

# New data on the genus *Jassa* Leach (Amphipoda, Ischyroceridae)

## Nuevos datos del género *Jassa* Leach (Amphipoda, Ischyroceridae)

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**Palabras clave:** *Jassa trinacriae* n.sp., Ischyroceridae, Sicilia.

### ABSTRACT

Two small ischyrocerid amphipods were found in quite unusual habitats: one in thermal water of Sardinia, the other in a Sicilian cave 175 m above sea level. As the first is represented by only a single immature specimen, it is illustrated and described, without receiving a name; the second one could be fully described as a new species *Jassa trinacriae*.

### RESUMEN

Se encontraron dos pequeños ischyrocéridos en hábitats bastante inusuales: uno en aguas termales de Cerdeña y el otro en una cueva de Sicilia, a 175 m sobre el nivel del mar. Como el primero estuvo representado sólo por un ejemplar inmaduro, se ilustra y describe, pero no se le da nombre; el segundo pudo ser totalmente descrito como especie nueva: *Jassa trinacriae*.

## INTRODUCTION

About a decade ago, the Verona Museum received one single ischyrocerid amphipod collected in the thermal waters of Fordongianus/Sardinia, already used as thermal spring in Roman times. This water starts with 58-54°C and contains chlorine and carbonates. Together with this amphipod there were collected several harpacticoids also belonging to a strictly marine genus. All animals were hidden among dense filamentous algae.

As the single animal was immature, the drawings were kept in the desk waiting for more material.

This was never the case, but in 2007 again 2 ischyrocerid amphipods were collected in a very unexpected place: in a pitfall-bowl placed in a Sicilian cave near Palermo (Grotta Conza, at the northern end of the Conca d'Oro). It is a cave of 90 m length, about 1 km distant from the sea and about 175 m above sea level. In near vicinity, there were found also 3 nematodes belonging to *Trischistoma* Cobb, 1913, already known from other Sicilian localities like coastal dunes, psammic environments with modest salinity; the measured temperature of the collected water was between 13,7 and 16,2°.

Both discoveries are extremely unexpected, and although the number of collected specimens is so low, it seemed worth to finally publish them.

While studying them, in the large Verona collection a tube was found with again very small ischyrocerids collected in Sampieri/Sicily during the fifties of the last century by Wolfgang Wieser, and they turned out to belong to the same new species coming from the Sicilian cave.

## MATERIAL AND METHODS

The habitus of the amphipods was studied in 70% alcohol or glycerine under a dissecting microscope and slides were prepared using Faure's medium. Body parts were drawn with pencil using a Wild and Leitz microscope with a camera lucida (drawing tube). The inking of the pencil drawings was done partly by hand, partly using a Wacom tablett and the program Illustrator. All the examined material for the present study is deposited at the Museo Civico di Storia Naturale di Verona (Italy).

*Abbreviations in taxonomical descriptions as well as figures:*

A1, 2: antenna 1, 2

acc.: accessory

art: article

Cx: coxal plate

Ep: epimeral plate  
Flag: flagellum  
Gn1, 2: gnathopod 1, 2  
LL: lower lip  
Md: mandible  
Mx1, 2: maxilla 1, 2  
Mxp: maxilliped  
P3-7: peraeopod 3-7  
Ped: peduncle  
Pl: pleopod  
T: telson  
U1-3: uropod 1-3  
UL: upper lip  
Us: urosome

## SYSTEMATICS

### *Jassa* sp. (Figs. 1-4)

**Material examined:** 1 single specimen 2.2mm sex?; thermal waters of Fordongianus/Sardinia (thermal spring since Roman times), water at the origin with 58-54°C, at the sample site it still has about 45°. 3 slides with provisional name “Thermojassa” MVRCr 7199-7201.

### **Description:**

*Length:* 2mm.

*Antennae:* subequal in length. A1 accessory flagellum with 1 article; flagellum 2 articles. A 2 somewhat thicker and slightly longer, peduncular article 4>5. Both antennae with many long and dense plumose setae; flagellum 2- articulate.

*Mouthparts:* Mandible palp articles 2, 3 with fringe of setae, both articles medially bulging. Maxilliped inner plate surpassing length of ischium, outer plate reaching about half length of carpus (= second article of palp).

*Gnathopods:* Coxa 1 subquadrate with parallel margins, distally regularly rounded with short seta on posterodistal corner. Gn1 basis widening distad, naked; carpus triangular, longer than wide, with anterodistal cluster of long setae; propodus palm well defined by spines, palm straight, about as long as remaining posterior margin. Gn2: coxa 2 dorsal margin shorter than ventral one, ventrally regularly convex, somewhat longer than wide. Gn2 basis

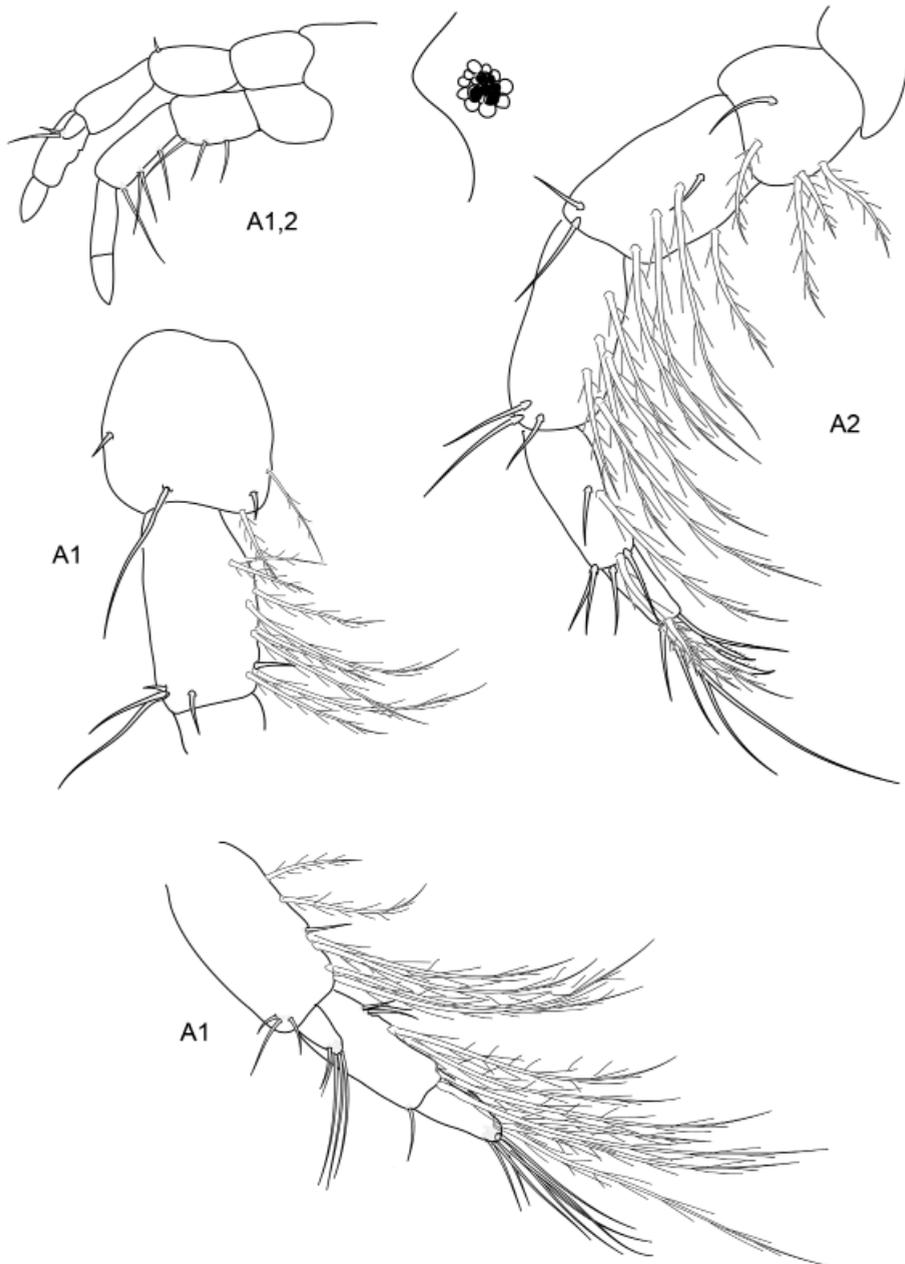


Fig. 1.—*Jassa* sp. sex? 2.2mm, thermal waters of Fordongianus/Sardinia: antennae, eye and eye lobe.

Fig. 1.—*Jassa* sp. sexo? 2.2mm, aguas termales de Fordongianus/Cerdeña: Antennas, ojo y lóbulo del ojo.

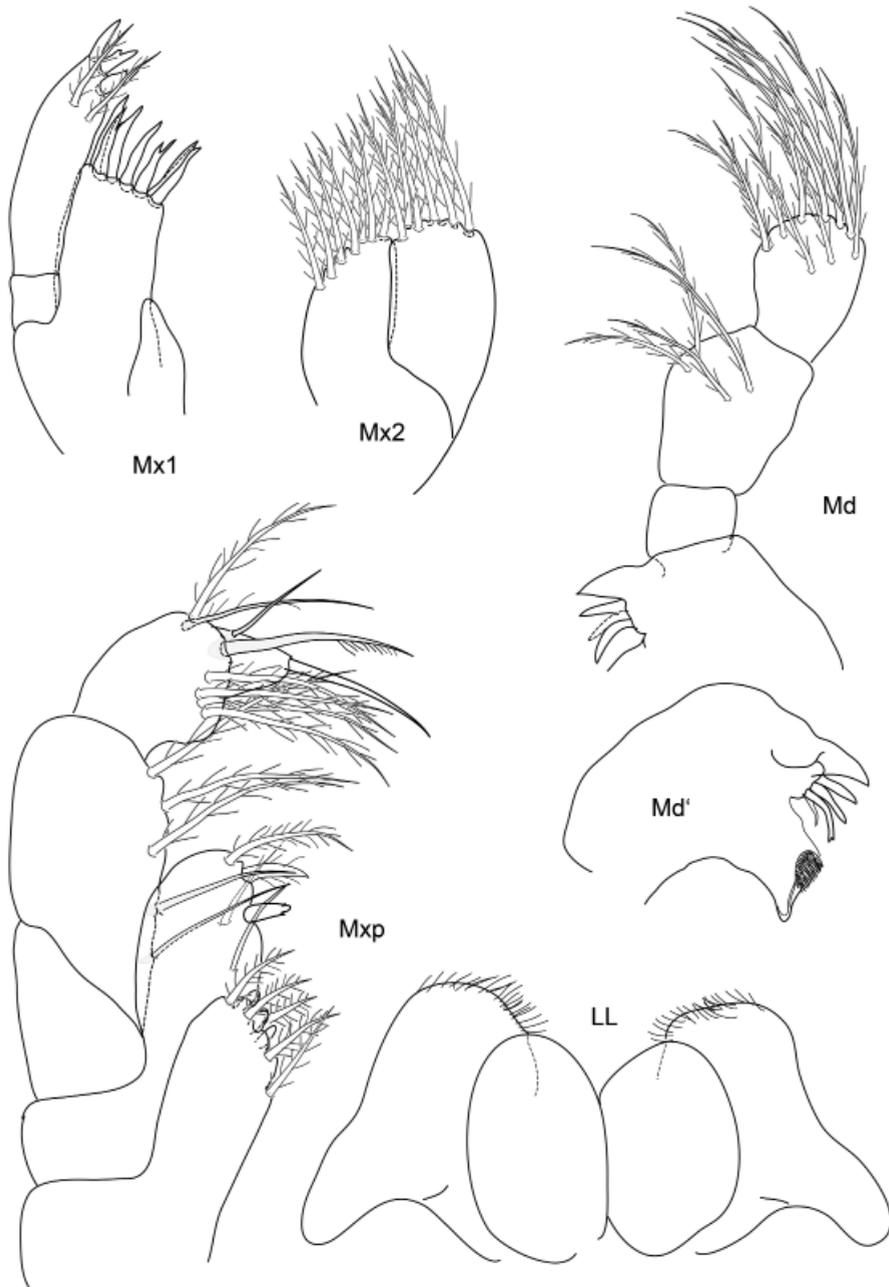


Fig. 2.—*Jassa* sp. sex? 2.2mm, thermal waters of Fordongianus/Sardinia: mouthparts Mx1,2, Md, LL, Mxp.

Fig. 2.—*Jassa* sp. sexo? 2.2mm, aguas termales de Fordongianus/Cerdeña: Piezas bucales-Mx1,2, Md, LL, Mxp.

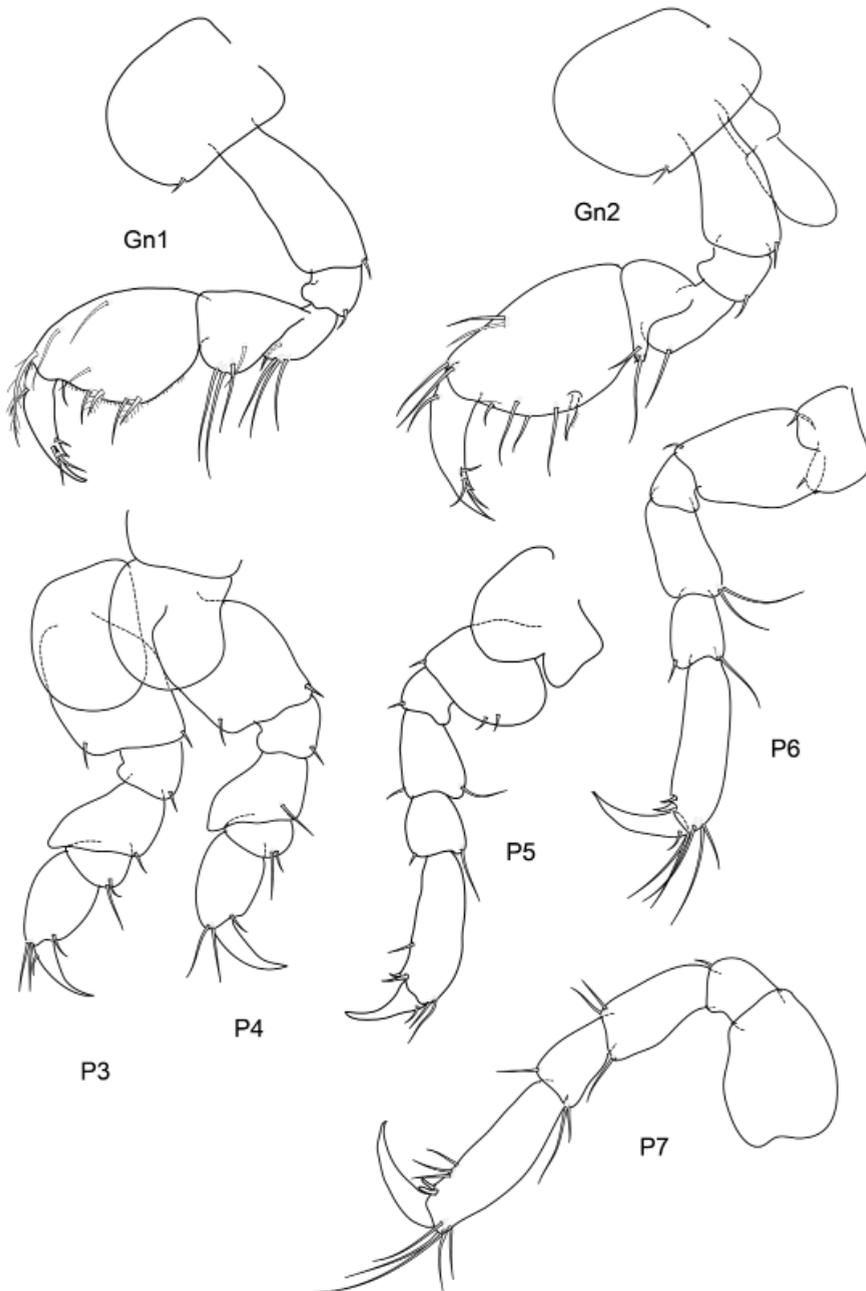


Fig. 3.—*Jassa* sp. sex? 2.2mm, thermal waters of Fordongianus/Sardinia: gnathopods and pereopods.

Fig. 3.—*Jassa* sp. sexo? 2.2mm, aguas termales de Fordongianus/Cerdeña: Gnatópodos y pereiópodos.

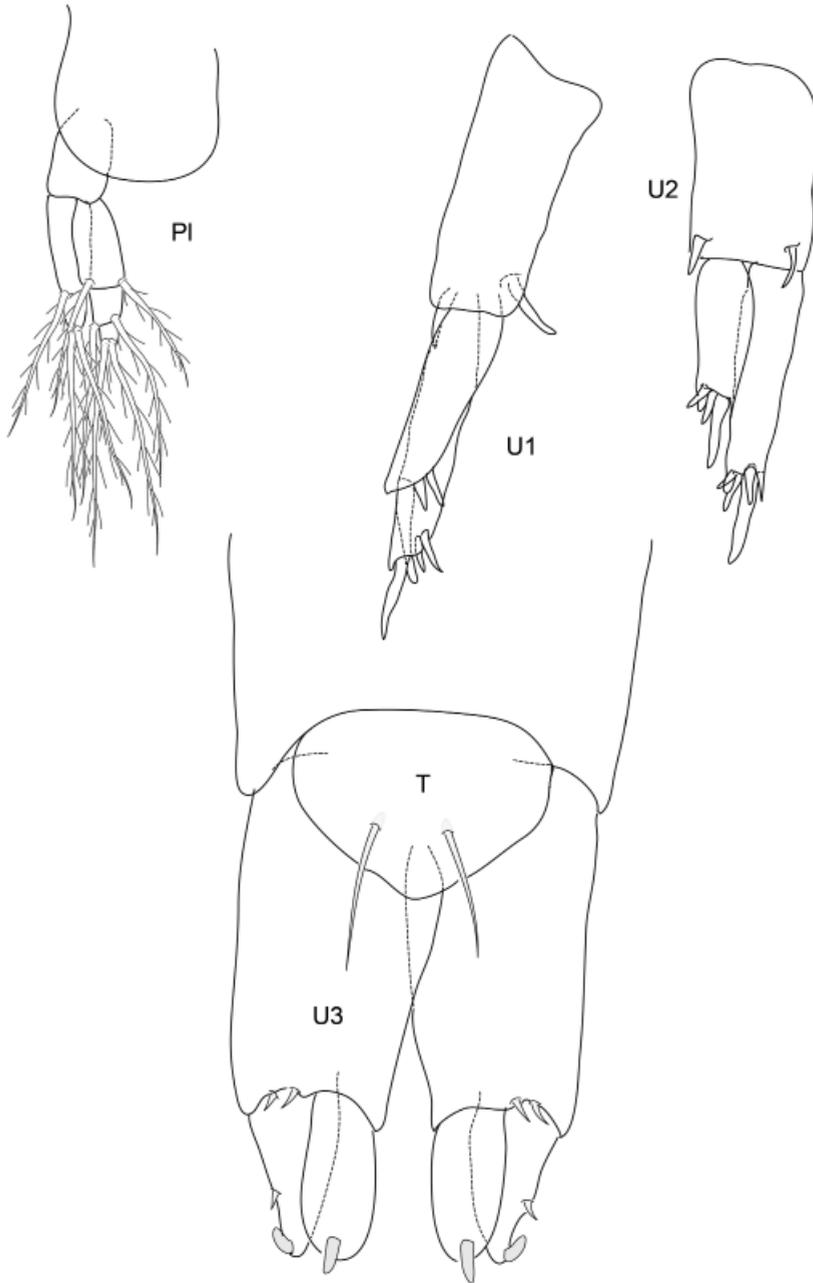


Fig. 4.—*Jassa* sp. sex? 2.2mm, thermal waters of Fordongianus/Sardinia: pleopod, uropods and telson.

Fig. 4.—*Jassa* sp. sexo? 2.2mm, aguas termales de Fordongianus/Cerdeña: Pleópodos, urópodos y telson.

shorter than in Gn1; also carpus clearly shorter than wide, posterior narrow lobe with long setae; propodus hind margin regularly rounded, similar to propodus Gn1, but longer; dactylus in both gnathopods inner margin cusped, with some setae inserting.

*Peraeopods* coxal plates 3,4 similar to Cx1, with rounded corners. P3, 4 subequal, merus anterodistal margin lengthened and pointed, without setae, somewhat wider than long. P5-7 articles distally not widened, rectangular; dactyli naked, without fringe of setae along outer margin.

*Uropods*: U1 peduncle on the inner side with one robust seta; distally a short peduncular spur; outer ramus shorter than inner one, with distal robust setae; U2 similar to U1 in shape, but shorter; U3 peduncle l:b = 2, margins naked; outer ramus with 1 dorsally recurved cusp or hook and one short robust seta; inner ramus egg-shaped rounded, distally with one short robust seta.

*Telson*: triangular, clearly shorter than wide, margin naked, submarginally in about 60% of the length (measured from insertion) on each side one long slim seta in upright position (right angle to the area of the telson), thus easily overlooked in dorsal view. The tip of the telson seems to have a pore next to it, which could be the opening of a gland.

**Remarks:** On the base of the monograph of the genus (Conlan, 1990) plus the later described species *J. socia* Myers, 1989, *J. kjetilanna* Vader & Krapp, 2005 and *J. cadetta* Krapp *et al.* 2008, this material is the only one with subequal Gn1 and Gn2, which may be caused by the specimen being immature. As there was only one specimen found, it cannot be described as a separate species, but the locality is so special that nevertheless a full description is given here.

### ***Jassa trinacriae* n.sp. (Figs. 5-7)**

*Type material*: holotype male 2.5 mm; 24/05/2007 coll. and leg. R. Grasso, deposited at the Museo civ. di Storia naturale, Verona, under MVRCr 7203.

*Type locality*: Grotta Conza, Sicily, at the northern end of the Conca d'Oro, cave of ca 90 m length, 175 m above sea level, 1 km distant from the sea.

*Additional material*: same locality and date, 1 female 3 mm, deposited at the Museo civ. di Storia naturale, Verona, under MVRCr 7202.

Furthermore, about 15 specimens in alcohol from Sampieri/Sicily, collected about 1952 by Wolfgang Wieser, also stored at the Museo civ. di Storia naturale, Verona.

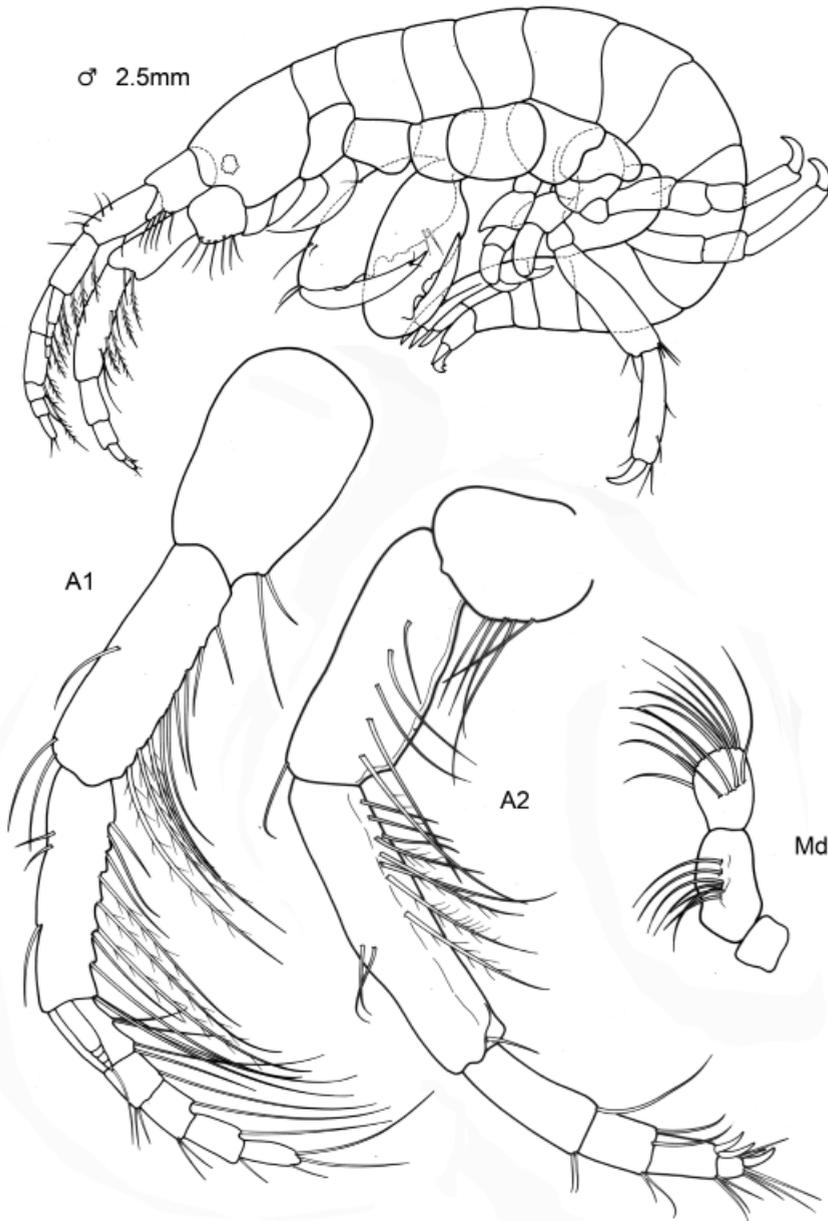


Fig. 5.—*Jassa trinacriae* n. sp., Grotta Conza, Sicily, at the northern end of the Conca d'Oro: male habitus 2.5mm, antennae, mandible palp.

Fig. 5.—*Jassa trinacriae* n. sp., Grotta Conza, Sicilia, en el extremo norte de Conca d'Oro: vista lateral del macho 2.5 mm, antenas, palpo mandibular.

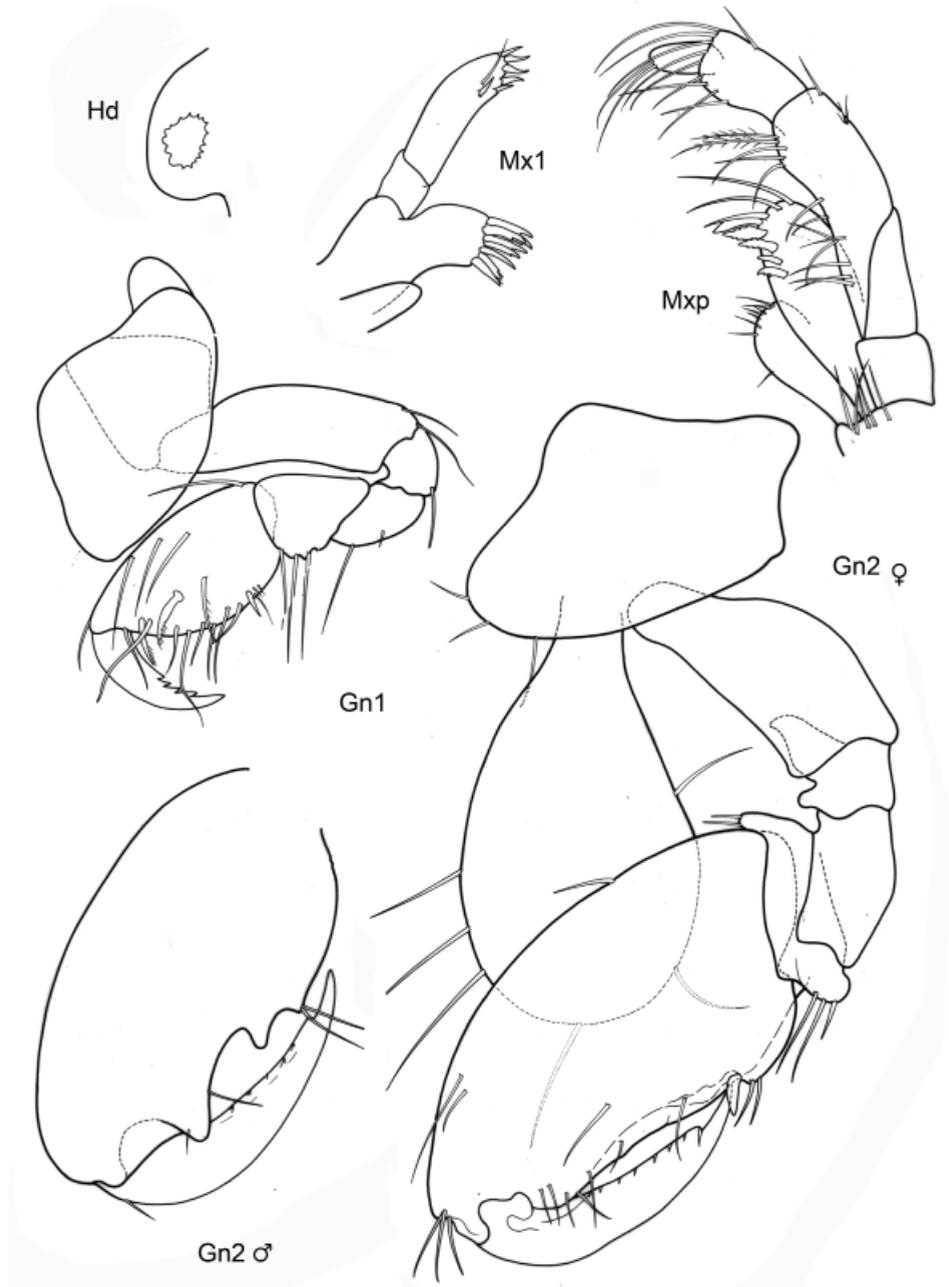


Fig. 6.—*Jassa trinacriae* n. sp., Grotta Conza, Sicily, at the northern end of the Conca d'Oro: head with eye and eye-lobe, Mx1, Mxp, Gn1, Gn2 male 2.5mm and female 3mm.

Fig. 6.—*Jassa trinacriae* n. sp., Grotta Conza, Sicilia, en el extremo norte de Conca d'Oro: cabeza con ojo y lóbulo del ojo, Mx1, Mxp, Gn1, Gn2 macho 2.5mm y hembra 3mm.

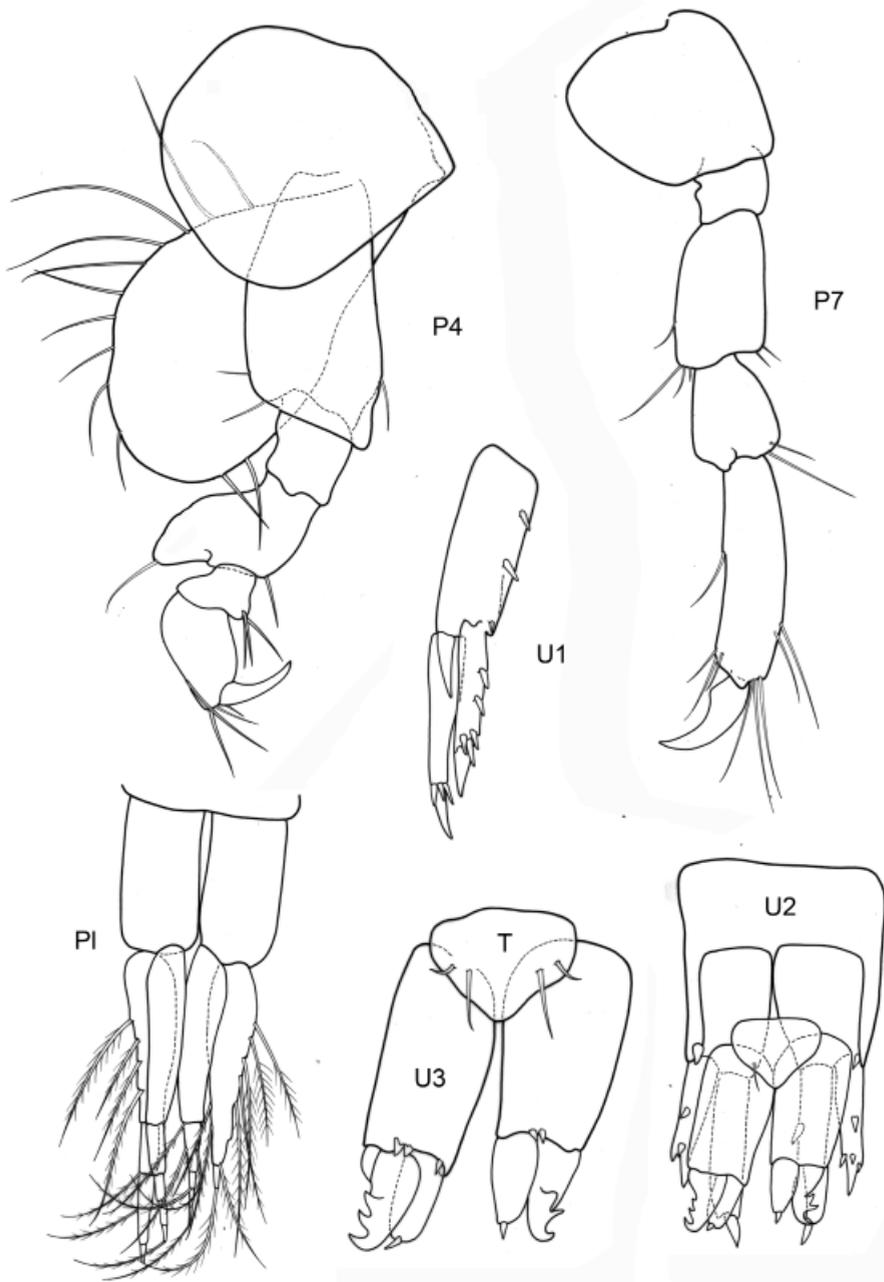


Fig. 7.—*Jassa trinacriae* n. sp., Grotta Conza, Sicily, at the northern end of the Conca d'Oro, female 3mm: peraeopod 4 and 7, pleopod, urosom with U2, U3 and telson.

Fig. 7.—*Jassa trinacriae* n. sp., Grotta Conza, Sicilia, en el extremo norte de Conca d'Oro, hembra 3mm: pereiópodos 4 and 7, pleópodo, urosoma con U2, U3 y telson.

**Description:**

*Length:* males 2.5 mm; ovigerous females 2.8-3 mm.

*Antennae:* subequal in length, subsimilar. Accessory flagellum: article 1 long, 2-3 additional articles very short; flagellum 5 articles. Antenna 2 somewhat thicker, peduncular art 4 with naked setae, art 5 with plumose setae; flagellum 4 articulate, art 1 about half length of last peduncle article.

*Mouthparts:* Mandible palp article 2, 3 with fringe of setae, both articles widened. Maxilliped inner plate reaching half length of merus, outer plate reaching about half length of carpus (= second article of palp).

*Gnathopods:* Coxa 1 rhombus- to triangle-shaped. Gn1 basis elongate, with 2 distoposterior setae; carpus triangular, longer than wide, with distoposterior cluster of setae; propodus palm not defined, regularly curved. Gn2: coxa 2 dorsal margin shorter than ventral one, ventrally convex, much wider than long. Gn2 carpus rectangular and three times shorter than wide, posterior lobe with 3 long setae; propodus palm longer than remaining posterior margin, somewhat excavated or concave, well defined by palmar corner and robust setae, in males changing shape with age, receiving an additional hump at the dactylus insertion and at about 2/3 of palmar length. Dactylus inner margin with small serrations.

*Peraeopods:* coxal plates 3, 4 rhomboid shaped, with rounded corners, similar in size and shape. P4 merus anterodistal margin lengthened and pointed, with long seta, longer than wide. P5-7 articles distally not widened, rectangular; dactyli naked, without fringe of setae along outer margin, but with strong "poison tooth" near insertion.

*Uropods:* U1 peduncle on one side with many short robust setae; distally with peduncular spur of about 1/3 length of longer ramus, outer ramus is shorter than inner one; U2 similar to U1 in shape, but shorter; U3 peduncle l:b = 2.3, margins naked; outer ramus with 2-3 closely approximated, dorsally recurved cusps or hooks; inner ramus egg-shaped rounded, distally beset with one single robust spine-shaped seta.

*Telson:* a triangle with shorter sides than basis, margin smooth, submarginally in about 50% of the length (measured from insertion) on each side one long and one shorter slim seta in upright position (right angle to the area of the telson), thus easily overlooked in dorsal view.

**Distribution:** Sicily.

**Etymology:** "Trinacria" is since Homer the name and symbol of the island Sicily, literally meaning "the three promontories".

## DISCUSSION

Taxonomy of the genus *Jassa* has already from the very begin been quite problematic, due to the allometric growth of Gn2 in males. After having erected, synonymized and reestablished various species by different authors, Conlan (1990) tried to split again many different species synonymized with *Jassa falcata* by Sexton & Reid (1951) and described several new ones.

Based on this monograph of the genus (Conlan, 1990) plus *J. socia* Myers, 1989, *J. kjetilanna* Vader & Krapp, 2005 and *J. cadetta* Krapp et al. 2008, this material, with quite small mature females, is among the 22 extant species morphologically only somewhat similar to *J. pusilla*, *dentex*, *cadetta* and *J. gruneri*, of which only *J. dentex* and *cadetta* are reported from the Mediterranean.

From the recently described *J. cadetta* Krapp et al., 2008 the present species differs mainly in the body length (in *J.c.* males 5-6, up to 8 mm), U3 peduncle much more elongate, telson longer than wide and pointed (shorter sides than basis here), Gn1 propodus palmar corner well defined.

*J. gruneri* Conlan, 1990 from Tasmania is also a very small species with a seemingly small accessory flagellum (only illustrated, not described) and a similar shape of female propodus Gn2, but the peduncle of U3 is very elongate and the male Gn2 propodus does not differ from that of the female.

Differences to *J. pusilla* (G. O. Sars, 1895) (fide Chevreux & Fage 1925: 346 fig. 354, material from Croisic, Atlantic, 3mm; resp. Conlan 1990: 2068 fig. 27 with type from Hammerfest, Norway, 4.5mm, not totally matching among themselves) are the very large thumb at the male propodus, a much longer U3 peduncle, the telson with length subequal to width and the very well defined and straight palm on propodus Gn1.

The propodus of Gn1, 2 of the female of *Jassa dentex* (fide Chevreux & Fage 1925: 348, fig. 356, at present synonymized with the North-Atlantic *Jassa pusilla* (Sars, 1895) after Barnard & Karaman, 1991:203) matches the present material quite well, but the telson is distally pointed (vs. blunt here), eye and eye-lobe are much larger and the main characters seem (again besides the thumbed male propodus Gn2) the hump on the inner side of the dactylus Gn 2 as well as the very small 1-articulate accessory flagellum in *J. dentex* figured in Chevreux & Fage, 1925.

The situation of *Jassa dentex* (Czerniavski, 1868) is still not clear. The three sketches given in the original description of material from Sebastopol, Krim peninsula, Black Sea (Czerniavski, 1868: 110 tav. 4, fig. 8) and redrawn here (see Fig. 9) clearly disprove a synonymy with *Jassa pusilla* (Sars) from the North Atlantic, which was of course to be expected for biogeographical reasons also without seeing the shape of the gnathopods.

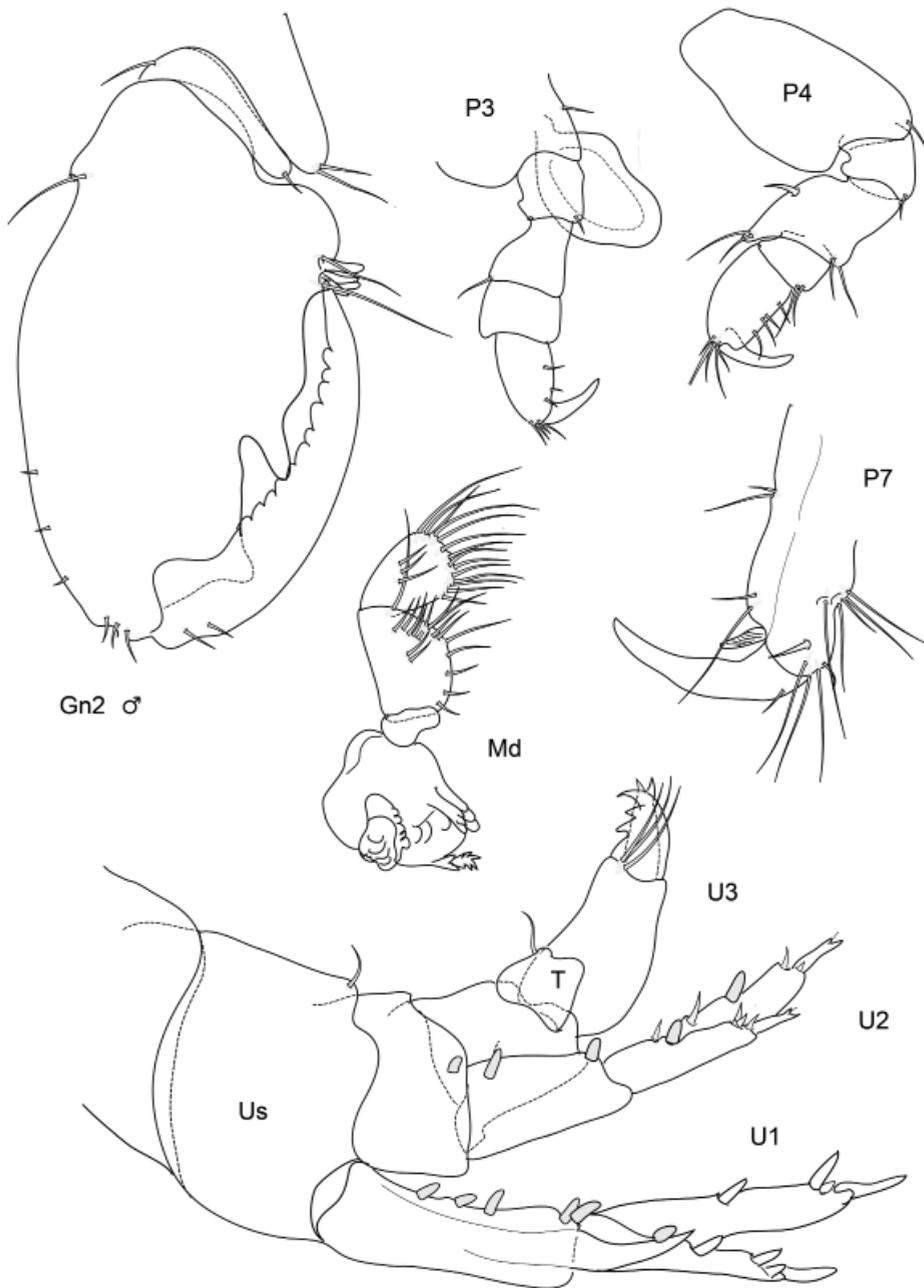


Fig. 8.—*Jassa trinacriae* n. sp., Sampieri, southern coast of Sicily.

Fig. 8.—*Jassa trinacriae* n. sp., Sampieri, costa sur de Sicily.

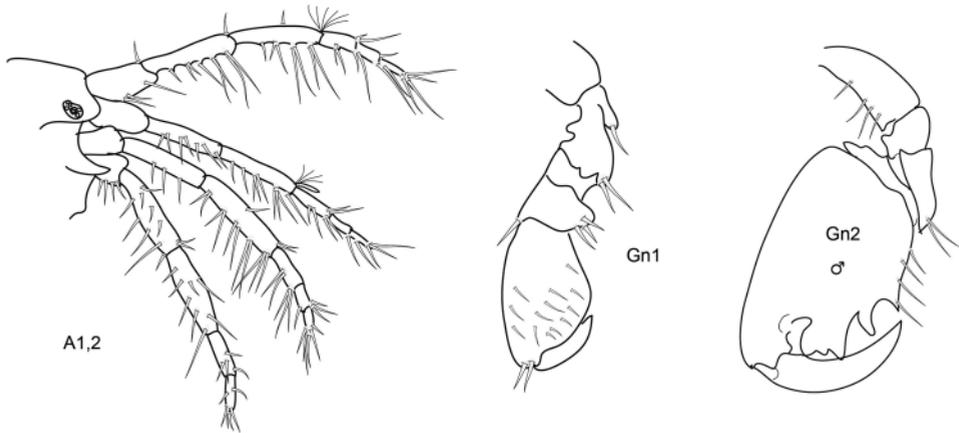


Fig. 9.—*Podocerus dentex* Czerniavski, 1868, Sebastopol (Black Sea): sketches redrawn and rearranged.

Fig. 9.—*Podocerus dentex* Czerniavski, 1868, Sebastopol (Mar Negro): Esquemas redibujados y reorganizados.

Conlan (1990: 2043) writes about *Podocerus dentex* Czerniavski: ‘Currently *Jassa dentex*, but will be transferred to a different genus.’, while on p. 2067 she synonymizes the references to *J. dentex* by Chevreux & Fage, and Gurjanova with *Jassa pusilla*. - Again Barnard & Karaman 1990: 203 synonymize the material of *Jassa dentex* sensu Chevreux & Fage, 1925: 348, fig. 356, from the French Atlantic as well as Mediterranean coasts with the Atlantic *Jassa pusilla* (Sars), but expect *Jassa dentex* (Czerniavski, 1868) to be transferred into another genus.

We think we must content ourselves to state that *Podocerus dentex* Czerniavski (described as 5mm long) may or may not be the same species as the one described here, - the antennae are much more elongated, but the Gn2 propodi are similar. *Jassa dentex* (Czerniavski) must remain a species dubia until topotypical material is found and redescribed.

## ACKNOWLEDGEMENTS

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