.

process at its internal angle and the anteromedian angle of the same segment is produced into a blunt spine ; the second segment has a small spine on the inner margin and a much longer spine at the distal outer border ; the inner distal angle of the third segment carries a long spine.

The distal margin of the endopod of the second pleopod of male (Fig. 1c) is beset with long hairs.

The eggs carried by the pleopods are spherical, 0.67 to 0.85 mm in diameter and have a narrow perivitelline space.

Munida japonica Stimpson

Munida japonica Stimpson, 1858, p. 252.

Munida japonica Tirmizi, 1966, p. 195-97 (with synonymy); Lewinsohn, 1969, p. 131-32.

Material: 1 female (Tl.—58.0; c.l.—22.0; c. l.+r.—33.0; ch. 1.—47.0); 3 males (Tl.—37.5, 58.0, 64.5; c.l.—14.5, 22.0, 24.0; c.l.+r.—22.5, 33.0, 36.0; ch. 1.—51.0, 62.0).

Locality: Arabian Sea, off Quilon, 350 metres.

Distribution: East Coast of Africa, Zanzibar area, Red Sea, Indian Ocean Is., Malay Archipelago, Japan and Polynesia. This is the first record of the species from the Arabian Sea.

Remarks: In most of the characters, the specimens agree with the general descriptions of the species given by the earlier workers. However, as pointed out by Tirmizi (1966) the number of spines in the transverse gastric row is not constant, varying from 9 to 12.

Sub-Family MUNIDOPSINAE Ortman**Genus *Munidopsis* Whiteaves*****Munidopsis* (*Munidopsis*) *scobina indica* subsp. nov.**

Material: Several specimens of both sexes, females [Tl.—42.0—47.0 (44.0); c. l.—16.5—19.0 (17.5); c. l.+r.—23.5—26.0 (23.5); ch. 1.—36.0—40.0 (38.3)]; males [Tl.—24.5—46.0 (38.8); c. l.—11.0—18.0 (15.7); c.l.+r.—16.0—26.0 (22.3); ch. 1.—27.0—49.0 (41.1)].

Holotype: ♀ Tl.—39.0, c.l.—15.0, c.l.+r.—21.0, ch.1.—33.

Allotype: ♂ Tl.—34.0, c. l.—14.0, c. l.+r.—19.0, ch. 1.—30.0.

Paratypes: ♀ Tl.—47.0, c. l.—19.0, c.l.+r.—26.0, ch. 1.—40.0;

♂ Tl.—40.0, c. l.—15.0, c. l.+r.—21.0, ch. 1.—47.0.

Type specimens (Holotype, female CMFRI No. T. 50/1, Allotype, male CMFRI No. T. 50/2, Paratypes, female and male CMFRI, No. T. 50/3) are deposited in the reference collection of the Central Marine Fisheries Research Institute's Regional Centre, Mandapam Camp.

Locality: Arabian Sea, off Quilon, 180-400 metres.

Description: Body and appendages squamose; rostrum styliform, slightly recurved at tip, extending beyond tip of antennal peduncle; frontal border of carapace slightly oblique with one or two small antennal spines, lateral border with 6-8 spines and entire posterior border armed with 7 to 10 spines (Plate 1); gastric region bears a pair of spines near base of the rostrum, which are followed by a row of 2 or 3 spines along middle line; cardiac region also with 2 or 3 spines in mid-region;

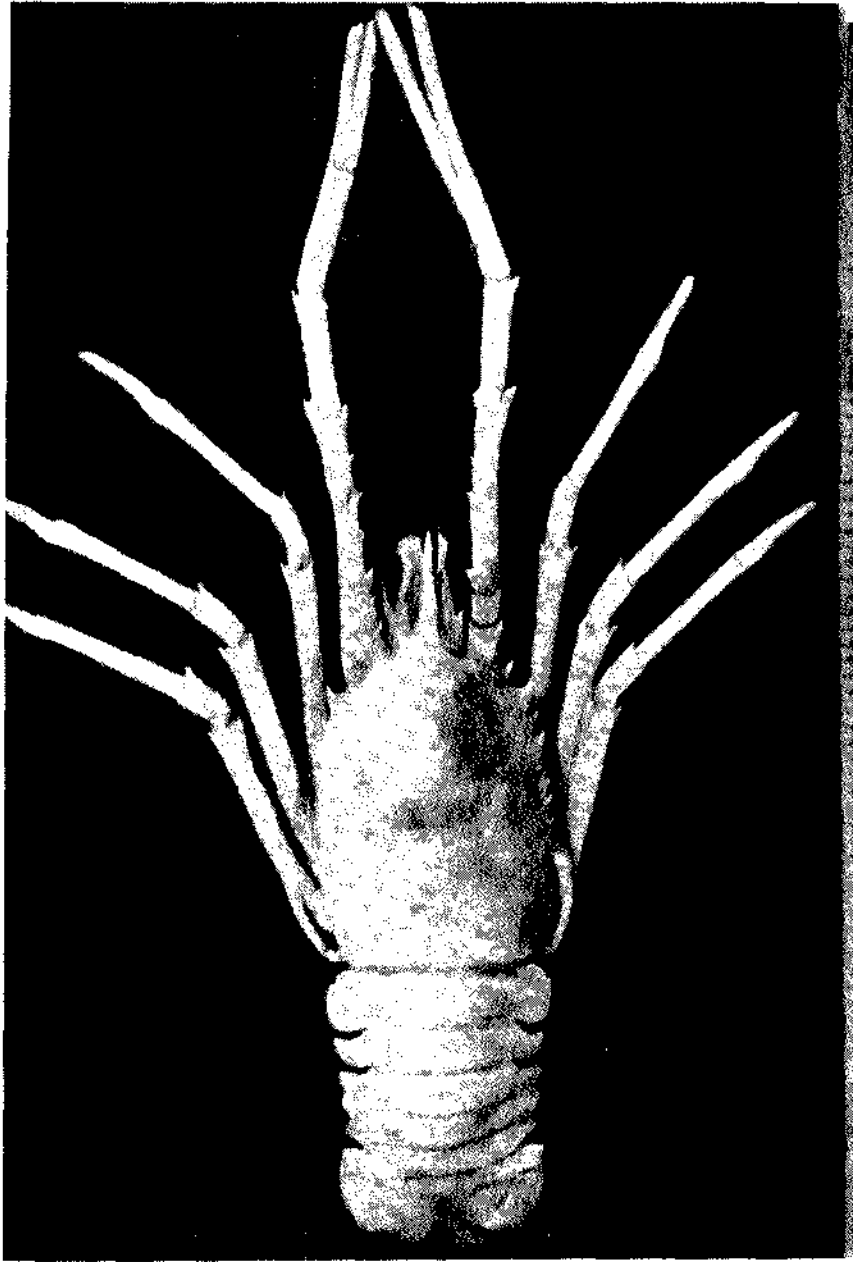


PLATE I. *Munidopsis (Munidopsis) scobina indica* subsp. nov.

numerous tubercles present all over carapace, especially in branchial region where they appear as short transverse ridges; eyes cylindrical with very short and stout stalks (Fig. 1d); basal segment of antennule with 5 spines (Fig. 1e) on distal border — 1 large and 3 smaller spines on dorsal side and 1 large spine on mid ventral margin; in some specimens only 4 spines discernible, median dorsal spine being absent; basal segment of antenna (Fig. 1f) bears a strong and large spine on its inner and 2 smaller spines on its outer lateral angles, second segment with a median spine on its distal margin, third segment provided with 3 or 4 small spines on lateral margin, while distal inner and outer angles are produced into spine-like processes; spine on inner distal angle of ischium of third maxilliped small; inner margin of merus with 3 spines (Fig. 1g); cheliped as long as body in males and slightly shorter in females, granular and with distinct spines (Plate 1); chela with a row of small teeth on cutting edge and as long as propodus; second pereopod reaching middle of propodus of first, third reaching tip of propodus of second or slightly beyond it, fourth reaching tip of propodus of third; posterior margin of dactyl of second to third pereopods with small teeth; fifth pereopod short, propodus and dactylus bent outward and smooth; propodus with a brush of hairs; second to fourth abdominal tergum with an anterior and posterior spinate crest separated by a deep groove in between; anterior spinate crest in second tergum with 9-12 spines, on third 8-11 spines and on fourth 2-7 spines; posterior crest on 2nd tergum with 4-7 spines, third with 3-6 spines and fourth with 1-4 spines; first (Fig. 1h) and second (Fig. 1i) pleopods of males well developed and membranous; second pleopod with a row of setae along the entire outer margin.

Remarks: In the spination of the carapace, the structure of the second, third and fourth abdominal segments and the first and second pleopods of males the new subspecies shows close resemblances to *M. scobina scobina* described by Alcock (1901) and Tirmizi (1966). But it differs from that subspecies in certain distinct characteristics. A comparison of the diagnostic features of these subspecies is given below:

Features	<i>M. scobina indica</i> Subsp. nov.	<i>M. scobina scobina</i> Alcock.
Eye	Cylindrical	Ovoid
Antenna	Distal margin of 2nd segment with a mid-dorsal spine	Distal margins of 2nd and 3rd segments with mid-dorsal spines
Third maxilliped	Inner margin of merus with 3 spines	Inner margins of merus with 2 spines

The important feature by which *M. scobina indica* could easily be distinguished from *M. scobina scobina* is the shape of the eye, in the former subspecies being distinctly cylindrical, whereas in the latter ovoid. In this character, it agrees with the allied species, *M. (Munidopsis) wardeni* Anderson and its variety *M. (M.) wardeni* Anderson *mabahiss* Tirmizi. However, *M. scobina indica* differs considerably from these species in other morphological features. The differences exhibited in the shape of the eye, spination of the peduncles of antennule, antenna and of the third maxilliped amply justify the recognition of a separate subspecies.

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