

**A new Species of the Galatheidean Crustacea  
from the Ryukyu Islands (Decapoda, Anomura)**

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**A new Species of the Galatheidean Crustacea  
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Aberrant forms among the large *Galathea* were reviewed in the previous paper (BABA, 1969), in which *Sadayoshia*, showing an intermediate stage between *Galathea* and *Munida*, is described to comprise two species of *S. miyakei* BABA and *S. quinquispinosa* DOFLEIN & BALSS. In the meantime two others have been called attention to me with the advice of Dr. J. HAIG, i.e. *Galathea balica* BOONE and *Munida edwardsi* MIERS, both of which must also be transferred into *Sadayoshia*.

In 1971, while collecting crustaceans on the reefs of Ishigaki-jima, one of the Ryukyus, a comparatively large galatheid was found among branches of a coral. On examination the specimen proved to be referable to an undescribed species of *Sadayoshia*, which bears a close resemblance to *S. balica* (BOONE) known only from the type locality, Bali, Indonesia.

The type specimen will be retained in the Biological Laboratory, Faculty of Education, Kumamoto University.

I wish to thank Mr. S. SHOKITA of the Fisheries Research Laboratory of the Ryukyus, Ishigaki, for the use of facilities, and Dr. J. HAIG of the Allan Hancock Foundation, University of Southern California, for useful information on the genus *Sadayoshia*.

***Sadayoshia acroporae* sp. nov.**

(Figs. 1, 2)

*Material.*— 1 ♂ (holotype), Kabira, Ishigaki-jima, Ryukyu Islands, February 21, 1971, K. Baba coll.

*Description of holotype.*— The rostrum is stout and sharp, the dorsal surface is scaly with short fine setae. Two lateral spines cover the eye, both scaly dorsally; the distal of them exceeds the eye, and is slightly directed outwards; the proximal spine is short and small, locating just on the eyestalk. The dorsal surface of the rostrum is hollowed longitudinally between the rostral and the lateral teeth. The outer orbital angle is rounded and unarmed.

The carapace, excluding the rostrum, is slightly shorter than wide. The dorsal surface is markedly strigose. In front of the distinct cervical groove are seven transverse striae fringed with very fine setae anteriorly directed, the anterior three of which are produced forwards; the anteriormost of the striae bears four pairs of spines which progressively become smaller outwards; the innermost pair is located behind the angle made by the rostral and the distal lateral spine (supraorbital spine), and the outermost behind midway between the outer orbital angle and the proximal spine of the rostrum. One pair of small spines are present on either extremity of the anterior second stria. Behind the cervical groove there are four complete transverse ridges, between these are broken and incomplete striae. On the anterior branchial region are three short striae, the intermediate of which internally bears a small but sharp spine; behind this is a similar

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spine placed on the first complete transverse ridge. The dorsal surface of the carapace is sparsely furnished with coarse setae as seen in the accompanying figure, in addition to the usual fine setae on the transverse ridge. The lateral margin of the carapace is toothed; in front of the cervical groove are two spines, one of which is stout, anterolaterally placed; the other spine is very small, placed behind the anterior spine and slightly dorsal in position. Five acute teeth protect the anterior half margin of the branchial region. Between the hindmost teeth the greatest breadth is measured.

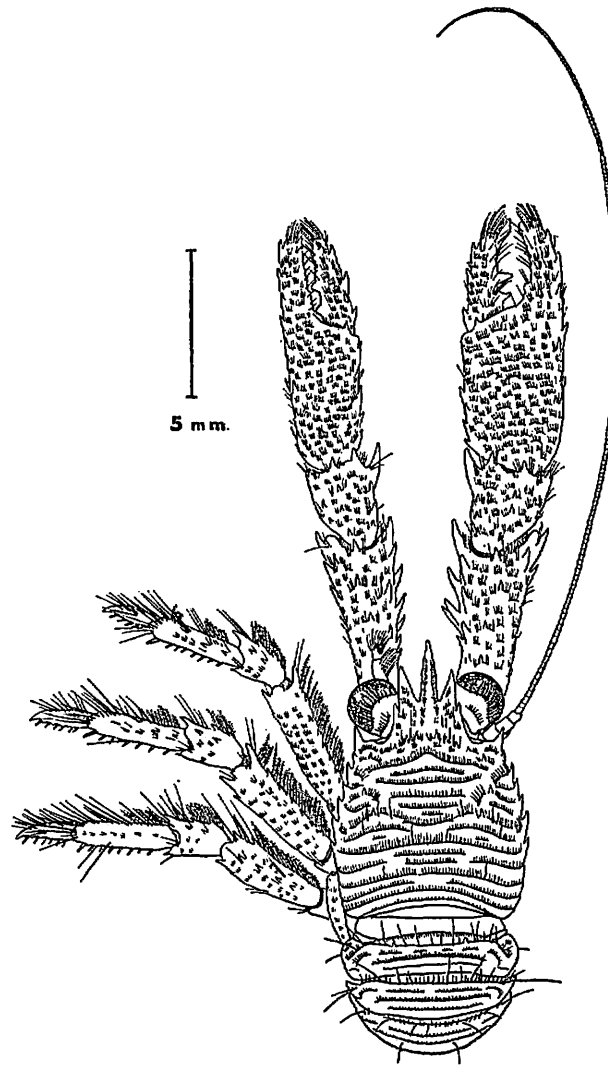


Fig. 1. *Sadayoshia acroporae* sp. nov., holotype, male, dorsal.

The first abdominal segment is narrower and shorter than the following segment; posteriorly it bears a transverse ridge with very fine setae, all directed posteriorly; there is a tooth-like epimera posterolaterally. The second segment has a deep transverse groove at the middle, the posterior edge of which provides fine setae anteriorly directed; anterior to this is a strong stria with one pair of spines. Between these striae there is also

a broken transverse ridge, and likewise another fainter ridge runs between the median transverse groove and the posterior margin. The third segment is similar to the second, but without dorsal spine. All the transverse ridges of the anteriormost of the abdominal segments bear coarse setae sparsely, in addition to the usual fine setae.

The eye is large, the cornea being somewhat wider than the stalk, not swollen as in *Munida*, and covered with setae which do not exceed the corneal margin.

The antennular basal segment is stocky, with four terminal spines; the innermost is small; the outermost is the longest, dorsally upturned, with coarse setae laterally directed, and it exceeds the proximal rostral tooth (supraorbital spine); the other two spines are medially placed, and seen to be laid to overlap each other from a ventral view, but the ventral spine is the shorter. The antennal peduncle consists of four segments; the proximal has an internal spine anteriorly directed; the proximal second has an inner and an outer distal marginal spine, but the third and fourth are unarmed; the flagellum exceeds the tip of the cheliped.

The endopod of the third maxilliped reaches to the rostral tip. The ischium is shorter than the merus, with a stout inner terminal tooth, the inner toothed ridge having 28 denticles. The merus bears two teeth internally, one placed distally is small, and the other is well developed and located slightly close to the proximal rather than on the middle; between these two spines is a very minute spiniform projection observed only under high power of magnification. The outer margin is quite smooth.

The sternite of the third maxilliped is feebly produced forwards, and has the anterior margin with about five pairs of blunt teeth, the innermost of which is marked. The following segment bears an anteriorly produced broken stria and a complete one on the ventral surface; the anterior margin is V-shaped.

The chelipeds are equal in length and spinulation but dissimilar, depressed, scaly dorsally and about twice as long as the carapace; the right cheliped is the broader. The arm is cylindrical and particularly spinous internally; the outer margin has two rather stout spines distally; a row of spines is placed longitudinally on the dorsal surface. The wrist is half the length of the palm, dorsally and marginally spinous; these spines are lined up longitudinally, of which the internal distal marginal spine is strongly developed. The palm is depressed, less than twice as long as broad, with several marginal spines. An anteriorly placed dorsal spinule is lacking in the left cheliped. A single small spine is located on the anterior margin, which protrudes above the movable finger. The fingers are stout, moderately gaping, truncated distally and particularly setose terminally. The outer side of the movable finger bears three spines, and the inner margin two large teeth on the proximal half, of which the distal tooth is the larger in the right cheliped but of equal size in the left. The distal half of the inner margin is minutely dentate. The movable finger likewise has three outer marginal teeth but is minutely dentate along the whole length of the inner margin.

The walking legs are stout, depressed, scaly and setose. The first leg anteriorly bears plumose fine setae thickly, except for the dactylus, among which several coarse setae are present and sometimes iridescent. The merus bears on the anterior margin 9-10 spines, the anteriormost being the largest; two spines are also located on the posterior distal margin; the dorsal surface is scaly, each scale with very fine setae. The carpus is half the length of the propodus, and bears three spines on the anterior margin, a single spine on the posterior distal margin, and two spinules on the dorsal surface. The propodus is twice as long as the dactylus, with two distinct spines on the proximal third of the dorsal surface; the posterior margin possesses 8 mobile slender spines, the distal of which is the largest and makes a pair with another smaller spine located slightly ventrally. The dactylus is particularly setose and terminates curving inwards; the posterior margin is largely

serrate with 6 broad setae or bristles. The second leg is very similar to the first, excepting that the meral anterior margin bears 7 spines and the propodal posterior margin also 7. The third leg is shorter than the anterior two, and very similar to in shape. The only difference is the spinulation of the merus; this bears two anterior marginal spines distally, four dorsal and a single posterior marginal spine distally placed.

Epipods are absent from all pereiopods.

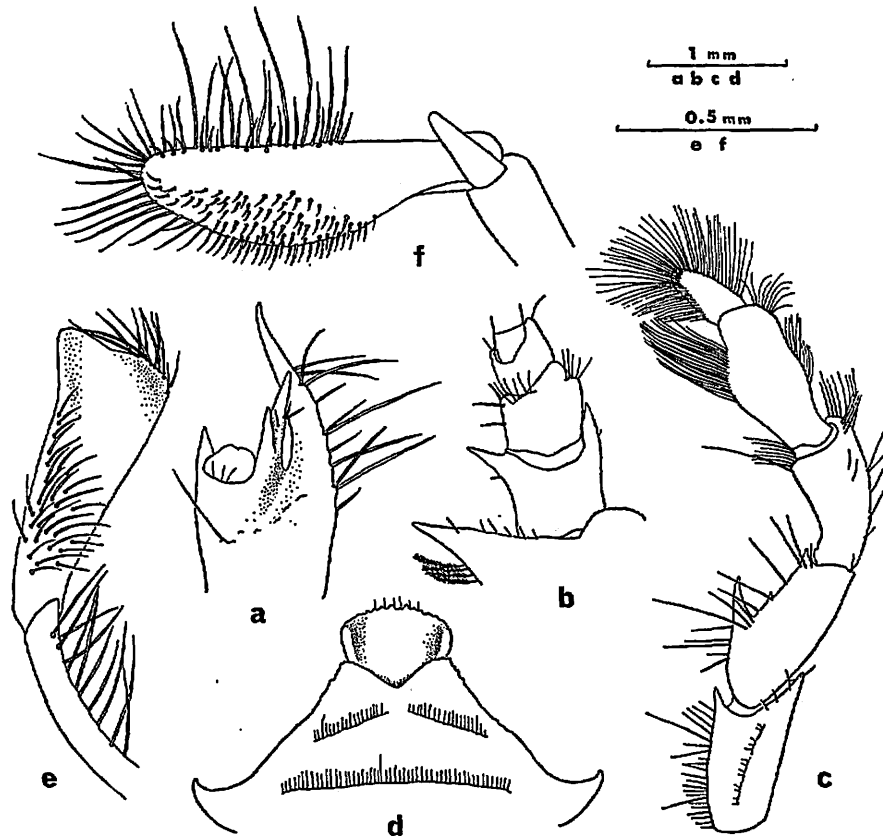


Fig. 2. *Sadayoshia acroporae* sp. nov., holotype. a, right antennular basal segment, ventral; b, right antennal peduncle, lateral; c, endopod of right third maxilliped, lateral; d, anterior part of sternal segments, ventral; e, distal part of right first pleopod, dorsal; f, distal part of right second pleopod, ventral.

The endopod of the first pleopod is elongate, and somewhat broad medially; the anterior and terminal margins are with long coarse setae, but the posterior margin and the posterior half of the ventral surface with short setae. The second pleopod is smaller than the first; the endopod is as represented in the accompanying figure; it is feebly pushed downwards from a dorsal aspect; both the posterior half of the terminal margin and the anterior part of the dorsal surface are furnished with long setae.

*Colour in life.*— The animal is light brown in ground colour. The carapace has three broad bands of dark orange running transversely, the one anterior to the gastric row of spines, the second occupying the surface between the anterior branchial regions and the third of the posterior half of the area between the posterior branchial regions.

The second abdominal segment is dark orange, marginally and anteriorly and also around the dorsal spines. The third and fourth segments are wholly brownish orange. The cheliped is brownish, with marked bands of dark brown both on the proximal and the distal portions. The walking legs are light brown in ground colour, with dark brown bands on the distal and proximal areas of the merus, the middle of the carpus, and the central one-third area of the propodus. The distally placed band of the merus is indistinct in the third leg. The eyestalk is light orange, the corneal region purple.

*Habitat.*— This was obtained among the branches of the scleractinian coral, *Acropora humilis*. The coral concerned was compared with a series of coral specimens kept in the Fisheries Research Laboratory of the Ryukyus, Ishigaki, the identification of which was made by Prof. S. KAWAGUCHI of Okayama University.

*Measurements (in mm).*—

Length of carapace including rostrum	9.0
Breadth of carapace	6.3
Length of cheliped	20.3
Length of wrist	2.9
Length of palm	5.6
Breadth of palm	3.3
Length of movable finger	3.9

*Remarks.*— This is very related to *Sadayoshia balica* (BOONE) from which it differs in the following respects: 1) The second abdominal segment bears two spinules dorsally in the present instead of four in *S. balica*. 2) The cheliped palm is spined dorsally in *S. balica*, whereas it is scaly and without spines in *S. acroporae* sp. nov. It is very often to be observed that the cheliped is spinose dorsally in the younger stage and grows up to be scaly instead of spinose in a certain species of the Galatheidae. BOONE (1935) described the species to be young, measuring ca. 10 mm in carapace length. Contrary to this the type specimen of the new species seems to be a fully developed adult male, with the same length to BOONE's specimen. It is therefore very possible that comparison of the chelipeds of these two species is justified. 3) The propodus of the walking leg bears 5–6 spines posteriorly in *S. balica*, but 7–9 in *S. acroporae* sp. nov.

For the sake of convenience the key to all the species referable to this genus is given.

Key to the species of *Sadayoshia*

1. Cheliped depressed; anteriormost stria of carapace with more than eight spines ..... 2  
— Cheliped cylindrical; anteriormost stria of carapace with two stout spines only ..... *S. quinquispinosa*
2. Second abdominal segment without dorsal spines; propodus of walking leg with two spines dorsally ..... 3  
— Second abdominal segment with dorsal spines; propodus of walking leg without dorsal spines ..... 4
3. Dactylus of walking leg tridentate internally; antennular basal segment with four spines ..... *S. edwardsi*  
— Dactylus of walking leg serrated with about six mobile setae; antennular basal segment with five spines ..... *S. miyakei*
4. Second abdominal segment with two dorsal spines; dorsal surface of cheliped palm without a row of spines; propodus of walking leg with 7–9 posterior marginal spines ..... *S. acroporae*  
— Second abdominal segment with four dorsal spines; dorsal surface of cheliped palm with a longitudinal row of spines; propodus of walking leg with 5–6 posterior marginal spines .... *S. balica*

As far as the geographical distribution is concerned all species are known from the Indopacific; *Sadayoshia quinquespinosa* (DOFLEIN & BALSS) from Great Nicobar Island, *S. balica* (BOONE) from Bali, *S. edwardsi* (MIERS) from Ile des Neufs, Indian Ocean, *S. miyakei* and *S. acroporae* both from S. Japan. Bathymetrically *S. quinquespinosa* is obtained from somewhat deeper waters of about 300 m where *Munida* species commonly occur, but the other four inhabit rather shallow waters from coral reefs to 40 m in depth where *Galathea* species are most abundant. This fact seems to some extent to be associated with the grouping of the members of *Sadayoshia*, *Munida*-like and *Galathea*-like.

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