

# *Leptocheirus spinicoxa*, a new species of Corophiidae (Amphipoda) from the northeastern Brazilian Coast.

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## Abstract

The genus *Leptocheirus* (Corophiidae) is recorded for the first time from Brazilian Coast, and a new species, *L. spinicoxa* is described. It is reported from the Bahia State, Brazil (Cavalo Russo Beach), living on detritus of mangrove leaves. *Leptocheirus spinicoxa* n. sp. differs from all known *Leptocheirus* species by presence of spines on posterior margins of coxae 2-4. A key to the world *Leptocheirus* species is presented.

**Key words:** Taxonomy, Amphipoda, Corophiidae, *Leptocheirus*

## Introduction

*Leptocheirus* is a genus with 12 species, found mostly at the Atlantic Ocean, Mediterranean Sea and Western Indian Ocean (Barnard and Karaman, 1991), is recorded for the first time from Brazilian Coast, Amphipods of this genus are benthic, domicolous detritivores, occurring mainly in shallow and brackish water, where they construct tubes (Bousfield, 1973). The occurrence of *Leptocheirus spinicoxa* n. sp. living on detritus of mangrove leaves, in Cavalo Russo Beach (11° 44' 64" S - 37° 31' 23" W) Bahia State, Brazil, extends this genus distribution into the southwest Atlantic Ocean.

According to Barnard and Karaman (1991) the genus *Leptocheirus* is characterized by the usually filtrative condition of article 2 on gnathopods 1-2 with dense setae and apices of inner plates on maxilliped bearing setae.

The types are lodged in Museu de Zoologia da Universidade de São Paulo: holotype (MZUSP 15848) and paratype (MZUSP 15847).

*Leptocheirus spinicoxa* n.sp.

**Material examined:** Holotype female 8.8mm (MZUSP 15848), from Cavalo Russo Beach, Bahia, Brazil (11°46'64"S- 37°31'23"W), 15 March, 2002. Paratype 1 male 9.0 mm (MZUSP 15847), same date and locality as holotype.

**Diagnosis :** Flagellum accessory with one article; coxa 1 produced anteriorly, distal margin rounded; coxae 2- 4 with 3- 4 spines on posterior margin; gnathopod 2 dactylus straight and slender; uropods 1 and 2 with peduncle distal teeth about half length of outer ramus; uropod 3 rami and peduncle subequal in length.

**Description:** Female length 8.8mm : brown patches on pereon, coxal plates and pereopod

basis. Head lateral lobes moderately produced, eyes large and oval situated proximal to lobes (fig. 1A). Antenna 1 scarcely longer than antenna 2, less than 50 percent as long than body, peduncular articles in the basi-distal length ratio 5:6:3, flagellum 14- articulate, articles and peduncle sparsely setose. Accessory flagellum one-articulate (fig. 1B). Antenna 2 more robust than antenna 1 and poorly setiferous, peduncle article 3 longer than 4, and article 4 longer than 5, flagellum short with 3 -5 articles.

Mandible palp article 3 longer than 2, not falcate, distal inner margin with 17- 20 plumose setae (fig.1C). Inner plate of maxilla 1 with 1 apical setae, outer plate with 8 apical spines, palp article 2 with 5 apical spines (fig.1D). Plates of maxilla 2 broad (fig.1E). Maxilliped inner plate narrow with plumose setae on the inner margin, outer plate not reaching apex of palp article 2, palp article 2 longer than article 3 and 4 together, not lobate, article 4 short, with apical setae (fig. 1F).

Coxa 1 depth twice breadth, produced anteriorly, distal margin rounded, poorly setose. Gnathopod 1 basis stout provided with 2 rows of setae on anterior margin. Isquium, merus, carpus and propodus densely setose on posterior margin. Carpus rectangular slightly longer than propodus. Propodus subrectangular, palm transverse. Dactylus anterior margin with four small spines and slightly longer than palm (fig.2A).

Coxa 2 larger than 1, 3 and 4, deeper than broad, expanded anterodistally with setae on distal margin, and with 3 spines on posterior margin. Gnathopod 2 straight and slender, basis anterior margin with two rows of numerous long fine sieve setae. Merus with long fine sieve setae on anterior margin. Carpus stout longer than propodus, both with long setae on anterior margin and short setae on posterior margin. Dactylus straight and short and without setae (fig.2B).

Coxa 3 and 4 deeper than broad, with few setae on distal margin and with 3 -4 spines on posterior margin. Pereopod 3 -4 like each other, sparsely setose, stout. Merus longer than carpus and propodus. Propodus narrowed, recurved, longer than carpus. Dactylus weakly curved, shorter than propodus (figs 2D, E).

Pereopods increasing in length from 5-7.

Coxa 5 dilated anterodistally. Pereopod 5 stout with few long plumose setae on anterior margin of basis, isquium and merus, basis expanded. Merus and propodus longer than carpus, propodus with 3 spines on anterior margin. Dactylus curved (fig.3A).

Pereopod 6 stout, with few long plumose setae on anterior margins of basis, isquium and merus. Basis dilated. Merus and propodus longer than carpus. Propodus with 6 spines on anterior margin and 2 spines on posterior margin. Dactylus curved (fig. 3B).

Pereopod 7 basis length 1/3 width, with numerous plumose setae on posterior and anterior margins. Merus, carpus and propodus provided with group of spines and setae, especially propodus, on both margins (fig.3C).

Epimeral plates 1 -3 rounded-quadrangle, posterior margin weakly convex, epimeron 2 distal margin with plumose setae. Urosome segments 1 and 2 dorsally smooth, with paired group of setae.

Uropod 1 and 2 robust and with strong spines, both peduncles with distal teeth which are half length of outer ramus. Uropod 1 peduncle longer than rami, with 4 spines on inner margin, both rami with marginal and apical spines (fig.3D). Uropod 2, stout, rami longer than peduncle, outer ramus 4/5 length of inner ramus, peduncle and rami with marginal and apical spines (fig.3E). Uropod 3 peduncle without spines, rami and peduncle subequal in length, rami slender with facial spines and apical setae. Telson broader than long, subovoid with 2 apicolateral setae (Fig. 3F).

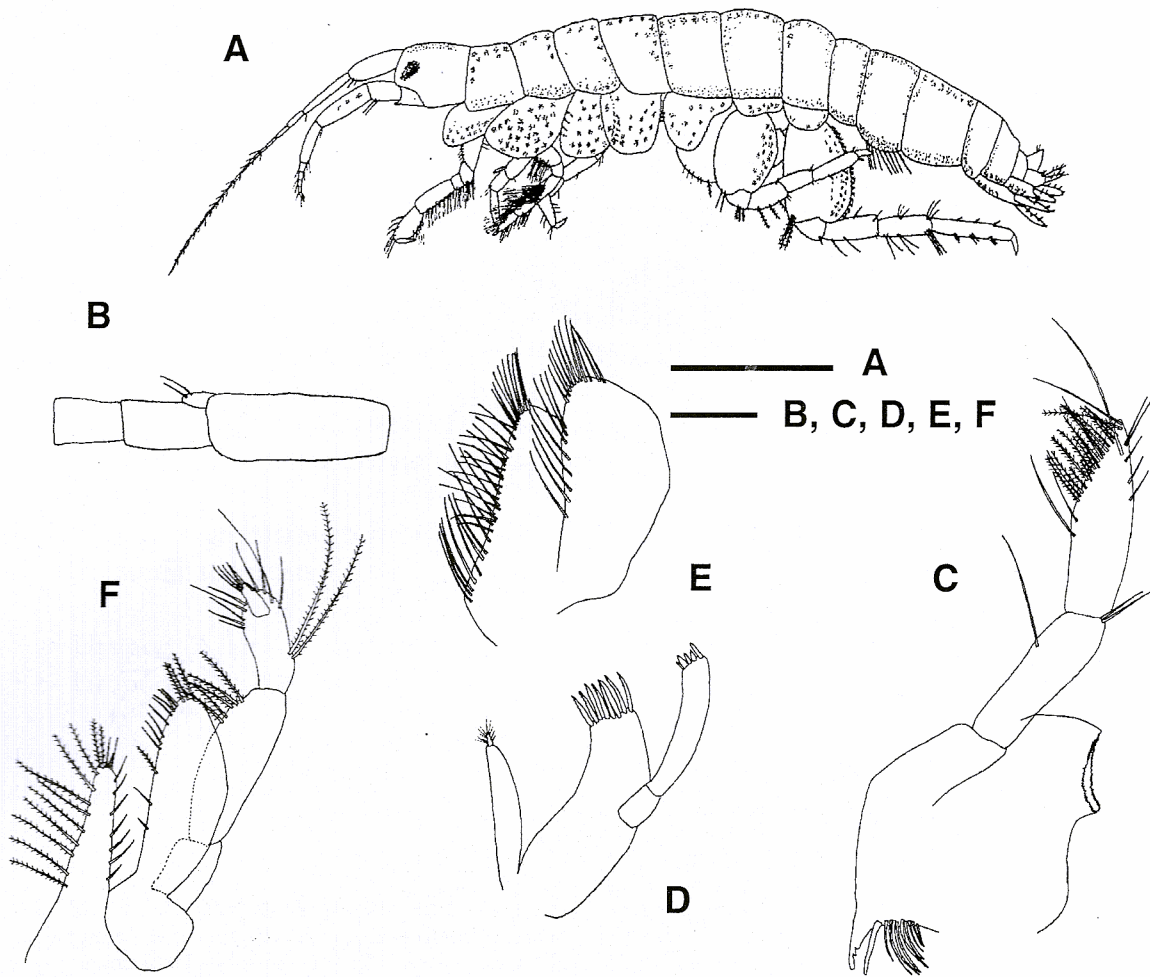


Figure 1: *Leptocheirus spinicoxa* n. sp., holotype female 8.8mm, Cavallo Russo Beach, Bahia State, Brazil (MZUSP 15848). A- habitus; B- peduncle of antenna 1 and flagellum accessory; C- Mandibule; D- Maxilla 1; E- Maxilla 2; F- Maxillipede. Scale bars: A 1.0mm; E - F 0.1mm.

Male (9.0 mm length) Gnathopod 1 more robust than that of the female, basis anterior margin with many plumose setae, merus short than isquium and with posterior margins bearing numerous fine sieve setae, carpus slightly shorter than propodus with several setae on posterior margin, propodus longer than broad, palm oblique and weakly convex, margin minutely toothed and with few small spines, dactylus slightly longer than palm, curved (fig.2C).

**Etymology.** The name *spinicoxa* refers to the spines on the coxae 2-4.

#### Remarks

*Leptocheirus spinicoxa* n. sp. differs from all other known *Leptocheirus* species by presence of 3-4 spines on posterior margin of coxae 2 - 4.

*L. spinicoxa* is closely related to *L. rhizophora* Ortiz and Lalana, 1980 and *L. pilosus* Zaddach, 1844 with which they share: flagellum accessory 1-articulate, coxa 1 anteriorly produced, peduncle of uropod 1 with distal tooth measuring less than  $\frac{1}{2}$  length of outer ramus and urosome segments dorsally smooth. Despite these similarities among *L. spinicoxa* n.sp. and *L. rhizophorae* they can be distinguished by: (1) length of uropod 3 rami subequal in *L. spinicoxa* while in *L. rhizophorae* outer ramus is longer than inner; (2) gnathopod 2 carpus longer than propodus in *L. spinicoxa* while in *L. rhizophorae* carpus subequal to propodus; (3) pereopods 5-7 anterior margin of propodus provided with groups of spines and setae in *L. spinicoxa* and with only setae in *L. rhizophorae*.



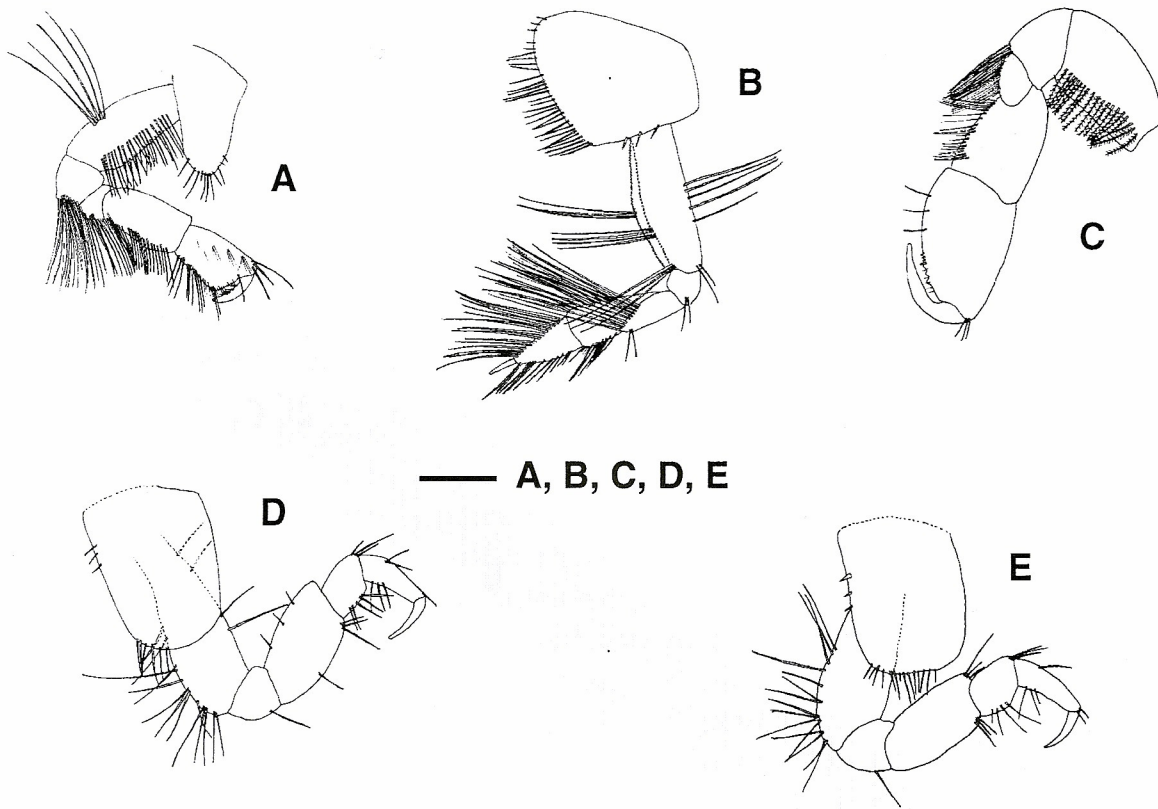


Figure 2: *Leptocheirus spinicoxa* n. sp., holotype female 8.8mm, Cavalo Russo Beach, Bahia State, Brazil (MZUSP 15848). A- Gnathopod 1; B- Gnathopod 2, coxa with spines; D- Pereopod 3, coxa with spines; E Pereopod 4, coxa with spines. Paratype male 9.0mm (MZUSP 155847) C- Gnathopod 2. Scale bars: A - F 0.5mm.

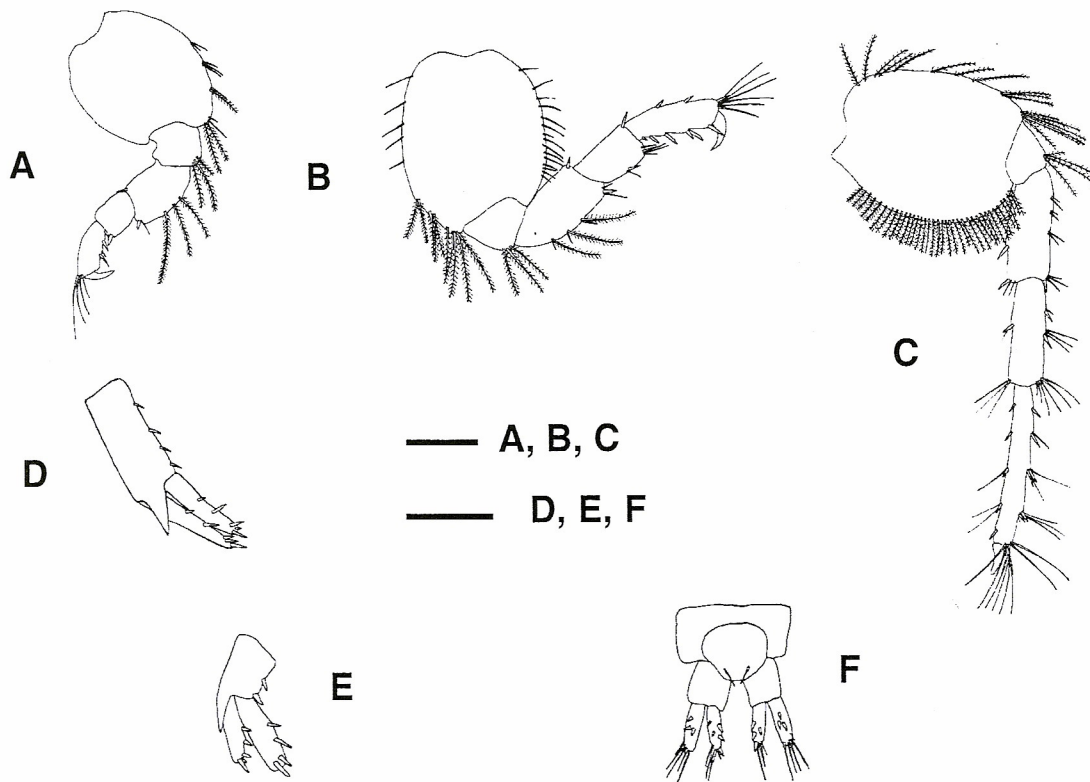


Figure 3: *Leptocheirus spinicoxa* n. sp., holotype male 8.8mm, Cavalo Russo Beach, Bahia State, Brazil (MZUSP 15848). A- Pereopod 5; B- Pereopod 6; C- Pereopod 7; D- Uropod 1; E- Uropod 2; F- Telson and Uropod 3. Scale bars: A - C 0.5mm; D - F 0.5mm.

On the other hand, *L. spinicoxa* and *L. pilosus* can be distinguished by: (1) uropod 2 distal tooth of peduncle is subequal to  $\frac{1}{2}$  length of outer ramus in *L. spinicoxa* while in *L. pilosus* is more than  $\frac{1}{2}$  length; (2) gnathopod 2 dactylus straight and slender in *L. spinicoxa* while in *L. pilosus* is curved and stout; (3) telson subovoid, with rounded distal margin in *L. spinicoxa* while in *L. pilosus* is trapezoidal with prominent distolateral angles.

Locality : Cavalo Russo Beach, Bahia State, Brazil; intertidal, (11°46'64"S-37°31'23"W).

KEY TO LEPTOCHEIRUS SPECIES (modified from Myers,1982).

- 1a- Gnathopod 2 anterior margin of basis weakly setiferous .....*L. longimanus*  
 1b- Gnathopod 2 anterior margin of basis densely setiferous.....2
- 2 a Urosome segments with strong dorsolateral teeth .....3  
 2b- Urosome segments dorsally smooth.....7
- 3 a- Uropod 3 rami subequal ..... 4  
 3 b- Uropod 3 inner ramus less than  $\frac{1}{2}$  length of outer ..... *L. guttatus*
- 4 a- Urosome segments 1 and 2 with a paired dorso lateral teeth ..... 5  
 4 b- Urosome segment 2 naked or with a small paired dorsal lappet, easily overlooked .....6
- 5a-Accessory flagellum 5 - 7 articulate, uropod 3 rami with 3-4 spines groups.....*L. pinguis*  
 5b- Accessory flagellum 2- articulate, uropod 3 peduncle provided with marginal spines isolated .....*L. mariae*
- 6a- Urosome segment 1 with large median keel and a pair of lateral teeth, uropod 3 outer ramus shorter than peduncle.....*L. tricristatus*  
 6b- Urosome segment 1 with paired 2 dorsal teeth, uropod 3 outer ramus and peduncle with equal length ..... *L. bispinosus*
- 7 a- Coxa 1 subretangular and not produced anteriorly ..... 8  
 7b- Coxa 1 deeper than broad .....9
- 8 a- Uropod 2 extremely robust and spinose, uropod 3 rami spinose .....*L. hirsutimanus*  
 8 b- Uropod 2 slender, uropod 3 rami with long apical setae .....*L. dusfreni*
- 9 a- Coxa 1 produced anteriorly into acute process .....*L. pectinatus*  
 9 b- Coxa 1 rounded anteriorly.....10
- 10 a- Flagellum accessory 3 - 4 articulate .....*L. plumulosus*  
 10 b- Flagellum accessory 1- articulate or vestigial .....11
- 11 a- Uropod 3 outer ramus equal length inner ramus .....12  
 11 b- Uropod 3 outer ramus longer than inner ramus .....*L. rhizophorae*
- 12 a- Uropod 2 peduncle distal tooth more than  $\frac{1}{2}$  length of outer ramus, telson trapezoidal with prominent distolateral angle; caxae 2 - 4 posterior margin without spines.....*L. pilosus*  
 12 b- Uropod 2 peduncle distal tooth subequal than  $\frac{1}{2}$  length of outer ramus, telson subovoid with rounded distal margin; coxae 2 - 4 posterior margin with 3 - 4 spines.....*L. spinicoxa* n.sp.

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## References

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- Barnard, J. L.; and Karaman, G. S. 1991. The families and genera of marine gammaridean Amphipoda (except marine gammaroids). Records of the Australian Museum, Suppl.13 (part1): 1-417.
- Bousfield, E. L. 1973. Shallow-water gammaridean Amphipoda of New England .vii-xii + 312 pp., 13 figs, 69 pls. Ithaca and London : Cornell University Press.
- Myers, A. A. 1982. The Amphipoda of the Mediterranean, part I (Acanthonotozomatidae to Gammaridae). (ed. S. Ruffo). Mémoires de l'Institut océanographique Monaco 13: 1-364.
- Ortiz, M. and Lalana, R. R. 1980. Un nuevo anfípoda del genero *Leptocheirus* (Amphipoda, Gammaridea) de aguas cubanas. Revista de Investigaciones marímas 1(1): 57-73.
- Zaddach, E. G. 1844. Synopseos crustaveorum prussicorum prodormus. Dissertatio zoologica, quam scripsit et ex auctoritate amplissimi phiposophorum ordinis in academia Albertina pro facultate docendi adipiscenda die XI.M. Decembris...viii and 39 pp. regiomonte: E. J. Daljowski.

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