

Special Issue for Prof. Jacques Forest

FIRST RECORD OF *MUNIDOPSIS ACUTISPINA* BENEDICT, 1902
(DECAPODA, ANOMURA, GALATHEIDAE)
IN THE MEDITERRANEAN SEA

BY

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ABSTRACT

The minute squat lobster *Munidopsis acutispina* Benedict, 1902 is recorded for the first time from bathyal grounds in the Mediterranean Sea. It can easily be distinguished from the two species of *Munidopsis* previously known from the Mediterranean, for the surface of the carapace covered with squamous spiniform tubercles. As the available illustrations of *M. acutispina* are somehow inadequate, the species is briefly redescribed and illustrated based on the new material and compared with its closest relatives, that are found in the western Atlantic and eastern Pacific Oceans.

RÉSUMÉ

L'espèce *Munidopsis acutispina* Benedict, 1902 est signalée pour la première fois de l'étage bathyal de la Méditerranée. Elle se distingue facilement des deux autres espèces de *Munidopsis* connues auparavant de Méditerranée par la surface de la carapace couverte de tubercules squameux spiniformes. Dans la mesure où les illustrations disponibles pour *M. acutispina* sont sommaires, l'espèce est brièvement redécrite et illustrée d'après le nouveau matériel et comparée avec les espèces les plus proches de l'Atlantique occidentale et du Pacifique oriental.

INTRODUCTION

The deep sea fauna of the Mediterranean Sea appears impoverished when compared to that of the nearby temperate eastern Atlantic (Carpine, 1970). This situation is a result of past tectonic events (Maldonado, 1985) and present exchange of water masses between the two basins at the Strait of Gibraltar (Hopkins, 1985).

The galatheid genus *Munidopsis* Whiteaves, 1874 includes over 150 species, distributed on the continental slopes and abyssal plains of the world oceans. No less than 20 species are known from the eastern subtropical and temperate Atlantic (Miyake & Baba, 1970; d'Udekem d'Acoz, 1999), but for a long time only a single species, *Munidopsis marionis* (A. Milne-Edwards, 1882), has been known from

the Mediterranean Sea. This species was collected only twice after its original description (Carpine, 1970; Galil & Goren, 1994). Abelló & Valladares (1988) reported, for the first time, the capture off the Catalan coast of a juvenile of *Munidopsis serricornis* (Lovén, 1853) [synonym: *Munidopsis tridentata* (Esmark, 1857)], an apparently cosmopolitan species (Baba, 1988). The presence of the last mentioned species in the Catalan Sea was confirmed a few years later by Cartes (1993).

In 1989 one of us (M.M.) found a third species of *Munidopsis* in material collected in the Gulf of Cagliari (Sardinia) with an experimental otter trawl (cod-end lined with a 5 mm mesh netting). Unfortunately, the single specimen was devoid of all but one (i.e., the 5th) pereopods and its carapace was partly broken. Three years later an almost complete specimen (missing the left cheliped only) of the same species was found in a small sample of decapods collected on bathyal grounds off western Sardinia, in the framework of the research project "De Profundis" (Bonfitto et al., 1994). The species has now been definitively identified as *Munidopsis acutispina* Benedict, 1902.

The present species was first described by A. Milne-Edwards & Bouvier (1894) as *Munidopsis aculeata*. However, *M. aculeata* being a junior homonym of *Munidopsis subsquamosa* var. *aculeata* Henderson, 1888, Benedict (1902) proposed the replacement name *Munidopsis acutispina*.

As the only available illustrations, i.e., those accompanying the redescription of this species by A. Milne-Edwards & Bouvier (1900), are rather inadequate, we take the opportunity to provide herein a redescription and illustrations of *M. acutispina*, based on our Mediterranean material. These specimens are deposited in the Reference Collection of the Istituto di Ricerche sulla Pesca Marittima, Ancona.

This small contribution to the knowledge of the Mediterranean decapod fauna is our tribute to Prof. Jacques Forest, who, during his long scientific career, made seminal contributions to the knowledge of the Decapoda Anomura.

***Munidopsis acutispina* Benedict, 1902 (figs. 1-2)**

Munidopsis acutispina Benedict, 1902: 315 (replacement name for *Munidopsis aculeata* A. Milne-Edwards & Bouvier, 1894, homonym of *Munidopsis subsquamosa* var. *aculeata* Henderson, 1888). — Doflein & Balss, 1913: 175, 177 (listed). — Miyake & Baba, 1970: 93 (listed). — d'Udekem d'Acoz, 1999: 166 (listed).

Munidopsis aculeata A. Milne-Edwards & Bouvier, 1894: 275 (original description) (off Cape Bojador, northwestern Africa, depth 698 m). — A. Milne-Edwards & Bouvier, 1899: 82, 97 (new record; off Azores, depth 845 m). — A. Milne-Edwards & Bouvier, 1900: 327, pl. 31 figs. 1-4 (redescription and illustration).

Material examined. — Western Tyrrhenian Sea, Sardinia, off Punta D'Ottiolu [40°43.54'N 9°54.58'E (start), up to 40°43.77'N 9°54.27'E (end); depth 571-374 m], epibenthic dredge, 11

August 1991, station DP91-4, 1 male, carapace length (including rostrum) 8.0 mm (IRPEM-D1879). — Southern Sardinia, off Capo Carbonara [38°53.42'N 9°26.78'E (start), up to 38°57, 23'N 9°32.70'E (end), depth 995-1036 m], otter trawl, 26 June 1989, 1 female, carapace length 6.6 mm (IRPEM-D1880).

Description. — Rostrum triangular, feebly directed ventrad, dorsally carinate, 0.30 as long as post-rostral carapace (fig. 1a). Carapace subrectangular (fig. 1b), greatest width at about midlength; dorsal surface covered with squamous tubercles, mostly with bispinose tip, arranged in irregular transverse rows. Front margin with acute antennal spine larger than anterolateral spine; small spine ventral to front margin between eyestalk and antennal peduncle, not visible in dorsal view in the Mediterranean specimens; lateral margins behind cervical groove armed with 4 sharp spines, 4th the smallest; gastric region with transverse row of 6 large spinose tubercles; cardiac region well defined, with wide groove just anterior to the area; anteriorly with 4 squamose tubercles tipped with sharp spine each.

Posterior margin ridged, armed with 14 forward-pointing sharp spines.

Epimeral plate granulated, anteriorly pointed.

Sternal surface smooth; third thoracic sternite broader than long, with anterior margin crenulate (fig. 1c).

Abdomen devoid of spines and tubercles, second and third abdominal somites with two transverse ridges, fourth somite with one smaller ridge (fig. 1a, b), ridges bordered anteriorly with short setae, no ridges on the following somites.

Telson consisting of 7 platelets (fig. 1d). Endopods of uropods with outer border very finely denticulate.

Eyes large, eyestalk very short, with small eyespine emerging from centre of dorsal surface.

Basal segment of antennular peduncle armed anteriorly with two lateral spines (fig. 2a), the anterolateral being the strongest.

Basal segment of antennal peduncle with sharp distolateral spine, second segment with acute distolateral spine and blunt distomesial tubercle, third article produced distomesially and with triangular lateral spine (fig. 2b).

Ischium of third maxilliped slightly shorter than merus, greatly produced at distodorsal and distomesial margin; mesial ridge with 20 denticles. Merus (fig. 2d) with 4 mesial marginal spines, 2 distalmost small, 2 proximal very strong; dorsal margin with 2 minute spines, more developed in male (fig. 2e), and a sharp spine on distodorsal edge.

Chelipeds long and slender (fig. 2i-k), overreaching tip of rostrum at midlength of merus, ischium with strong outer distal spine; rows of spines of different size along mesial, dorsal, and outer surface of merus and carpus, distalmost the largest; carpus about half the length of merus, with 4 distal spines and rows of spines as figured; palm 4 times as long as wide, 1.4 times as long as dactylus, mesially armed

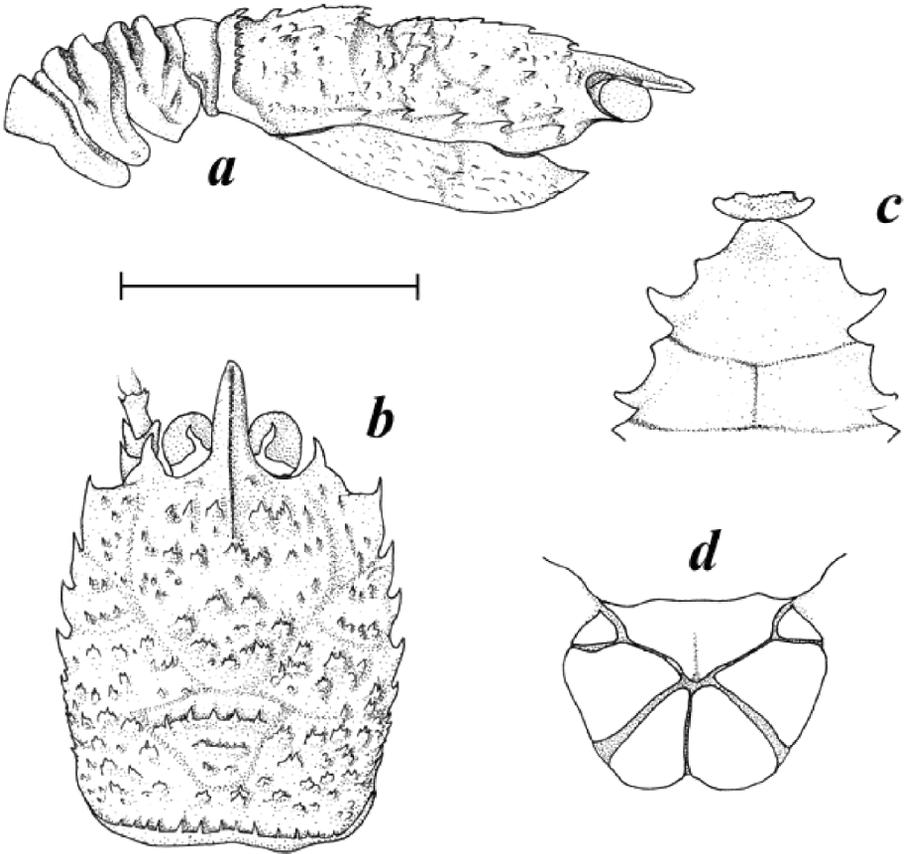


Fig. 1. *Munidopsis acutispina* Benedict, 1902, a-b, male (IRPEM-D1879); c-d, female (IRPEM-D1880). a, carapace and anterior abdominal somites, lateral view; b, carapace, dorsal view; c, anterior sternites; d, telson platelets and posterior margin of 6th abdominal somite. Scale bar = 5 mm.

with a row of 12 spines of different size. Cutting edges of chela almost straight, crenulate, that of propodus with a larger tooth at midlength, tip of propodus bifid, lodging tip of dactylus.

Merus and carpus of first to third ambulatory legs slightly crested (fig. 2g), armed with row of spines on dorsal margin, distal spine more developed, and two rows of acute tubercles on outer surface; propodus with one row of tubercles on outer surface and an articulate spine on ventral margin; dactylus about half the length of propodus, armed on the lower margin with minute articulate spines (fig. 2f).

Merus of fifth pereopod triangular in section, with outer margin denticulate (fig. 2h).

No epipods on chelipeds and walking legs.

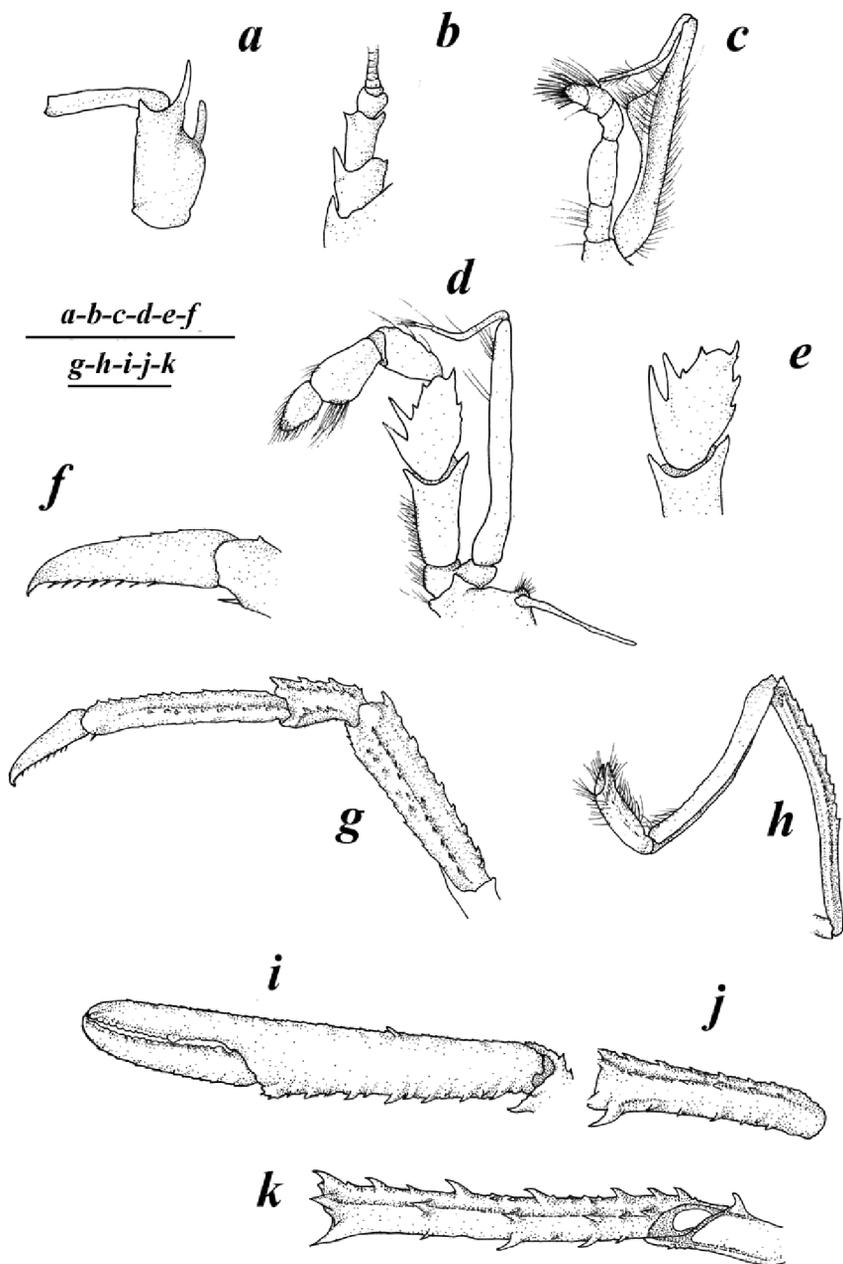


Fig. 2. *Munidopsis acutispina* Benedict, 1902, a-d, h, female (IRPEM-D1880); e-g, i-k, male (IRPEM-D1879). a, antennular peduncle, side view; b, left antennal peduncle, dorsal view; c, 2nd maxilliped; d, 3rd maxilliped; e, merus of 3rd maxilliped; f, dactylus of 3rd pereiopod; g, 3rd pereiopod; h, 5th pereiopod; i, chela of right cheliped; j, carpus of right cheliped; k, merus and ischium of right cheliped. Scale bars = 2 mm.

Habitat. — The female was collected with an otter trawl on bathyal muds at depths of 1000 m and was associated with the decapods *Aristeus antennatus* (Risso, 1816), *Pontophilus norvegicus* (M. Sars, 1861), and *Bathynectes maravigna* (Prestandrea, 1839). The male was obtained at shallower depths (374–571 m) with an epibenthic dredge that recovered muddy sediments together with numerous slabs of porous limestone, heavily encrusted with epibenthic organisms like *Spondylus gussoni* O. G. Costa, 1829 (cf. Bonfitto et al., 1994); at the same station a specimen of *Munidopsis marionis* was also collected.

DISCUSSION

Munidopsis acutispina can be differentiated immediately from the two species of *Munidopsis* previously known from the Mediterranean Sea, by: (1) its narrow triangular rostrum (compared to *M. serricornis*, which has a flat rostrum, distally armed with 2 lateral spines); (2) its spinous tuberculate dorsal carapace surface (compared to *M. serricornis* and *M. marionis*, both with unarmed surface).

The newly found species is closely related to a group of species reported from the western Atlantic and eastern Pacific, characterized by a narrow triangular rostrum, antennal spines on the anterior margin of the carapace, long spiny chelipeds, and the absence of epipods on the pereopods.

M. acutispina differs from the western Atlantic *Munidopsis penescabra* Pequegnat & Williams, 1995 in that the merus of the third maxilliped has 4 spines on the mesial margin, compared to 2 in *M. penescabra*, and in that the lateral margin of the carapace has only 4 lateral spines behind the cervical groove, instead of 5–6 in *M. penescabra*.

The other species with close resemblance to *M. acutispina* in the western Atlantic are *M. kucki* Baba & Camp, 1988 and *M. sharreri* (A. Milne-Edwards, 1880), but it may be distinguished by the telson divided in 7 platelets, as compared to 8 in *M. kucki* and *M. sharreri*; the posterior carapace ridge armed with 14 spines (unarmed in *M. kucki*); and by the second and third abdominal somites bearing two cristate transverse ridges (only one transverse ridge in *M. sharreri*).

The closest relatives to *M. acutispina* apparently are the West Pacific species *M. tanneri* Faxon, 1893 and *M. scabra* Faxon, 1893. Comparison with a male syntype of *M. tanneri*, deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM 21315) established that the Mediterranean specimens of *M. acutispina* can be differentiated by the presence of 4 spines on the lateral margin of the carapace (3 in *M. tanneri*) and more developed spines on the hind margin of the carapace. The merus of the third maxilliped is armed with 2 long basal and 2 small distal spines on the mesial margin, whereas 3 spines, decreasing in size from basal to distal, were observed in *M. tanneri*.

M. scabra separates for the higher number of spines (8-10) on the lateral margin of the carapace and for the reduced development of antennal spines (Faxon, 1895).

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