

SPECIES OF MARINE ISOPODA (CRUSTACEA, PERACARIDA) FROM SOUTHERN BRAZIL

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PLÍNIO SOARES MOREIRA

Instituto Oceanográfico da Universidade de São Paulo

SYNOPSIS

Some species of marine Isopoda collected in southern Brazil mostly in shallow-water and amongst seaweeds are studied. Five species are discussed and illustrated. A diagnosis is given for each species. *Idotea metallica* and *Synidotea marplatensis* are new occurrences for the area, and both have had their geographical range extended to off Rio de Janeiro. The presence of *Idotea balthica* and *Erichsonella filiformis* in southern Brazil was definitely asserted. Illustrations of both sexes of *Rocinela signata* and details about its occurrence in the region surveyed were made.

INTRODUCTION

The Isopoda fauna from the continental shelf of southern Brazil is still very poorly known. To minimize such lack of data, an intensive systematic survey has been conducted from Latitude 21°00'S to off Rio Grande do Sul. The first results have already been published or sent to press (Moreira, 1971 a-d; 1972; 1973). The present paper is a report about specimens collected in shallow water, amongst debris of wood and leaves, or among seaweeds, belonging to the following species: *Idotea metallica*, *Idotea balthica*, *Synidotea marplatensis*, *Erichsonella filiformis* and *Rocinela signata*.

Sub-order VALVIFERA
Family IDOTEIDAE
Genus IDOTEA

Idotea metallica Bosc, 1802

(Fig. 1)

SYNONYMY — See Miers (1883), Richardson (1905) and Cārāusu (1955).

MATERIAL EXAMINED — *Rio de Janeiro. Sta. 631:* SW Ponta do Acaiá, Ilha Grande. Local depth 25 m. Hand net. 25 Oct 1966. Cl. de Jesus col. At surface, amongst floating wood and leaves. 2 ovigerous females (9.5 and 13.0 mm), 5 females with developing oostegites (7.5-11.5 mm), 2 adult males (9.7 and 11.0 mm), 1 juvenile.

São Paulo. Sta. 629: Trincheira, Cananéia. Local depth 10 m. Surface water temperature 21.50°C. Zooplankton net. 26 Sep 1968. Cl. Teixeira col. Surface plankton. 1 ovigerous female (10.7 mm).

Rio Grande do Sul. Sta. 645 (L-82): Lat. 33°26'S, Long. 52°09'W. Local depth 50 m. Surface water temperature 18.22°C. Salinity 33.16‰. Larvae plankton net. 1 Nov 1968. Y. Matsuura col. Surface plankton. 1 female with developing oostegites (8.2 mm).

DIAGNOSIS — Cephalon broader than long, frontal margin widely concave, posterior region with a well marked arcuate transverse groove. Eyes large, prominent, lateral. Pleotelson very convex, without longitudinal carina; lateral margins slightly converging apically; posterior margin broad, truncate, almost straight, with a slight median rounded point, postero-lateral angles rounded.

REMARKS — This species is easily distinguished by the morphology of the pleotelson, and by the striking arcuate transverse groove posteriorly on the cephalon (Fig. 1-A). It was redescribed and illustrated in detail by Harger (1880, as *I. robusta*), Stephensen (1915) and Cārāusu (1955). The following comments may be made on the present material: cephalon abruptly convex; cephalic posterior groove always well marked; dorsolateral sides of pereonite I flattened and prolonged forwards; colour of all specimens examined dark-brown, with metallic shine when seen laterally; dorsolateral sides of pereonites II-IV with a rounded prominence close to the sutures of the coxal plates (Fig. 1-A), but in some specimens is almost flattened; flagellum of antenna 2, in both sexes, composed of 9-10 articles, mostly 9. Adult males can be quickly distinguished from females by the large and well developed penis, and by the ornamentation of the pereopod II.

Considerable variation has been noted both in the degree of prominences and in the morphology of the coxal plates (Miers, 1883; Sheppard, 1957). In

the present material the coxal plates are only a little projected laterally, and their distal angles are not narrowly elongate (Fig. 1-B), in spite of some observed variation in shape (Fig. 1-C), inclusive between specimens collected at a same station. Considering the general shape and specifically the shape of the coxal plates, the studied material approaches to the specimen illustrated by Hansen (1895, p. 10-11, pl. I, fig. 3), rather than to those with a serrated appearance as figured by Harger (1880, fig. 30, pl. 6), Cărăusu (1955, figs. 29-30), Naylor (1957b, fig. 1; 1957a, fig. 1) or Stephensen (1915, fig. 4).

An obvious secondary sexual dimorphic feature may be seen in the ornamentation of the pereopod II. Both male and female pereopod II have been figured by Stephensen, that of the adult male been characterized by a dense coating of delicate setae on the ventral margin of the ischium, merus and carpus. Ovigerous females, or females with developing oostegites, as well as, the single juvenile examined, do not show such coating of delicate setae.

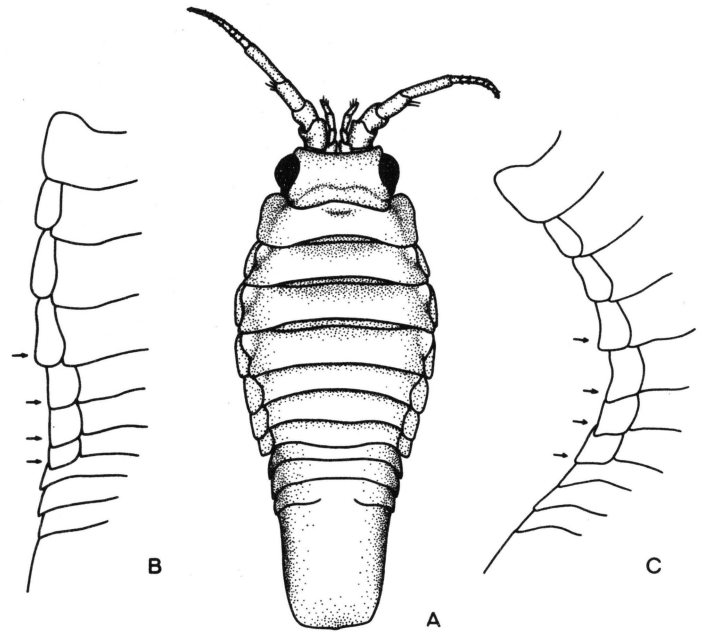


Fig. 1 - *Idotea metallica* Bosc. A. Dorsal view of ovigerous females, 13.0 mm long. B. and C. Lateral view of ovigerous females, 13.0 and 9.5 mm long.

ECOLOGICAL NOTES - The species is pelagic (Baan & Holthuis, 1969; Macquart-Moulin, 1969). Menzies & Dow (1957) consider it a surface dweller. It has been reported from surface to 166 m depth (Richardson, 1905), but most of the specimens were collected at surface, on floating sea-weeds or wood (Richardson, *op. cit.*; Picard, 1965), amongst floating colonies of *Lepas fascicularis* (Tattersall, 1911), or swimming freely from surface to various depths (Nordenstam, 1933; Sheppard, 1933; Băcescu, 1949). It has also been collected "at the surface level of buoys set in open and relatively deep water: 59-76 meters" (Miller, 1968). Along southern Brazil, the species was gathered in the surface plankton, and among floating debris of wood and leaves. It seems not to be common in the area, as hundreds of both plankton and benthos samples were examined negatively for the species. A large number of stations using a light as a lure failed to attract the species.

GEOGRAPHICAL DISTRIBUTION - A widely distributed, nearly cosmopolitan species.

See Naylor (1957b), Miller (1968) and Baan & Holthuis (1969). At the Atlantic side of South America the species was already recorded southwardly, between Montevideo and Strait of Magellan (Miers, 1883; Richardson, 1905; Cărăusu, 1955). It is for the first time reported from

Brazil. The record off Rio de Janeiro extends considerably northwards the horizontal range of the species along the Atlantic side of South America.

Idotea balthica (Pallas, 1772)

(Fig. 2)

SYNONYMY - *Idotea brevicauda* Dana, 1849, p. 426; 1853, p. 702-703, pl. 46; fig. 4 a-b, pl. 46, fig. 5 a-c; Ohlin, 1901, p. 284-286, pl. 21, fig. 7 a-b.

For further reference on the synonymy, see Harger (1880, as *I. irrorata*), Miers (1883, as *I. marina*), Richardson (1905, as *I. balthica*), Naylor (1955a, as *I. balthica*), Hurley (1961, as *I. marina*), and Miller (1968, as *I. balthica*).

MATERIAL EXAMINED - *São Paulo. Sta. 57:* Praia do Perequê, Bertiooga, 2-3 m depth. Amongst weed floating over the sea bottom. Light rectangular dredge. 19 Jul 1961. P.S. Moreira col. 9 ovigerous females (8.3-10.8 mm), 11 adult males (11.6-19.0 mm), 18 juveniles.

Sta. 392: Praia do José Menino, Santos. 2-0 m depth. Among entangled algae, roots and debris of wood. Beach seine. 31 Ago 1961. P.S. Moreira col. 2 ovigerous females (9.1 and 11.3 mm), 11 juveniles.

Sta. 420: Off Itanhaem, Praia Grande. 15 m depth. Amongst entangled weeds, roots and debris of wood. Comercial otter-trawl net. 10 Apr 1963. P.S. Moreira col. 2 ovigerous females (9.0 and 9.8 mm), 1 adult male (13.6 mm), 18 juveniles.

Sta. 421: Ponta da Praia, Santos. 1 m depth. Among entangled seaweeds, roots and debris of wood. Light rectangular dredge, dredged close to the shore. 10 Jul 1961. P.S. Moreira col. 1 ovigerous female (7.5 mm), 1 adult male (12.9 mm), 6 juveniles.

Sta. 427: Praia de São Vicente, near Ilha de Urubuqueçaba, Santos. Among entangled weeds, leaves and roots found on the shore. Hand collecting. 18 Jan 1964. Mrs. Aura Souto Moreira col. 1 adult male (16.1 mm), 32 juveniles.

Rio Grande do Sul. Sta. 428: Praia Faról, Torres Farol, Torres. Intertidally, at low water tide, on partially exposed seaweeds. Hand collecting. 20 Sept and Dez 1960. S. Didati and S. Rodrigues col. 18 ovigerous females (10.7-14.5 mm), 6 adult males (14.9-19.1 mm), 14 juveniles.

Sta. 467: Praia do Cal, Torres. Intertidally, at low water tide, on partially exposed green seaweed. Hand collecting. 30 Dez 1960. S. Rodrigues col. 1 adult male (18.0 mm), 3 ovigerous females (11.3, 13.5 and 15.0 mm).

DIAGNOSIS - Cephalon a little larger than long, frontal margin slightly concave. Eyes small, lateral. Pleotelson with or without a slight midlongitudinal carina; lateral margins slightly converging distally; pos-

terior margin broad, 3-pointed, median point the most produced and developed, the 2 lateral smaller, less produced and broadly-rounded.

REMARKS — The characteristic end of the pleotelson, and the morphology of the broad coxal plates (Fig. 2 A-B), distinguish easily this species from all other of the genus. The species has a large synonymy, owing to the degree of variation of the 3-pointed pleotelson apex (Cārāusu, 1955), and the considerable variation in colour (Matsdorff, 1883; Koepcke, 1948), together with their wide geographical distribution. It is a very well known species, and little may be added for its better knowledge. The present specimens show posteriorly on the cephalon, on either side, a small curved suture, which is more evident in some individuals than in others; the flagellum of the antenna 2 is composed of 16-17 (males) and 12-13 articles (females); close to the suture of the coxal plates sometimes is present a rounded dorsal prominence, as it is observed occasionally in specimens of *I. metallica*.

Secondary sexual dimorphism is pronounced. Adult males are longer than ovigerous females, they have a large number of aesthetes on the flagellum of antenna 1 (Naylor, 1955), and they bear a dense coating of delicate setae (not observed in both young and ovigerous females) on the ischium through to the carpus of pereopod II.

The occurrence of *I. balthica* in Brazil has been questioned by Hansen (1916) and Gruner (1965). Dana (1849; 1853), on material collected in Rio de Janeiro, described a new species which was named *I. brevicauda*. However, Miers (1883), considered it as a synonym of *I. marina* (= *I. balthica*) and identified the specimens collected by F. Müller in Desterro, now Florianópolis, Santa Catarina State with this species. Ohlin (1901) examined material of *I. brevicauda* collected in the

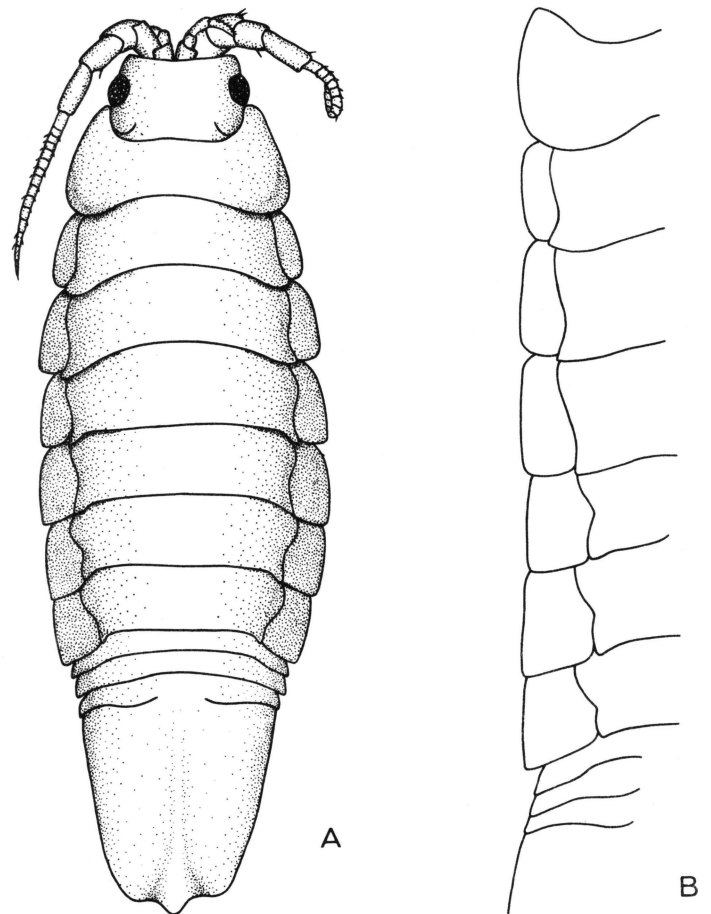


Fig. 2 — *Idotea balthica* (Pallas). A. Dorsal view of adult male, 18.0 mm long. B. Lateral view of adult male, 13.0 mm long.

Harbour of Rio de Janeiro deposited in the Museum of Copenhagen, together with specimens of *I. brevicauda* which he collected in Puerto Madryn, East Patagonia. A clear illustration of the species is given. However, Ohlin (*op.cit*) remarked that *I. brevicauda* is probably a synonym of *I. marina*, and that he

considered it as a distinct species only for lack of comparative material. From Ohlin's remarks, and comparing his illustration of *I. brevicauda* with the present material, there is no doubt left that the species discussed is *I. balthica*.

A second species of *Idotea* has been reported as occurring in southern Brazil (Rio de Janeiro), namely *I. danai* Miers, 1883. The species is based on a specimen about 2 mm long described and figured by Dana (1853, p. 703, pl.46, fig. 5 a-c) as the young of some other species of *Idotea*. The specimen has all features of a juvenile, such as size, general body morphology, and the number of articles of the antenna 2. As I was not able to see Dana's illustrations, it is impossible presently to discuss the species *I. danai* Miers.

ECOLOGICAL NOTES - The species has been gathered in a large variety of substrata, as floating seaweeds, intertidally on bottom living algae, as well as, freely on sand gravel bottoms (Richardson, 1905; Naylor, 1955 a, b; Baan & Holthuis, 1969; Miller, 1968). It is often found on drift weed (Naylor, *op. cit.*). Along southern Brazil, the species was collected intertidally on seaweeds, amongst entangled roots, leaves and algae floating over the sea bottom at shallow depths, or in this same substrata washed on the beach. The maximum depth recorded for the species in the area was 15 m. Adult males, and ovigerous females, were recorded in December, January, April, July and August.

GEOGRAPHICAL DISTRIBUTION - A widely distributed, cosmopolitan species. Recorded previously in Brazil from Rio de Janeiro and Santa Catarina, and now from São Paulo and Rio Grande do Sul. From the present material it can be seen that this species is distributed all along southern Brazil.

Genus *Synidotea*

Synidotea marplatensis Giambiagi, 1922

(Fig. 3)

SYNONYMY - *Synidotea marplatensis* Giambiagi, 1922, p. 240-244, lam. IV; Mañe-Garzón, 1946, p. 4-7, lam. II, figs. 1-10.

DIAGNOSIS - Body smooth, elongate, slightly vaulted. Cephalon wider than long, without tubercles, well convex dorsally, and bearing a system of grooves; anterolateral margins converging medially, frontal margin smooth, in the male usually widely concave, in the female almost straight, a slight median notch often present. Eyes large, black, prominent, placed lateroposteriorly on the cephalon. Flagellum of antenna 2 composed of 17-19 (males) and 11-13 articles (females). Pleotelson longer than wide, lateral margins converging slightly middistally, posterolateral margins truncate obliquely, posterior margin with a wide shallow excavation.

MATERIAL EXAMINED — *Rio de Janeiro*. *Sta. 332*: Baía da Ilha Grande, off Ilha Sandri. 16 m depth. Shelly sand. Bottom water temperature 24.40°C. Salinity 35.4‰. Rectangular dredge. L.R. Tommasi col. 21 Mar 1969. 1 ovigerous female (5.0 mm).

Sta. 419: Off Ponta da Juatinga, Baía da Ilha Grande. 30 m depth. Amongst entangled seaweeds, roots and debris of wood. Otter-trawl net. M. Ribas col. 12 Oct 1959. 6 adult males (8.5-9.4 mm), 15 juveniles.

São Paulo. *Sta. 415*: Between Praia da Ribeira and Praia do Flamenguinho, Enseada do Flamengo, Ubatuba. 10 m depth. Muddy sand. Rectangular dredge. M. Marcelino col. 7 Ago 1959. 1 adult male (7.6 mm).

Sta. 416: Off Ilha Anchieta, Ubatuba, 15 m depth. Amongst entangled algae, roots and empty tubes of Polychaeta. Commercial otter-trawl fishing net. P.S. Moreira col. 19 Dec 1962. 5 adult males (7.5-8.6 mm).

Sta. 57: Praia do Perequê, Santos. 2-3 m depth. Amongst seaweeds floating over the sea bottom. Light rectangular dredge. P.S. Moreira col. 19 Jul 1961. 2 ovigerous females (6.0 and 7.2 mm), 1 juvenile.

Sta. 99: Ponta da Praia, Santos. 0.5-1 m depth. Amongst entangled seaweeds and roots floating over the sea bottom. Light rectangular dredge. P.S. Moreira col. 10 May 1963. 1 young male (7.1 mm), 3 ovigerous females (5.2, 5.8 and 6.1 mm).

Sta. 469: Near to the Faról da Moela, off Santos. 18 m depth. Muddy sand. Amongst entangled algae, debris of wood and leaves. Commercial otter-trawl fishing net. P.S. Moreira col. 18 Dec 1963. 2 ovigerous females (5.2 and 6.6 mm), 12 juveniles.

Sta. 392: Praia do José Menino, Santos, 2-0 m depth. Amongst seaweeds, leaves and entangled roots. Beach seine. P.S. Moreira col. 31 Aug 1961. 3 adult males (10.0, 10.2 and 11.6 mm), 5 ovigerous females (6.0-7.5 mm), 20 juveniles.

Sta. 638: Off Praia do Guaiuba, Santos, 7-11 m depth. Fine muddy sand. Rectangular dredge. P.S. Moreira col. 4 Sep 1969. 2 juveniles.

Sta. 425: Off Faról da Moela, Santos. 16 m depth. Amongst algae leaves and debris of wood. Commercial otter-trawl net. P.S. Moreira col. 15 Dec 1963. 150 ovigerous females (5.9-8.0 mm), 100 adult males (11.0-12.6 mm), 50 juveniles.

Sta. 418: Off Cidade Ocian, Praia Grande, Santos. 12 m depth. On gill net, and on the fishes captured by the net. Very large number of specimens. P.S. Moreira col. 1 Dec 1963. 110 ovigerous females (5.8-6.3 mm), 120 adult males (9.0-10.8 mm), 80 juveniles.

Sta. 426: Monganguá, Praia Grande. Amongst Anthozoa, Bryozoa and Ascidiacea washed onto the beach. P.S. Moreira col. 16

Jan 1969. 20 adult males (7.1-14.1 mm), 4 ovigerous females (5.2-7.5 mm), 1 juvenile.

Sta. 414: Ilha do Bom Abrigo, off Cananéia. Amongst entangled algae and roots washed onto beach. P.S. Moreira col. 27 Jul 1959. 1 juvenile.

Sta. 429: "Ilha Nova", Cananéia. Amongst roots and leaves. Small beach seine. J. de Paiva Carvalho col. 3 Feb 1954. 1 adult male (10.3 mm).

REMARKS - The following comments may be made on the species: cephalon with a transverse groove close to and along the frontal margin; one groove on either side bordering the eyes internally; posteriorly an arcuate transverse groove; all grooves well marked in both males and females. Antenna 1 unarticulate. Maxillipedal palp 3-articulate. Pereonites II-IV in both sexes with an arcuate middorsal transverse suture close to the anterior margin (Fig. 3 A-B), and not present only in the male, as illustrated by Mañe-Garzón (1946, lam. II, fig.

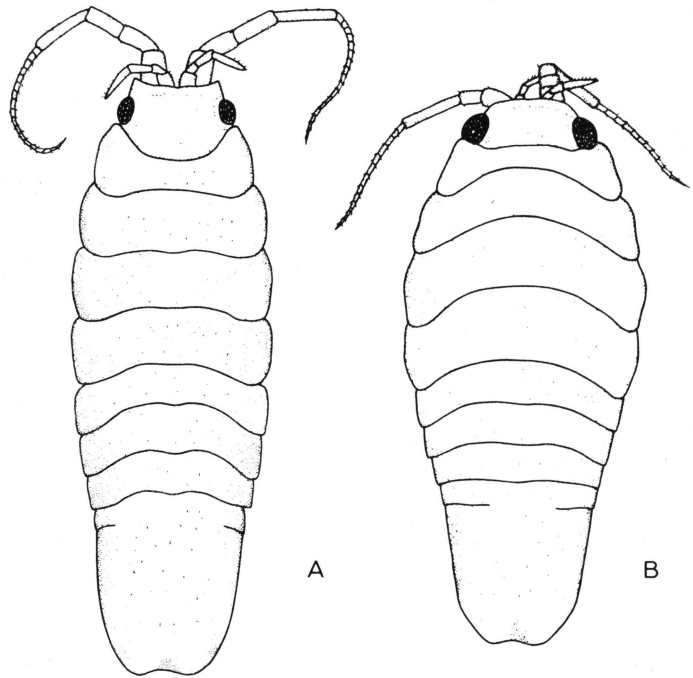


Fig. 3 - *Synidotea marplatensis* Giambiagi. A. Dorsal view of adult male, 12.8 mm long. B. Dorsal view of ovigerous female, 7.5 mm long.

1). Coxal plates of all pereonites indistinct, not marked off dorsally by suture lines. Pleon without free pleonites; pleotelson in both males and females with a distinct suture line on either side, indicative of a partially fused pleonite (the illustrations furnished by Mañe-Garzón do not show such suture lines, although in the text he states their presence). Colour of body highly variable, uniformly brown, marbled or with the pigments displayed in regular and characteristic patterns, similarly as reported for species of *Idotea*, chiefly for *I. balthica*.

Secondary sexual dimorphism is striking. The males are longer, the body is more elongate and less wide, the flagellum of the antenna 2 is composed of a larger number of articles, and the pereopods I-VI have a dense coverage of delicate setae on the ventral margin of the merus, carpus and propodus.

Menzies & Miller (1956), based sole on Mañe-Garzón's paper (1946), questioned the presence of the genus in South America, and at the same time pointing out that the species assigned to genus occurring there should be put in a separate genus. This is true only partially. Based on the remarks made above about the present specimens, as well as, considering Giambiagi's paper (1922), *S. marplatensis* is a valid species and a good member of the genus

Synidotea. The same, however, does not apply to *S. sphaeromiformis*, which should be removed to another genus (paper in preparation).

ECOLOGICAL NOTES — Previous records of the species have been from the intertidal region. Giambiagi (1922) reports the species from green seaweeds. In some places the species is extremely abundant, replacing species of *Lygia* (Isopoda, Oniscoidea) in their ecological zone. Mañe-Garzón (1946) reported the species from amongst *Mytilus* sp. Along southern Brazil the species has been collected most commonly among entangled seaweeds, roots and leaves accumulated or floating over the sea bottom. Sometimes it is also found in this same substrata, or as in a single case, amongst entangled Bryozoa, Ascidia and Anthozoa, washed onto the shore.

The species seems to be a shallow-water species. The depth limits recorded for it in the area ranges from less than 1 m to 30 m depth. Oviparous females have been collected in January, March, May, July, August and December.

GEOGRAPHICAL DISTRIBUTION — Punta Piedras, Cabo Corrientes, Mar del Plata, Argentina (Giambiagi, 1922). Puerto de la Paloma, Rocha, Uruguay (Mañe-Garzón, 1946). Present records: Rio de Janeiro and São Paulo. The geographical range of the species has been considerably extended northwards. The record off Ilha Sandri, Baía da Ilha Grande, Rio de Janeiro, represents the present most northern limit of occurrence of the species. Its vertical distribution has also been extended, its lower limit of occurrence is now 30 m depth.

Genus *Erichsonella*

Erichsonella filiformis (Say, 1818)

(Fig. 4)

SYNONYMY — *Cleantis filiformis* — Miers, 1883, p. 77-79, pl. 3, figs. 7-8.

Erichsonella filiformis filiformis — Menzies, 1951, p. 575-579, fig. 103 a; Menzies & Frankenberg, 1966, p. 24, fig. 4; Schultz & McCloskey, 1967, p. 106-108, 110, figs. 21-46.

Erichsonella filiformis tropicalis — Menzies & Glynn, 1968, p. 20, fig. 4 C.

For further synonymy, see Richardson (1905)

DIAGNOSIS — Cephalon with 1 median, stout, bifid or trifid conical, elevated tubercle projecting anteriorly. Eyes situated on short, lateral, rounded process. Dorsolateral sides of pereonites expanded and/or pointed, rounded at the margins. Coxal plates marked off on pereonites II-VII, those from pereonites II-IV generally concealed from dorsal view by the lateral

expansion of pereonites, those from pereonites V-VII always visible in dorsal view. An elevated middorsal tubercle usually present on each of the first 3-4 pereonites. Pleon without free pleonites; sometimes a minute suture line, indication of a partially fused pleonite, anterolaterally on the pleotelson large, elongate, with or without a middorsal anterior tubercle; lateral margins widening at about the 1/3 anterior level, then narrowing markedly, becoming wider again, and ending in a broad evenly rounded apex; latero-posterior margin slightly excavated forwardly apex.

MATERIAL EXAMINED - *Rio de Janeiro. Sta. MBT 163*: Lat. 21°29'S, Long. 40°56'W. 17 m depth. MBT dredge. Calcareous fine sand. 6 Sep 1970. P.S. Moreira col. 1 ovigerous female (6.7 mm), 3 juveniles.

São Paulo. Sta. 399: Praia da Enseada, Ubatuba. 0.5-1 m depth. Water temperature: 25.0°C. Hand collecting. Subtidally, amongst dense growth of *S. cymosum* growing on large boulders. 27 Apr 1964. P.S. Moreira col. 2 adult males (7.8 and 8.0 mm), 1 young male (5.5 mm), 1 female with developing oostegites (7.0 mm).

Sta. 299: Near Ponta de Santa Rita, Enseada do Flamengo, Ubatuba. 1 m depth. Water temperature 28.0°C. Salinity 34.56‰. Oxygen content 3.93 mg/l. Diving. Subtidally, among dense growth of large (30-40 cm long) *S. cymosum* growing on boulders. 11 Feb 1965. P.S. Moreira col. 1 juvenile.

Sta. FISSE 534: Praia do Gimbo, São Sebastião Channel, São Sebastião. 0.5-1 m depth. Water temperature 25.5°C. Salinity 33.4‰. Diving. Subtidally, amongst *S. cymosum* growing on submerged boulders. Large amount of mud in suspension. 8 Nov 1969. P.S. Moreira col. 1 ovigerous female (8.0 mm), 1 juvenile.

Sta. FISSE 540: Institute of Marine Biology - USP, Praia do Segredo, São Sebastião Channel, São Sebastião. 1-2 m depth. Water temperature 26.0°C. Salinity 34.0‰. Diving. On dense growth of *Galaxaura* sp growing on submerged boulders. 9 Nov 1969. P.S. Moreira col. 1 young male (5.6 mm).

REMARKS - This species is highly variable regarding the general body morphology, specially concerning the shape and the degree of prominence of the lateral expansion of the pereonites. It seems also that the elevated tubercles present on the pereonites and anterodorsally on the pleotelson, may be slightly developed or absent, chiefly on the last pereonites. In most of the present material the cephalic tubercle is bifid or slightly trifid, the tubercles on the pereonites are present only on pereonites I-IV, and the pleotelson in any one specimen has a middorsal anterior tubercle (Fig. 4). The specimens from *Sta. MBT 163*, are remarkable because the tubercle on the cephalon is strongly trifid and extremely prominent, and the lateral sides of both pereonite I and II are broad, markedly turned upward, and the margins widely rounded.

The species has been illustrated in detail by Schultz & McCloskey (1967). It has been subdivided in several sub-species (Menziés, 1951; Menziés & Glynn, 1968). The subdivisions have been superficial, as they are based in one or two characteristics, observed in very few specimens. Detailed illustrations of the main differences are lacking, and accurate diagnosis or description pointing out clearly the subspecific features are not provided.

The specimens examined must be *E. f. filiformis*. *E. f. isabelensis* (Menziés, 1951), judging from the illustration of the whole animal and by the few differences that have been pointed out, has characteristics which justify the subspecies. The same, however, does not apply to *E. f. tropicalis* (Menziés & Glynn, 1968). The available diagnosis has not a single feature that warrent the erection of a subspecies, and the illustration does not reveal any particular characteristic which separates it from the "closely related *E. filiformis* (Say)".

A second species of *Erichsonella* as been reported from Brazil, namely *E. angulata* Dana, 1849, from material collected in the harbour of Rio de Janeiro. However, I have not seen specimens of this species.

ECOLOGICAL NOTES - *E. filiformis* is a shallow-water species found subtidally among eel-grass, turtle grass and seaweeds. Schultz & McCloskey (1967) reported it from the coral *Oculina arbuscula* Verril, remarking that its presence there was possibly accidental. The recordings from sand and gravel and from sand and shells (Harger, 1880; Richardson, 1905) also seem accidental. The species has been found from very shallow-water to 120 m depth, off Georgia coast, USA (Menziés & Frankenberg, 1966). The present material was collected subtidally mostly amongst the seaweeds *Sargassum cymosum* and *Galaxaura* sp. It prefers end of bays and bights, where currents and tidal waves are not strong. It is commom among dense growth of large *S. cymosum* found in such places. It was not found in this same seaweed when growing subtidally on exposed rocky shores. The species was found within the following hydrographical parameters: temperature, 25-28°C; salinity, 33.4-34.56‰; oxygen content, 3.93 mg/l. The maximum depth of occurrence of the species in the area was 17 m.

GEOGRAPHICAL DISTRIBUTION - See Richardson (1905), and Menziés & Glynn (1968).

Present records in southern Brazil: Rio de Janeiro and São Paulo. This is the second report of the species in southern Brazil. It was first doubtfully recorded from Brazil by Miers (1883, p. 78-79) from specimens deposited in the Museum of Paris and collected at Gloria, Rio de Janeiro. This is the first report from São Paulo. The species occurs also all

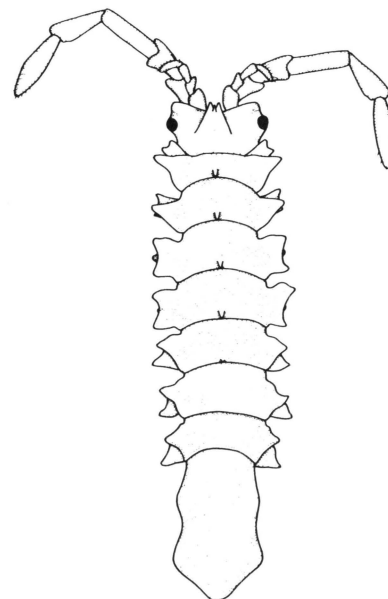


Fig.4 - *Erichsonella filiformis* (Say).
Dorsal view of adult male, 7.8 mm long.

along northern Brazil. Through the courtesy of Mr. P.Ch. Montouchet, I have seen specimens from Paracaru (Ceará), Gaibu and Itamaracá (Pernambuco), Mar Grande, Ilha de Itaparica (Bahia) and Guarapari (Espírito Santo). The species was not yet reported from Paraná to Rio Grande do Sul.

Sub-order FLABELLIFERA
 Family CIROLANIDAE
 Sub-family AEGINAE
 Genus *ROCINELA*

Rocinela signata Schiödte & Meinert, 1879
 (Fig. 5)

SYNONYMY — *Rocinela signata* Schiödte & Meinert, 1879, p. 399-401, pl. XIII, figs. 3-6; Richardson, 1901, p. 524; 1905, p. 209-210, figs. 211-212; Moore, 1902, p. 171, pl. X, fig. 3; Menzies & Glynn, 1968, p. 45, fig. 20 E-G; Moreira, 1971a, p. 389.

Rocinela aries Schiödte & Meinert, 1879, p. 401-403, pl. XIII, figs. 7-8; Richardson, 1899, p. 828; 1905, p. 210-211, figs. 213-215; Menzies, 1962, p. 345, fig. 5.

MATERIAL EXAMINED — *Rio de Janeiro. Sta. 212:* Angra dos Reis, 328° to Ilha do Guaibinha, 185° to Ponta do Sino, 215° to Ponta do Castelhana. 10 m depth. Bottom water temperature 22.10°C. Salinity 34.22‰. Sand with shells. Grab. 22 Jul 1966. 15 Jun 1967. L.R. Tommasi col. 2 ovigerous females (13.0 and 13.1 mm).

Sta. MBT 51: Lat. 23°30'S, Long. 44°49'W. 42 m depth. Shelly sand mud. MBT dredge. 9 May 1970. P.S. Moreira col. 1 adult male (16.1 mm).

Sta. 741: Ponta dos Aleijados, Baía da Ilha Grande. Local depth: 2 m. 1 May 1971. Cl. de Jesús col. fixed on the skin, while diving to collect bottom samples. 3 juveniles.

Sta. 742: Off Itacurussá, Baía da Ilha Grande. 1-0 m depth. Beach seine. 3 Feb 1971. Cl. de Jesús col. under the pectoral fin of "pescada amarela" (*Cynoscion acoupa*), 50.0 cm long. 2 juveniles.

São Paulo. Sta. 2: sample N° 6 (2) IX: Enseada das Palmas, Ilha Anchieta, Ubatuba. 4 m depth. Coarse sand. Bottom water temperature 23.2°C. Salinity 35.62‰. Oxygen content 6.3 mg/l. Anchor dredge. 1 Feb 1964. L. Forneris col. 2 adult males (14.4 and 14.5 mm), 1 adult female (14.8 mm).

Sta. 6: sample N° 6 (3) IX: Pedra da Andorinha, Enseada do Flamengo, Ubatuba. 1 m depth. Sand. Bottom water temperature 24.9°C. Salinity 34.61‰. Oxygen content 4.15 mg/l. Anchor dredge. 23 Jan 1962; 30 Jan 1964. L. Forneris col. 2 ovigerous females (13.0 and 13.8 mm), 1 adult male (13.1 mm), 2 juveniles.

Sta. 15: sample N^o 11 (3) VIII: Between Ilha Anchieta and Ilhote do Sul, Ubatuba. 10 m depth. Muddy sand. Bottom water temperature 18°C. Salinity 35.03‰. Rectangular dredge. 28 Feb 1963. L. Forneris col. 1 adult male (15.0 mm), 1 young male (12.0 mm).

Sta. 20: sample N^o 2 (3) VIII: Praia do Sul, Ilha Anchieta, Ubatuba. 7 m depth. Gravel. Bottom water temperature 23.8°C. Rectangular dredge. 26 Feb 1963. L. Forneris col. 1 young female (10.5 mm).

Sta. V.64.2: Pedra da Andorinha, Enseada do Flamengo, Ubatuba. 2 m depth. Mud. Bottom water temperature 26.5°C. Salinity 34.68‰. Oxygen content 4.10 mg/l. Calypso dredge. 9 Feb. 1965. P.S. Moreira col. 1 juvenile.

Sta. V.65.8: Enseada da Fortaleza, Saco Grande, Ubatuba. 10 m depth. Fine mud sand with shell fragments. Bottom water temperature 25.8°C. Salinity 34.78‰. Oxygen content 4.03 mg/l. Calypso dredge. 19 Feb 1965. P.S. Moreira col. 1 young.

Sta. V.65.11: Enseada das Palmas, Ilha Anchieta, Ubatuba. 4-5 m depth. Fine muddy sand with scanty shell fragments. Bottom water temperature 25.8°C. Salinity 34.54‰. Oxygen content 4.34 mg/l. Rectangular dredge. 20 Feb 1965. P.S. Moreira col. 1 young male (11.4 mm), 2 non-ovigerous females (11.2 and 11.6 mm), 1 juvenile.

Sta. FISSE 87: Institute of Marine Biology, Ponta do Baleeiro, São Sebastião. 1 m depth. Shelly coarse sand. Diving. 9 Nov 1969. P.S. Moreira col. 1 young.

Sta. 278: Praia do Embaré, Santos. 2-0 m depth. Beach seine. 4 Ago 1961. P.S. Moreira col. In the branchial cavity of "pescada branca" (*Cynoscion leiarchus* Cuv.) 25.0 cm long. 1 non-ovigerous female (12.5 mm).

DIAGNOSIS — Body smooth. Eyes black, not contiguous. Pereopods I-III with ventral margin of propodus armed with 1 single, strong, recurved spine. Dorsum of pleotelson with a characteristic inverted W-shaped pigmented figure. Posterior margin of pleotelson devoid of spines, but bordered by long, plumose setae.

REMARKS — The most striking feature of this species is the pigmented figure on the dorsum of the pleotelson (Fig. 5 A). It shows some variation, resulting chiefly from the amount and degree of the concentration of the pigment, but in all cases the inverted W-shaped figure is retained. In many

specimens an additional, narrow and elongated pigmented band is present close to and along the lateroposterior margin of the pleotelson (Fig. 5 B). Adult males can be easily separated from the females by the long "appendix masculinum" on the endopod of pleopod 2.

ECOLOGICAL NOTES - The species is an ecto-parasite. It has been already reported from the gills, as well as, externally from the body of many species of Teleostei and Plagiostomata fishes (Schiödte & Meinert, 1879, in Richardson, 1905; Menzies & Glynn, 1968). Along southern Brazil, the species was collected in the branchial cavity of "pescada branca" (*Cynoscion*

leiarachus) and under the pectoral fin of "pescada amarela" (*Cynoscion acoupa*). Most of the present material was gathered from the sea bottom. Many females collected in this way show the ventral body wall extremely expanded and prominent, owing to the large amount of blood ingested, which can be seen by transparency as a dark-reddish compact mass.

The species swims fast and actively, and may attack the swimmers voraciously, fixing itself tightly on to the skin by means of its strong first legs. The removal of the attached specimens results in a little bleeding.

GEOGRAPHICAL DISTRIBUTION - See Richardson (1905), and Menzies & Glynn (1968).

Present recordings: Rio de Janeiro and São Paulo. The report of the species in Santos, SP (Sta. 278), represents the most southern limit of occurrence of the species (Moreira, 1971a) thus its geographical range has been considerable extended southwards. It occurs also in the north of Brazil (Maranhão, Rio Grande do Norte and Pernambuco).

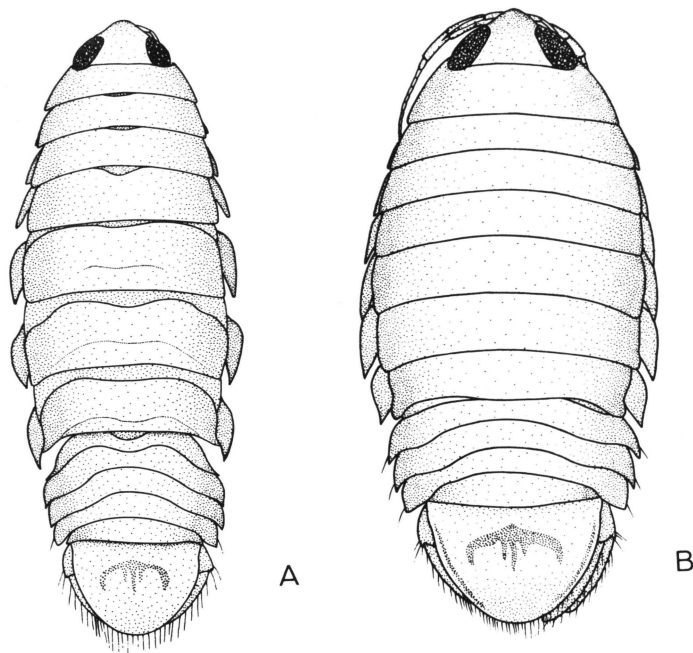


Fig. 5 - *Rocinella signata* Schiödte & Meinert. A. Dorsal view of adult female, 16.0 mm long, gut filled with blood. B. Dorsal view of adult male, 13.3 mm long.

RESUMO

O presente trabalho relaciona algumas espécies de isópodes marinhos coletados na região centro-sul do Brasil, em águas rasas, em algas, ou entre emaranhados de folhas e raízes. Cinco espécies são ilustradas e discutidas. Uma diagnose é dada para cada espécie. *I. metallica* e *S. marplatensis*, constituin-

do novas ocorrências para a região, tiveram sua distribuição geográfica consideravelmente ampliada até o Rio de Janeiro. A presença de *I. balthica* e *E. filiformis* na região é seguramente confirmada. Finalmente, são figurados o macho e a fêmea da espécie *R. signata*, ao mesmo tempo em que são fornecidos detalhes sobre sua ocorrência.

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REFERENCES

- BAAN, S.M. van der & HOLTHUIS, L.B. 1969. On the occurrence of Isopoda in the surface plankton in the North Sea near the lightship "Texel". Neth. J. Sea Res., 4 (3) : 354-363.
- BĂCESCU, M. 1949. Données sur la faune carcinologique de la Mer Noire le long de la côte Bulgare. Trav. Stn. marit. Varna (Bulgarie), 14 : 13-24.
- CĂRĂUSU, A. 1955. Contributions à l'étude des isopodes de la Mer Noire (littoral Roumain et régions adjacents). III. Famille Idoteidae. Anal. stiint. Univ. Al. I. Cuza, n. s., 1 (1-2) : 137-216.
- DANA, J.D. 1849. Conspectus Crustaceorum... descripsit. Am. J. Sci. Arts, ser. II, 8 : 424-428. (Not seen).
- 1853. Crustacea. U.S. Exploring Exp. under the command of Charles Wilkes, U.S.N., 1838-1842, 14, pt. 2 : 696-805.
- GIAMBIAGI, D. 1922. Cuatro nuevos isopodos de la Argentina. Physis, B.Aires, 20(5) : 230-244.
- GRUNER, H.E. 1965. Krebstiere oder Crustacea. V. Isopoda. Tierwelt Dtl., 51, pt. 1 : 1-149.
- HANSEN, H.J. 1916. Crustacea Malacostraca. III. Isopoda. Dan. Ingolf-Exped., 3 (5) : 1-262.
- HARGER, O. 1880. Report on the marine Isopoda of New England and adjacent waters. Rep. U.S. Commr. Fish. 1878, pt. VI : 297-462.
- HURLEY, D.E. 1961. A checklist and key to the Crustacea Isopoda of New Zealand and the subantarctic Islands. Trans. R. Soc. N.Z., 1 (20) : 259-292.
- KOEPCKE, H. W. 1948. Über das Zeichnungsmuster liniger *Idothea* - Arten (Isopoda). Zool. J. Physiol., 61 : 413-450.
- MACQUART-MOULLIN, C1. 1969. Les isopodes Cirolanidae, Cymothoidae, Sphaeromidae et Idoteidae dans le plancton du Golfe de Marseille. Tethys, 1 (2) : 261-270.
- MAÑE-GARZÓN, F. 1946. Nueva especie de crustaceo isopod del Uruguay: *Synidotea sphaeromiformis* n. sp. Commun.zool.Mus.Hist.nat.Montev., 28 (2) : 1-7.

- MATZDORFF, C. 1883. Ueber die Farbüng von *Idotea tricuspidata* Desm. Jena. Z. Naturw., 16 : 1-58.
- MENZIES, R.J. 1951. A new subspecies of marine isopod from Texas. Proc. U.S. natn. Mus., 101 (3289) : 575-579.
- 1962. The marine isopod fauna of Bahia de San Quintin, Baja California, Mexico. Pacif. Nat., 3 (11) : 337-348.
- & DOW, Th. E. 1957. The pelagic isopod *Idotea metallica* in the Mediterranean. Pubbl. Staz. zool. Napoli, 30 (2) : 330-336.
- & FRANKENBERG, D. 1966. Handbook on the common marine isopod Crustacea of Georgia. Athens, Univ. Georgia Press, 93 p.
- & GLYNN, P. W. 1968. The common marine isopod Crustacea of Puerto Rico. Stud. Fauna Curaçao, 27 : 1-133.
- & MILLER, M. A. 1956. A new genus of idotheid isopod from South Africa. Ann. Mag. nat. Hist., ser. 12, 9 : 358-360.
- MIERS, E.J. 1883. Revision of the Idoteidae, a family of sessile-eyed Crustacea. J. Linn. Soc., 16 : 1-88.
- MILLER, M.A. 1968. Isopoda and Tanaidacea from buoys in coastal waters of the continental United States, Hawaii and Bermudas (Crustacea). Proc. U.S. natn. Mus., 125 (3652): 1-53.
- MOORE, H.F. 1902. Report on Porto Rican Isopoda. Bull. U.S. Fish. Commn, 20 (2) : 161-176.
- MOREIRA, P.S. 1971a. Sobre *Rocinela signata* Schiödte and Meinert, 1879 (Isopoda, Flabellifera). Ciênc. Cult., 23 : 389. Supl.
- 1971b. Primeira ocorrência do gênero *Nalicornia* Moore, 1902 (Isopoda, Corallanidae) no Brasil. Ciênc. Cult., 23 : 389. Supl.
- 1971c. Espécies do gênero criófilo *Serolis* (Isopoda, Serolidae) na plataforma continental centro-sul do Brasil. Ciênc. Cult., 23 : 390. Supl.
- 1971d. Species of *Serolis* (Isopoda, Flabellifera) from southern Brazil. Bolm Inst. oceanogr., 20(1): 85-144.
- 1972. Species of *Eurydice* (Isopoda, Flabellifera) from southern Brazil. Bolm Inst. oceanogr. S Paulo, 21 : 69-91.
- 1973. Species of *Macrochiridothea* Ohlin, 1901 (Isopoda, Valvifera, from southern Brazil, with notes on remaining species of the genus. Bolm Inst. oceanogr. (in press).
- NAYLOR, E. 1955. The comparative external morphology and revised taxonomy of the British species of *Idotea*. J. mar. biol. Ass. U.K., 34 : 467-493.
- 1957a. Isopoda. Sub-order: Valvifera. Family: Idoteidae. Genera: *Idotea*, *Synisoma*, *Zenobiana*. Sub-order: Asellota. Family: Munnopsidae. Genus: *Munnopsis*. Fich. Ident. Zooplankton, 77 : 1-4.
- 1957b. The occurrence of *Idotea metallica* Bosc in British waters. J. mar. biol. Ass. U.K., 36 : 599-602.
- NORDENSTAM, A. 1933. Marine Isopoda of the families Serolidae, Idotheidae, Pseudidotheidae, Arcturidae, Parasellidae and Stenetriidae mainly from the

- South Atlantic. Further zool. Results Swed. Antarct. Exped., 3(1): 1-284.
- OHLIN, A. 1901. Isopoda from Tierra del Fuego and Patagonia. I. Valvifera. Svenska Exp. Magellansländerna, 2 (11) : 261-306.
- PICARD, J. 1965. Recherches qualitatives sur les biocoenoses marines des substrats meubles draguables de la région Marseillaise. Rec. Trav. Sta. mar. Endoume, 36 (52) : 1-160.
- RICHARDSON, H. 1899. Key to the isopods of the Pacific coast of North America, with descriptions of twenty-two new species. Proc. U.S. natn. Mus., 21 : 815-869.
- 1901. Key to the isopods of the Atlantic coast of North America with descriptions of new and little known species. Proc. U.S. natn. Mus., 23 : 493-579.
- 1905. A monograph on the isopods of North America. Bull. U.S. natn. Mus., 54 : I-XXV, 1-727.
- SCHIÖDTE, J.C. & MEINERT, Fr. 1879. Symbolae ad Monographian Cymothoarum Crustaceorum Isopodum familiae. I. Aegidae. Naturh. Tidsskr., 12 : 321-415. (not seen).
- SCHULTZ, G.A. & McCLOSKEY, L.R. 1967. Isopod crustaceans from the coral *Oculina arbuscula* Verril. J. Elisha Mitchell scient. Soc., 83(2) : 103-113.
- SHEPPARD, E.M. 1957. Isopod Crustacea. Part II. The sub-order Valvifera. Families: Idotheidae, Pseudidotheidae and Xenarcturidae fam.n. "Discovery" Rep., 29 : 141-198.
- STEPHENSEN, K. 1915. Isopoda, Tanaidacea, Cumacea, Amphipoda (excl. Hyperiidia). Rep. Danish ocean. Exp. 1908-10 to the Mediterranean and Adjacent Seas, 2 (3) : 1-53.
- TATTERSALL, W.H. 1911. Die Nordischen Isopoden. Nord. Plankton, 6 : 181-313.