

**NEW AND RARE SPECIES OF *LECANE*
AND *LEPADELLA* (ROTIFERA : LECANIDAE ;
COLURELLIDAE) FROM BRAZIL**

by

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ABSTRACT

The taxonomy and distribution of some new or rare species of the rotifer genera *Lecane* and *Lepadella* are discussed. *Lecane braziliensis* n. sp. and *Lepadella amazonica* n. sp. are described. The presence of *Lecane dumonti* SEGERS, *L. uenoi* YAMAMOTO, *Lepadella lindau* KOSTE, *L. bicornis* VASISHT and BATTISH and *L. pterygoida* (DUNLOP) in the neotropical region is reported or confirmed.

Key words : Rotifera, taxonomy, zoogeography, *Lecane*, *Lepadella*, new species.

RESUMO

A taxonomia e distribuição de algumas espécies, novas, ou raras, de rotíferos dos gêneros *Lecane* e *Lepadella* são discutidas. São descritos duas novas espécies *Lecane braziliensis* n. esp. e *Lepadella amazonica* n. esp. A presença de *Lecane dumonti* SEGERS, *L. uenoi* YAMAMOTO, *Lepadella lindau* KOSTE, *L. bicornis* VASISHT e BATTISH e *L. pterygoida* (DUNLOP) é registrada ou confirmada para a região neotropical.

INTRODUCTION

The aquatic habitats in the floodplain of the Amazon and Pantanal Rivers have a remarkably high rotifer diversity, equalled only by that of some other tropical floodplain areas such as those of the Niger (Africa : SEGERS *et al.*, 1993) or Murray-Darling (Australia : SHIEL and KOSTE, 1983). Of all these, however, it is the

Amazon basin which has received most attention by workers on Rotifera, especially by HAUER (1965) and KOSTE (e.g., 1972).

One of the sites studied recently is shallow waters on the Island of Maracá, Roraima, Brazil (KOSTE and ROBERTSON, 1990). While studying some replicate samples from the above-mentioned study, we found some specimens of the rotifer genera *Lecane* NITZSCH and *Lepadella* BORY DE ST. VINCENT which needed taxonomic reconsideration. Along with a report on these, some records of rare congeners, apparently not or unsatisfactorily reported from the neotropical region before, are provided.

MATERIAL AND METHODS

Samples are from the Island of Maracá, Roraima, Brazil (18 June 1987, leg. E. N. dos Santos-Silva and B. Robertson), from the Pantanal region : Rio Abobral, Paraguai and Miranda (27-29 August 1985, leg. A. L. de Oliveira-Neto), and from a pond near Lobo Reservoir, São Paulo (3 January 1990, leg. H. J. Dumont). All are qualitative and were taken with a 50, 55 or 67 μm plankton net, and preserved in formalin.

Measurements are in μm .

RESULTS

Lecane braziliensis SEGERS, n. sp.

Figs 1a-c

Type locality : Pond on Maracá Island, Roraima, Brazil.

Types : Female holotype, three female paratypes in the I.N.P.A., Manaus, Brazil (ROT-040, ROT-041), three female paratypes in the collection of the Institute of Animal Ecology, R.U.G.

Description

Female. Loriccate species. Dorsal lorica plate anteriorly narrower, medially wider than ventral plate, with a pair of longitudinal folds and some irregular folds. Head aperture margins nearly coincident, straight, dorsally with slightly protruding median part, antero-lateral corners angulate. Ventral plate longer than wide, with incomplete transverse and longitudinal folds, ornamented. Lateral margins smooth, straight, with anterior notch. Lateral sulci deep. Foot plate relatively narrow, coxal plates rounded or irregularly deformed through fixation. Prepedal fold narrow, elongate, posterior margin medially with projection. Foot pseudosegment simple, slightly projecting. Toes fused over proximal half, slightly dilated from medially onwards. Claws completely separated, slightly less than half as long as the toes.

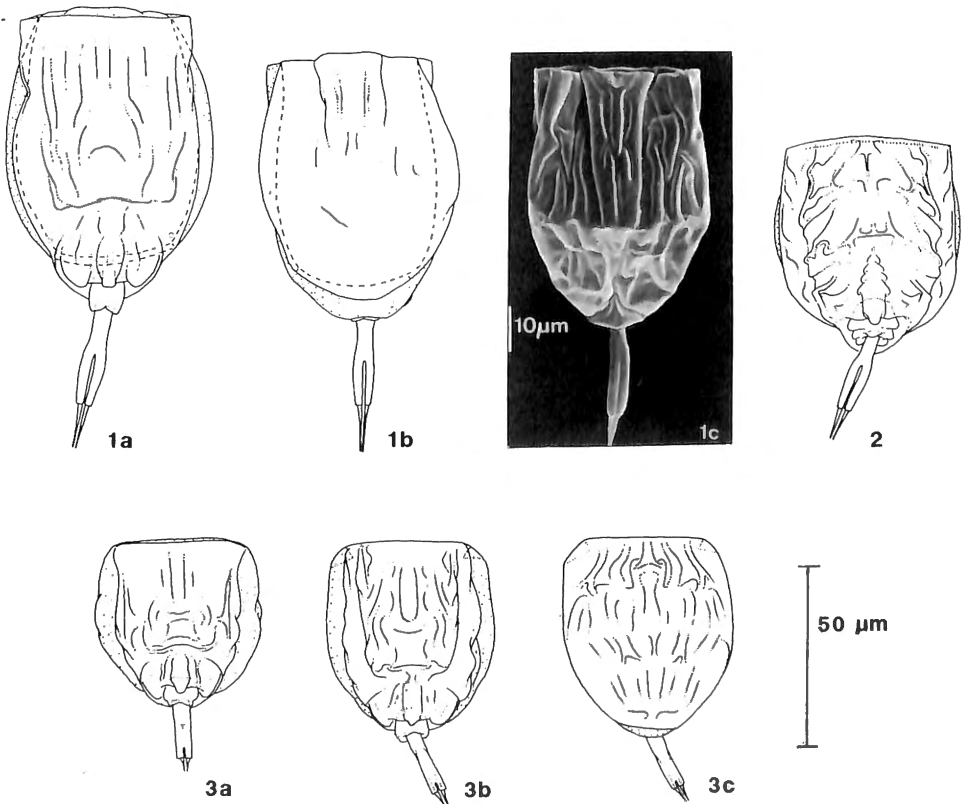
Male unknown.

Measurements

Dorsal plate length 67-74, dorsal plate width 46-57, ventral plate length 69-79, ventral plate width 43-50, toe length (without claws) 24-27 (fused part : 13-14), claw length 8-14.

Differential diagnosis

L. braziliensis n. sp. resembles *L. inopinata* HARRING and MYERS, 1926 and *L. sympoda* HAUER, 1929. The species, however, has a more elongate lorica than these two, and lacks the triangular antero-lateral projections of *L. sympoda*. The great length of its claws (8-14 μm , versus 3-5 μm in *L. inopinata* and 5-7 μm in *L. sympoda*), and the presence of strong longitudinal folds in the anterior region of the dorsal lorica provide an easy diagnostic feature for the species.



Figs 1-3. — 1. *Lecane braziliensis* n. sp. a : ventral view ; b : dorsal view ; c : dorsal view, S.E.M. photograph. — 2. *Lecane dumonti* SEGERS, ventral view. — 3. *Lecane uenoi* YAMAMOTO. 3a, b : ventral views, c : dorsal view.

Etymology

The specific name *braziliensis* is an adjective, derived from the name of the country where the species was found, Brazil.

Distribution

Several *L. braziliensis* n. sp. were found in a sample from the Island of Maracá, a single specimen occurred in a sample of the Rio Miranda, Pantanal region of Brazil.

Lecane dumonti SEGERS, 1993

Fig. 2

Material : Two female specimens from a pond on the Island of Maracá, Roraima, Brazil.

Comments

This remarkable species was recently described from a single locality in Nigeria (Lake Oguta, Imo State : SEGERS, 1993), and can now also be cited from Brazil. The present specimens differ only slightly from Nigerian ones, in being smaller. The distribution of *L. dumonti* is as that of *Lepadella minoruoides* KOSTE and ROBERTSON, 1983 (SEGERS *et al.*, 1993). Formulating a hypothesis that explains this distribution pattern seems at present unjustified.

Measurements

Dorsal plate length 56 (59-69), dorsal plate width 50 (58-67), ventral plate length 59 (66-71), ventral plate width 49 (53-65), toe length (without claws) 24 (23-25) (fused part : 9 (9-13)), claw length 8 (11-14)(Nigerian specimens between brackets).

Lecane uenoi YAMAMOTO, 1951

Figs 3a-c

Synonym : *L. rugosa* (HARRING, 1914) after KOSTE (1974)

Material : Several female specimens from a pond near Lobo reservoir, São Paulo ; single female specimen from a pond on Maracá Island, Roraima, Brazil.

Comments

L. uenoi is the only *Lecane* combining incompletely fused toes and a dorsal lorica being consistently broader than the ventral lorica. By this, the small species can hardly be confused with any congener. The Brazilian specimens deviate in some minor details from YAMAMOTO's (1951) description of the species. The shape of the head aperture margins differs slightly, variably pronounced ornamentations of the

lorica are present and the claws are parallel, not diverging in the Brazilian specimens. All these characters are, however, known to be subject to intraspecific variation in the genus.

The area of *L. uenoi* is insufficiently documented. The species is only known from its type locality in Japan (Rokujizo pond, Kyoto prefecture : YAMAMOTO, 1951), and from three localities in Brazil.

Measurements

Dorsal plate length 44-53 (50), dorsal plate width 46-48 (48), ventral plate length 47-52 (50), ventral plate width 35- 41 (41), toe length (without claws) 14-18 (14), claw length 4-5 (4)(Japanese specimen between brackets).

Lepadella amazonica SEGERS, n. sp.

Figs 4a-e

Synonym : *L. quinquecostata* (LUCKS, 1912) after KOSTE (1974) and KOSTE (1978), partim.

Type locality : Pond on Maracá Island, Roraima, Brazil.

Types : Female holotype in the I.N.P.A., Manaus, Brazil (ROT- 042), female paratype in the collection of the Institute of Animal Ecology, R.U.G.

Description

Female. Lorica elongate, width about two thirds of length. Head aperture ventrally a deep V-shaped sinus, dorsally semicircular in anterior view, concave in dorsal view, with stippled collar. Lorica dorsally with three groups of longitudinal carinas : one middorsal and a pair of lateral groups, each group consisting of two blunt carinas, fused caudally in the middorsal group. Edge of lorica laterally slightly curved, caudally nearly straight. Foot with three distinct pseudosegments, the distal one the longest. A pair of equal-sized toes present.

Male unknown.

Measurements

Lorica length 77-90, width 53-60. Head aperture width 26-32, depth ventrally 15-16, dorsally 5-7. Foot aperture width 15, length 22. Toe length 20-23.

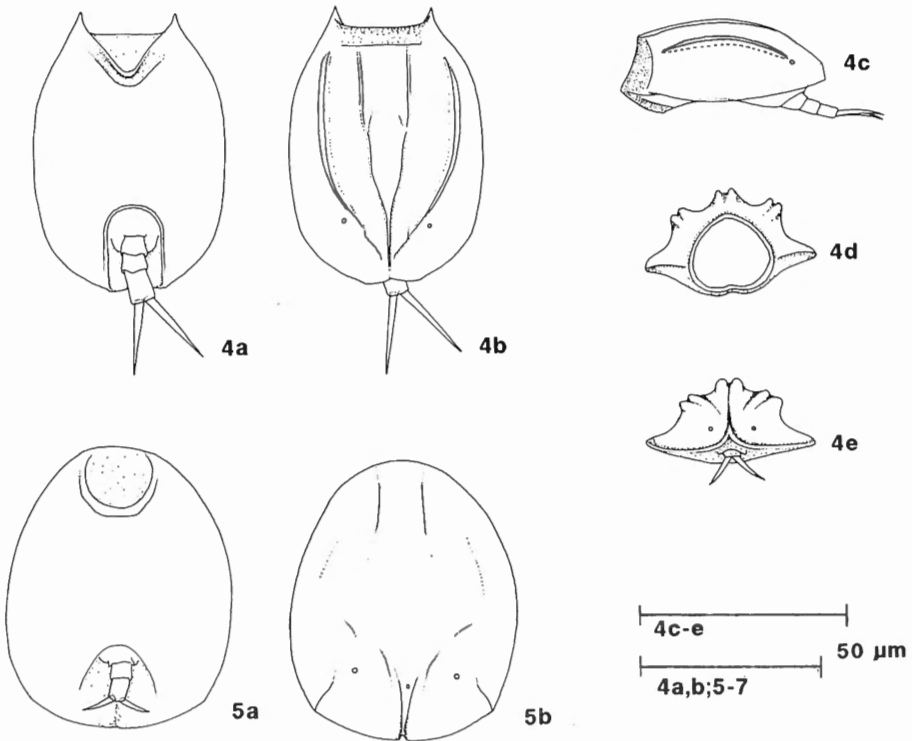
Differential diagnosis

L. amazonica n. sp. is characterised by the configuration and shape of the longitudinal carinas on its dorsal lorica. Three groups of blunt, longitudinal carinas are present : one middorsal group of two carinas, fused distally, and two lateral ones. In this, the species differs from *L. quinquecostata* (LUCKS, 1912) (see figs 10a-g in SEGERS *et al.*, 1992), which has five sharp, longitudinal carinas (one middorsal,

two intermediate and two lateral), situated at regular distances. Additionally, the general shape of lorica of *L. quinquecostata* clearly differs from *L. amazonica* n. sp. in being flatter and more elongate, and in having a differently shaped head aperture. *L. berzinsi* SEGERS, 1993 (figs 2a-e in SEGERS, 1993) has a similar general shape of lorica, but the disposition of its six sharp, longitudinal carinas in three pairs (middorsal, intermediate and lateral) is different.

Etymology

The specific name *amazonica* is an adjective, derived from the species' area.



Figs 4-5. — 4. *Lepadella amazonica* n. sp. a : ventral view, b : dorsal view, c : lateral view, d : frontal view, e : caudal view. — 5. *Lepadella lindauui* Koste. a : ventral view, b : dorsal view.

Distribution

L. amazonica n. sp. is known from the type locality and from the shore of the Rio Tapajós near Santarém, Brazil. The species appears to be endemic to of the Amazon region.

Affiliation

Although easily distinguished from it, *L. amazonica* n. sp. seems most closely related to *L. berzinsi*, taking into account the similar general shape of lorica and the presence of six carinas in both species. As *L. amazonica* n. sp. and *L. berzinsi* can be considered endemics of South America resp. Africa, the species-pair may represent a case of vicariance.

Lepadella lindau KOSTE, 1981

Figs 5a, b

Material : Five female specimens from a pond on the island of Maracá, Roraima, Brazil.

Comments

The species closely resembles *L. apside* HARRING, 1916 by the shape of its lorica and head aperture, but is easily distinguished by the presence of longitudinal ridges on its dorsal lorica.

L. lindau is known from Australia (Winmurra Billabong) and Africa (Mombasa, Kenya : KOSTE, 1981, Abadaba Lake, Imo State, Nigeria, leg. S. N. Umeham), and now also from Brazil. The species appears to be pantropical.

Lepadella bicornis VASISHT and BATTISH, 1971

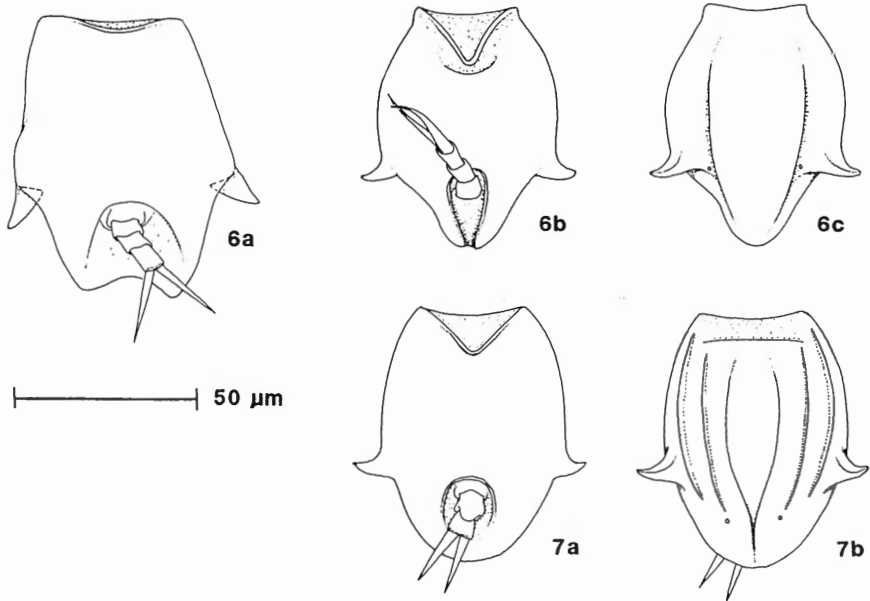
Figs 6a-c

Synonyms : *L. ehrenbergii* (PERTY, 1850) after KOSTE (1974). *L. pterygoides* (DUNLOP, 1897) (sic.) after BRANDORFF *et al.* (1982), KOSTE (1978), partim. *L. pterygoides* (sic.) after KOSTE (1978), partim.

Material : One specimen of *L. bicornis* in samples from the Rio Abobral and Rio Paraguai each (Pantanal region, Brazil).

Comments

L. bicornis is characterised by its equally-long toes, the presence of lateral projections on the lorica and by its dorsal lorica having a broad, elongate central dome. Other *Lepadella*'s with lateral projections on the lorica are (see KOSTE, 1978 ; 1981) : *L. triptera* EHRENBERG, 1830 f. *alata* MYERS, 1934 ; *L. ehrenbergii* (PERTY, 1850), *L. pterygoida* (DUNLOP, 1897) and *L. minorui* KOSTE, 1981. The first-named differs from *L. bicornis* by its more or less triangular cross-section, with sharp mid-



Figs 6-7. — 6. *Lepadella bicornis* Vassist and Battish. a, b : ventral views, c : dorsal view. — 7. *Lepadella pterygoida* (Dunlop). a : ventral view, b : dorsal view.

dorsal edge. *L. ehrenbergii* has unequally long toes, *L. pterygoida* is characterised by the presence of six longitudinal ridges on its dorsal lorica (Figs 7a-b). *L. minorui* has a lorica covered with minute spines, bifid lateral projections, and a triangular cross-section with a sharp middorsal crest.

L. bicornis was originally described from North India (VASISHT and BATTISH, 1971). KOSTE (1974) and BRANDORFF *et al.* (1982) figured what appears to be this species from the Amazon region, Brazil (Rio Tapajós and Rio Nhamunda, resp.). The record by BRANDORFF *et al.* (1982) is, according to KOSTE and JOSÉ DE PAGGI (1982), the only record of *L. pterygoida* from the neotropical region. Its presence in South-America can, nevertheless, be confirmed by our record from the Pantanal region, Brazil (Rio Paraguai : Figs 4a-b). *L. pterygoida* can be considered cosmopolitan : records are from Japan (YAMAMOTO, 1960), U.S.A. and U.K. (HARRING, 1916).

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