A new species of Microprosthema Stimpson, 1860 (Crustacea: Decapoda: Stenopodidea: Spongicolidae) from the South China Sea

QIWU JIANG¹, ² & XINZHENG LI¹, ³
¹Institute of Oceanology, Chinese Academy of Sciences, Qingdao 266071, China
²Graduate University, University of Chinese Academy of Sciences, Beijing 100039, China
³Corresponding author. E-mail: lixzh@qdio.ac.cn

Abstract

A new species of the spongicolid genus Microprosthema Stimpson, 1860 is described based on two specimens collected from Shi Island, Xisha Islands, South China Sea. The type specimens were collected within a sponge, representing an unusual habitat for the genus. M. personatum sp. nov. is easily distinguished from its closest congeners, M. takedai and M. fujitai, by its convex supraocular eaves and the number of teeth on the scaphocerite. A key to the Indo-West Pacific species of Microprosthema is given.

Key words: Microprosthema, Spongicolidae, Stenopodidea, Indo-West Pacific, South China Sea, Xisha Islands, Shi Island, new species

Introduction

The spongicolid genus Microprosthema Stimpson, 1860 is an unusual group in the family Spongicolidae because of its distinct habitats and morphological characters. With the exception of the genus Microprosthema, genera in the family Spongicolidae are associated with deep-sea hexactinellid sponges, and are characterized by reduced body and appendage armature (Saito, 2008). Species of the genus Microprosthema, however, are free-living, inhabiting shallow waters such as coral and rocky reefs, rubble flats, and adjacent seagrass beds (Saito & Anker, 2012; Goy & Martin, 2013). Microprosthema is characterized by the presence of a well-developed exopod on the third maxilliped, carapace armed with small spines, and males having ventral spines on each abdominal pleuron (Holthius, 1946)—features all shared with members of the family Stenopodidea. These ecological and morphological characteristics suggest the genus represents an early-derived lineage within Spongicolidae.


While we were sorting through stenopodidean shrimp material from Chinese waters, two specimens collected from shallow waters around Shi Island, in the Xisha Islands (Paracel Islands) of the South China Sea, were separated out and diagnosed as representing an undescribed species of the genus Microprosthema. In this study, the species is described as new to science. It represents the seventh species of the genus from the Indo-West Pacific. The type specimens are deposited in the Marine Biological Museum, Chinese Academy of Sciences (MBMCAS) and at the Institute of Oceanology, Chinese Academy of Sciences, Qingdao (IOCAS).

The postorbital carapace length (cl, in mm) is measured from the posterior margin of the orbit to the midpoint of the postero dorsal margin of the carapace. The term ‘tooth’ is used for fixed, acute, marginal projections (e.g., rostrum, uropod), while ‘spine’ mainly refers to fixed, sharp projections arising from the surface of the carapace,
Type locality. Shallow waters around Shi Island, Xisha Islands, South China Sea.

Habitats. The two specimens were collected in shallow waters around Shi Island. Based on the original record, they were associated with a sponge, along with a snapping shrimp species of the genus Alpheus.

Remarks. The new species Microprosthema personatum most closely resembles the Indo-West Pacific species M. takedai and M. fujitai. The new species is unique in the genus, however, in having convex supraocular eaves. This feature is probably an adaptation to its unusual habitat. In addition, M. personatum differs from M. takedai in the following characters: (1) in females, lateral margins of abdominal somites are spineless in M. personatum, but such margins are spiny in M. takedai; (2) scaphocerite bears fewer teeth in M. personatum than in M. takedai (5 versus more than 6); (3) propodus of third maxilliped bears fewer spines in M. personatum than in M. takedai (2 versus 3); (4) carpi of fourth and fifth pereiopods bear 3 spines ventrally in M. personatum, whereas spines are absent in M. takedai. Microprosthema personatum also differs from M. fujitai in several characters, as follows: (1) in females, lateral margins of abdominal somites are round and spineless in M. personatum, but such margins are sharp and spiny in M. fujitai; (2) propodus of third maxilliped bears fewer spines in M. personatum than in M. fujitai (2 versus 3); (3) carpi of fourth and fifth pereiopods bear 3 spines ventrally in M. personatum, whereas no spines are present in M. fujitai; (4) propodi of fourth and fifth pereiopods bear fewer movable spines in M. personatum than in M. fujitai (about 12 versus about 20). In the new species M. personatum, no spines were found on the sixth somite in either male or female. Spines on the sixth somite are regarded as a variation between sexes in M. semilaevae Goy & Martin, 2013, but are an important diagnostic character in M. fujitai Saito & Okuno, 2011.

Key to the Indo-West Pacific species of Microprosthema

1. Carapace densely covered with numerous spines; scaphocerite narrow, oblong .................................................. 2
   - Carapace covered with few or no spines; scaphocerite semicircular .............................................................. 4
2. First to sixth abdominal somites with rows of blunt spines ................................................................. M. scabricaudatum
   - First to sixth abdominal somites without spines or only with rows of spines on sixth somite ............................. 3
3. Third, fourth, and fifth abdominal somites with median longitudinal carinae ................................................... M. validum
   - Third, fourth, and fifth abdominal somites without median longitudinal carinae ........................................... M. plumicorne
4. Carapace without spines; fourth pereiopod without epipod ................................................................. M. lubricum
   - Carapace with a few small and large spines; fourth pereiopod with epipod ....................................................... 5
5. Sixth abdominal somite with short transverse row of spines .............................................................. M. takedai
   - Sixth abdominal somite without short transverse row of spines .............................................................. 6
6. Six or more teeth on scaphocerite; supraocular eaves concave ................................................................. M. personatum sp. nov.
   - Five teeth on scaphocerite; supraocular eaves convex ................................................................. Microprosthema granatense

Acknowledgements

We sincerely thank Tomomi Saito (Kochi University, Japan) who helped us check detailed morphological characters of species Microprosthema takedai and M. fujitai. This work was supported by funding from the National Natural Science Foundation of China (nos. 41376163 and 30499340) and the IOCAS (no. 2012IO060105).

References

http://dx.doi.org/10.2307/1549446


http://dx.doi.org/10.1080/00222938800770781


