



<http://dx.doi.org/10.11646/zootaxa.3784.5.6>

<http://zoobank.org/urn:lsid:zoobank.org:pub:965915E1-8AFC-42B0-8057-1A54D0348D47>

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

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### 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 Stenopodidae. These ecological and morphological characteristics suggest the genus represents an early-derived lineage within Spongicolidae.

Presently, *Microprosthema* includes 13 species: 6 from the Indo-West Pacific—*Microprosthema validum* Stimpson, 1860, *M. plumicorne* (Richters, 1880), *M. scabricaudatum* (Richters, 1880), *M. fujitai* Saito & Okuno, 2011, *M. lubricum* Saito & Okuno, 2011, and *M. takedai* Saito & Anker, 2012; 1 from the Eastern Pacific—*M. emmiltum* Goy, 1987; and 6 from the Western Atlantic—*M. semilaeve* (von Martens, 1872), *M. looensis* Goy & Felder, 1988, *M. manningi* Goy & Felder, 1988, *M. inornatum* Manning & Chace, 1990, *M. granatense* Criales, 1997, and *M. tortugasensis* Goy & Martin, 2013.

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 posterodorsal 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 pereopods 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 pereopods bear 3 spines ventrally in *M. personatum*, whereas no spines are present in *M. fujitai*; (4) propodi of fourth and fifth pereopods bear fewer moveable 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. semilaeve* 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	<i>M. scabricao datum</i>
-	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	<i>M. validum</i>
-	Third, fourth, and fifth abdominal somites without median longitudinal carinae	<i>M. plumicorne</i>
4	Carapace without spines; fourth pereopod without epipod	<i>M. lubricum</i>
-	Carapace with a few small and large spines; fourth pereopod with epipod	5
5	Sixth abdominal somite with short transverse row of spines	<i>M. fujitai</i>
-	Sixth abdominal somite without short transverse row of spines	6
6	Six or more teeth on scaphocerite; supraocular eaves concave	<i>M. takedai</i>
-	Five teeth on scaphocerite; supraocular eaves convex	<i>M. personatum</i> sp. nov.

### 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).

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