

Notes on some new or little known Rotifera from Brazil

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ABSTRACT

The rotifer fauna of three localities near Boa Vista (Roraima, Brazil) is studied. A total of 66 species is identified, 6 of which are new to Brazil. Macrochaetus aspinus sp. n., M. americanus sp. n. and Trichocerca abilioi sp. n. are described. Lepadella latusinus striata Koste, Dicranophorus halbachi Koste and Trichocerca parvula Carlin are recognized as synonyms of L. costatoides Segers, D. kostei Pourriot and Zoppi de Roa and T. rotundata Myers, respectively.

KEYWORDS : Rotifera — Brazil — New species — Taxonomy — Zoogeography.

RÉSUMÉ

NOTES SUR QUELQUES ROTIFÈRES NOUVEAUX OU PEU CONNUS DU BRÉSIL

La présente contribution concerne la faune de rotifères de trois localités dans les environs de Boa Vista (Roraima, Brésil). Au total, 66 espèces ont été identifiées, dont 6 nouvelles pour la faune brésilienne. Macrochaetus aspinus sp. n., M. americanus sp. n. et Trichocerca abilioi sp. n. sont décrites. Lepadella latusinus striata Koste, Dicranophorus halbachi Koste et Trichocerca parvula Carlin sont reconnues comme synonymes de L. costatoides Segers, D. kostei Pourriot et Zoppi de Roa et T. rotundata Myers, respectivement.

MOTS CLÉS : Rotifères — Brésil — Espèces nouvelles — Taxonomie — Zoogéographie.

RESUMEN

NOTAS SOBRE ALGUNOS ROTIFEROS NUEVOS O POCO CONOCIDOS DE BRASIL

El estudio de los rotíferos de tres localidades de la región de Boa Vista (Roraima, Brasil) ha resultado en la identificación de 66 especies, de las cuales 6 son nuevas para Brasil. Tres nuevas especies han sido descritas: Macrochaetus aspinus sp. n., M. americanus sp. n. y Trichocerca abilioi sp. n. Lepadella latusinus striata Koste, Dicranophorus halbachi Koste y Trichocerca parvula Carlin han sido reconocidas como sinónimos de L. costatoides Segers, D. kostei Pourriot y Zoppi de Roa y T. rotundata Myers, respectivamente.

PALABRAS CLAVES : Rotifera — Brasil — Nuevas especies — Taxonomía — Zoogeografía.

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INTRODUCTION

Neotropic Rotifera have been relatively well-studied, when compared to many other tropical regions. Major contributions date as far back as 1913, when MURRAY published several papers on the bdelloid (MURRAY, 1913 a) and monogonont (MURRAY, 1913 b, c) rotifers of South America. Later, HAUER (1956, 1964, 1965 a, 1965 b) and, especially, KOSTE (1972, 1974, 1986, 1988, 1989), BRANDORFF *et al.* (1982), KOSTE and ROBERTSON (1983), KOSTE *et al.* (1984), KOSTE and HARDY (1984), KOSTE and BÖTTGER (1989) added significantly to the knowledge of Brazilian Rotifera.

The relatively high number of endemic species and the highly diverse rotifer taxocoenosis of its freshwater habitats offer an explanation for the lasting attractiveness of the region as subject for studies on Rotifera. This is reflected in the large number of recent contributions becoming available (e.g., BATTISTONI, 1992; KOSTE and BÖTTGER, 1992; KOSTE and ROBERTSON, 1990; KUCZYNSKI, 1991 a, 1991 b; NEUMANN-LEITÃO, 1990; SAMANEZ, 1991; SEGERS *et al.*, 1993 b; TURNER, 1990 a, 1990 b; TURNER and DA SILVA, 1992). Nevertheless, still a lot remains to be discovered on the taxonomy, distribution and ecology of these organisms, as illustrated here.

MATERIAL AND METHODS

Samples were collected by dragging a 50 μm plankton net through the littoral vegetation of several water bodies in the region of Boa Vista, Roraima, Brazil (map 1). Of these, we were able to examine samples from three localities as listed below.

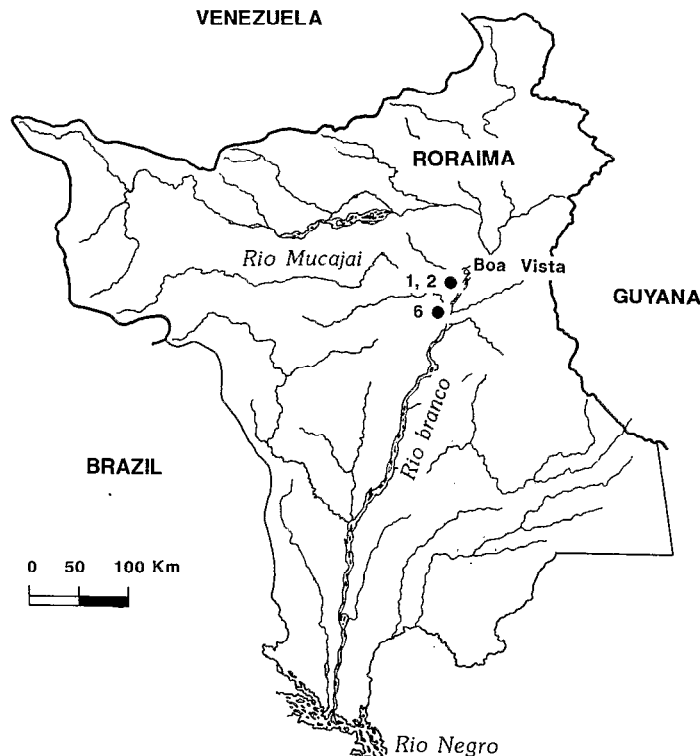
— Locality 1. Temporary lagoon, \pm 50 m long, 40 m wide, depth up to 1 m, about 5 km S. of Boa Vista, Roraima, Brasil, 24 June 1987. Conductivity 5.7 μS ; O_2 7.2 mg/l; T° (surface) 32.9 $^\circ\text{C}$; pH 6.1.

— Locality 2. Permanent lagoon along Rio Branco, about 7 km S. of Boa Vista, Roraima, Brasil, 24 June 1987. Conductivity 5.7 μS ; O_2 7.1 mg/l; T° (surface) 36.6 $^\circ\text{C}$; pH 5.3.

— Locality 6. Temporary inundation pond, of side stream of Rio Branco, near Mucajai, Roraima, Brasil, 24 June 1987. Conductivity 10.5 μS ; O_2 6.1 mg/l; T° (surface) 36.4 $^\circ\text{C}$; pH 4.0.

All samples are qualitative, and preserved in formalin. Selection and study of rotifer specimens was done using a M10 dissecting microscope and a Medilux 12 (Kyowa) microscope. Drawings were made using a camera lucida.

Type specimens are deposited in the Instituto Nacional de Pesquisas da Amazônia, Manaus,



MAP 1. — Roraima State, Brazil, indicating the sampling stations.
État de Roraima, Brésil, avec localisation des stations de récolte.

Brazil (I.N.P.A.), the Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Belgium (K.B.I.N.), and the Institute of Animal Ecology, University of Gent, Belgium (R.U.G.)

All measurements are in μm .

RESULTS AND DISCUSSION

A list of the monogonont Rotifera identified from the samples examined is provided below, where numbers refer to the sampling station, * for species new to Brazil and ** indicates a species new to the neotropics region.

Asplanchna sieboldi (Leydig) : 1
Cephalodella mira Myers : 1
C. mucronata Myers : 6
Colurella uncinata (O. F. Müller) f. *bicuspidata* (Ehrenberg) : 1
Dicranophorus epicharis Harring and Myers : 2
D. kostei Pourriot and Zoppi de Roa : 1
 ** *D. prionacis* Harring and Myers : 1, 2
D. sebastus Harring and Myers : 6
Euchlanis incisa Carlin : 2
Lecane arcula Harring : 2
L. braziliensis Segers : 2
L. bulla (Gosse) : 2, 6
L. cornuta (O. F. Müller) : 1
L. crepida Harring : 1, 2
L. curvicornis (Murray) : 1, 2, 6
L. decipiens (Murray) : 6
L. dumonti Segers : 1, 6
L. eutarsa Harring and Myers : 1, 2
L. furcata (Murray) : 1, 2
L. haliclysta Harring and Myers : 6
L. hamata (Stokes) : 1, 2, 6
L. hornemanni (Ehrenberg) : 1, 2, 6
L. inopinata Harring and Myers : 6
L. leontina (Turner) : 1, 6
L. ludwigii (Eckstein) : 1, 2, 6
L. lunaris (Ehrenberg) : 1, 2, 6
L. monostyla (Daday) : 2
L. nelsoni Segers : 1, 2, 6
L. obtusa (Murray) : 2, 6
L. perlica Harring and Myers : 1, 6
L. pyriformis (Daday) : 1
L. rhenana Hauer : 2
L. ruttneri Hauer : 6
L. signifera (Jennings) : 1, 2, 6
 * *L. sola* Hauer : 2
Lepadella acuminata (Ehrenberg) : 6
L. amphitropis Harring : 1, 2
L. costaloides Segers : 2
L. cryphaea Harring : 2
 ** *L. quadricarinata* (Stenroos) : 2
L. quinquecostata (Lucks) (incl. f. *christineae* Koste) : 1

** *Lindia fulva* Harring and Myers : 2
Macrochaetus altamirai (Arevalo) : 2
M. americanus n. sp. : 2
M. aspinus n. sp. : 2
M. collinsi (Gosse) : 1, 2
M. sericus (Thorpe) : 2
Monommata maculata Harring and Myers : 1, 6
Mytilina ventralis (Ehrenberg) (diverse formae) : 1
Notommata copeus Ehrenberg : 1, 2
N. pachyura (Gosse) : 1
Plationus patulus (O. F. Müller) : 2
Polyarthra vulgaris Carlin : 1, 6
Taphrocampa annulosa Gosse : 2
Testudinella emarginula (Stenroos) : 1, 2
T. parva (Ternetz) : 1, 2
T. patina (Herman) : 2, 6
Trichocerca abilioi n. sp. : 1
T. bicristata (Gosse) : 1
T. flagellata Hauer : 1
 ** *T. hollaerti* De Smet : 2
T. longiseta (Schrank) : 2
T. porcellus (Gosse) : 2
T. pusilla (Jennings) : 1, 6
 ** *T. rotundata* Myers : 2
T. similis (Wierzejski) : 1, 2

The samples contained some contracted monogonont rotifers of the genera *Cephalodella*, *Euchlanis*, *Notommata* and *Proales* together with many Bdelloidea. All of these were deformed beyond identification.

In total, 66 rotifer species were identified from the three samples available. Four of these were not previously known, one of these, a *Lecane*, has been described elsewhere (Segers, 1994). Four other species have not been recorded from the neotropical region before, one is new to Brazil. The most diverse genera were *Lecane* (39 %), followed by *Trichocerca* (13.6 %). This confirms existing knowledge on the composition of rotifer taxocoenosis in (sub)tropical littoral habitats (SEGERS *et al.*, 1993 a). Most of the species recorded are common, cosmopolitan or pan(sub)tropical, probably warm-stenotherms and have already been recorded from the neotropical region (see KOSTE and JOSÉ DE PAGGI, 1982; KOSTE and BÖTTGER, 1989 : *Lecane sola* Hauer from Ecuador). Surprisingly, our record of *Lepadella quadricarinata* (Stenroos) is the first from the Neotropics. This widely distributed species appears to be more common in temperate regions. Some of the species found are confined to the neotropical region; such are *L. braziliensis* Segers, *L. eutarsa* Harring and Myers and probably *L. nelsoni* Segers, together with two of the species described below. *D. sebastus* and *L. fulva* Harring and Myers are new world species which had not yet been recorded from the neotropical region.

Notes on the taxonomy and distribution of new or insufficiently known species are as follows.

FAMILY TRICHOTRIIDAE

Macrochaetus americanus n. sp. (figs 1a-b)

TYPE LOCALITY

Permanent lagoon of Rio Branco, about 7 km S. of Boa Vista, Roraima, Brazil, 24 June 1987. Conductivity 5.7 μ S; O₂ 7.1 mg/l; T° (surface) 36.6 °C; pH 5.3. Leg. E. N. dos Santos-Silva.

MATERIAL EXAMINED

Female holotype (I.N.P.A. Rot-048), two female paratypes (one K.B.I.N. I.G. 27989 R.I. 13, one in R.U.G.).

DIFFERENTIAL DIAGNOSIS

The species cannot, by its single pair of dorsal spines, be confused with any congener. The species is strikingly similar to *M. danneeli* Koste and Shiel, known from Australia (KOSTE and SHIEL, 1983) and the South of India (F. K. KAKKASSERY, pers. comm.): both have two pairs of short posterior spines and a similar round lorica. *M. danneeli* is reported to have only rudiments of dorsal spines ("anterosubmedian" spines, see KOSTE and SHIEL, 1983; WULFERT, 1964). The postero-lateral and postero-medial spines are slightly slenderer and more elongate in *M. danneeli* than in *M. americanus* n. sp.

DESCRIPTION

Female: Contracted lorica almost circular, widest in posterior third, entirely covered (dorsally and ven-

trally) with small spinulets. Lateral margins of lorica smoothly rounded. Lateral, antero-ventral and antero-dorsal margins with rows of subequal spinulets, those on anterior margins smallest. Posterior margin with a pair of short, curved posterolateral and a pair of stout posteromedian spines. Posteromedian edge convex, bearing two small spinulets. Ventral lorica flat, dorsal lorica with terraced median part, bearing two strong spines in anterior part. Lateral antennae in posterior region, on socle. Head when contracted tube-like with lateral folds, bearing the dorsal antenna and some relatively strong spinulets. Foot subterminally, partly covered, consisting of a rigid, elongate distal foot pseudosegment on a variably shaped, retractile basis. Two parallel-sided, equally long toes present. Posterior illoricate part of body ("anal segment") contractile, bearing two pairs of spinulets, the median pair the longest.

Male: unknown.

MEASUREMENTS

Lorica length (of contracted specimens, caudal spines not included) 80-86, width 77-91. Dorsal spine length 21-24, posterior spine length 3-4 (external pair) and 5-7 (internal pair). Foot pseudosegment length 20, toe length 18-20.

ETYMOLOGY

The specific name *americanus* is an adjective, referring to the species' area.

DISTRIBUTION AND ZOOGEOGRAPHY

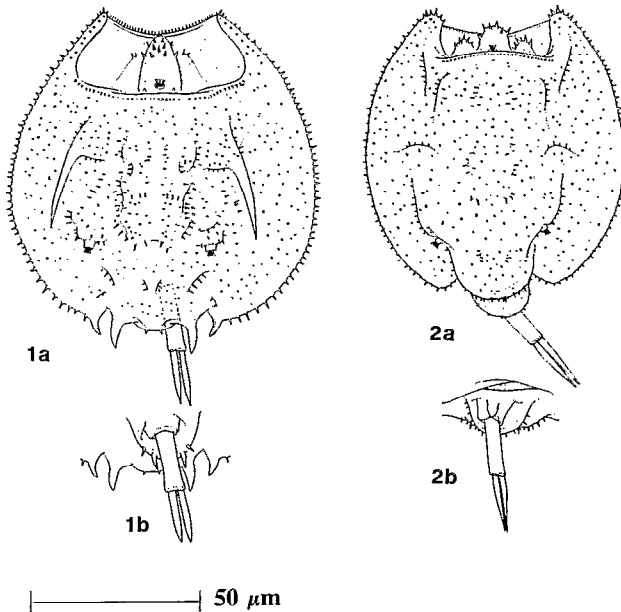
M. americanus n. sp. is so far only known from its type locality.

The species may be a vicariant of the Oriental/Australian *M. danneeli*.

Macrochaetus aspinus n. sp. (figs 2a-b)

TYPE LOCALITY

Permanent lagoon of Rio Branco, about 7 km S. of Boa Vista, Roraima, Brazil, 24 June 1987. Conductivity 5.7 μ S; O₂ 7.1 mg/l; T° (surface) 36.6 °C; pH 5.3. Leg. E. N. dos Santos-Silva.



FIGS 1a-b. — *Macrochaetus americanus* n. sp. a: dorsal view, b: foot, ventral view.

Macrochaetus americanus n. sp. a: vue dorsale, b: pied, vue ventrale.

FIGS 2a-b. — *Macrochaetus aspinus* n. sp. a: dorsal view, b: foot, ventral view.

Macrochaetus aspinus n. sp. a: vue dorsale, b: pied, vue ventrale.

MATERIAL EXAMINED

Female holotype (I.N.P.A. Rot-049), two female paratypes (one K.B.I.N. I.G. 27989 R.I. 14, one in R.U.G.).

DIFFERENTIAL DIAGNOSIS

Although its lorica is entirely covered by minute spinulets, *M. aspinus* lacks the large dorsal spines, characteristic of the genus. Only *M. danneeli* equally lacks such dorsal spines, but this species has a different lorica shape and is armed with two pairs of caudal spines as in *M. americanus* n. sp. The total absence of any large spine is unique to *M. aspinus* n. sp., which can therefore not be confused with any congener. It is assigned to the genus *Macrochaetus* by its characteristic lorica shape being covered entirely by minute spinulets, by the shape of its head and foot when contracted, and by its trophi structure.

DESCRIPTION

Female: Contracted lorica slightly longer than wide, broadest medially, entirely covered (dorsally and ventrally) with small spinulets. Lateral margins of lorica smoothly rounded. Lateral, antero-ventral and antero-dorsal margins with rows of subequal spinulets, those on anterior margins smallest. Ventral lorica flat, dorsal lorica with terraced median part, with lateral antennae in posterior region, on sole. Head when contracted tube-like with lateral folds, bearing the dorsal antenna and some relatively strong spinulets. Posterior end of lorica with a central, projecting dome and lateral, rounded parts. Subterminal foot partly covered, consisting of a rigid, elongate distal foot pseudosegment on a variably shaped, retractile basis. Two tapering, equally long toes present. Posterior illoricate part of body contractile, covered with minute spinulets.

Male: unknown.

MEASUREMENTS

Lorica length (of contracted specimens) 76-82, width 72-76. Foot pseudosegment length 17, toe length 18-19.

ETYMOLOGY

The name *M. aspinus* (adj.) refers to the species' unique characteristic, i.e. the absence of any large spine.

DISTRIBUTION

M. aspinus n. sp. has only been recorded from its type locality.

Rev. Hydrobiol. trop. 26 (3) : 175-185 (1993).

FAMILY COLURELLIDAE

***Lepadella costatoides* Segers, 1992; new synonym : *L. latusinus striata* Koste, 1992**

Recently, both Segers (*in* : SEGERS *et al.*, 1992) and KOSTE [*in* : KOSTE and BÖTTGER, 1992 : *Lepadella latusinus striata* (KOSTE, 1991), *sic!*] recognised and described a *Lepadella* having a dorsal lorica bearing three pairs of longitudinal ridges and having a pair of acute postero-lateral projections on the foot aperture. The descriptions and figures by both authors clearly demonstrate that the same taxon is being dealt with, and that both names are synonyms.

A subspecificity of the taxon with *L. latusinus* is doubtful, as the taxon was found in co-occurrence with *L. latusinus americana* Myers (KOSTE and BÖTTGER, 1992). Moreover, it has already been recognised as a cosmopolitan, warm-stenothermic species (SEGERS *et al.*, 1992; 1994).

The description of *Lepadella costatoides* was published in October 1992, that of *L. latusinus striata* in December 1992. As a consequence, the former name is the senior synonym and takes precedence over the latter.

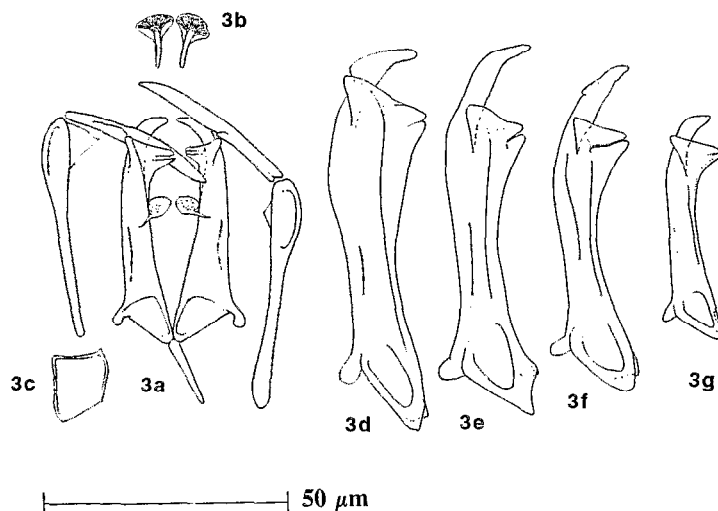
FAMILY DICRANOPHORIDAE

***Dicranophorus kostei* Pourriot and Zoppi de Roa, 1981; new synonym : *D. halbachi* Koste, 1981 (figs 3a-g)**

In a sample from a temporary lagoon near Boa Vista, we found several large *Dicranophorus* matching the descriptions of *D. kostei* Pourriot and Zoppi de Roa and of *D. halbachi* Koste. The animals are characterised by having extraordinarily long, parallel-sided toes with short basal sheaths as in *D. forcipatus* (O. F. Müller), and by trophi as in figs 3a-c, having fused triangular or tooth-like projections on the inner margins of the rami, and having epipharyngeal plates (fig. 3b) as accessory trophi parts.

When comparing the ramus of specimens from different origin, a striking variability is apparent. Remarkable differences are seen in size, shape of the tip and of the inner projections of the rami. These projections were found to be symmetrical in the paratype of *D. halbachi*, slightly asymmetrical in our Brazilian material and slightly or strongly asymmetrical in animals from different populations in Nigeria.

KOSTE (1986) reports that the presence or absence of epipharyngeal plates is the single diagnostic character between *D. kostei* and *D. halbachi* Koste, described from Australia (KOSTE, 1981), but later also



FIGS 3a-g. — *Dicranophorus kostei*, trophi. a : trophi (ventral view); b : epipharyngeal plates; c : fulcrum (lateral view); d-g : right ramus. d : paratype of *D. halbachii*; e, f : Nigerian specimens; g : Brazilian specimen.

Dicranophorus kostei, trophi. a : trophi (vue ventrale); b : plaques épipharyngéales; c : fulcrum (vue latérale); d-g : ramus droit. d : paratype de *D. halbachii*; e, f : spécimens nigériens; g : spécimen brésilien.

recorded from Paraguay (KOSTE, 1986). Such plates, however, may have passed unmentioned, as by most authors (e.g., HARRING and MYERS, 1928), although they are present in most large dicranophorids. Examination of some photographs, kindly placed at our disposition by Prof. R. Pourriot, revealed the presence of such plates in *D. kostei*. Examination of the holotype and paratype incus of *D. halbachii*, deposited in the Museum of the University of Kiel, Germany (Rot. 76/77), and comparison with other material, revealed a synonymy between *D. kostei* and *D. halbachii*. The record of *Dicranophorus* cf. *halbachii* from Nigeria (SEGERS *et al.*, 1993 a) is hereby confirmed. *D. kostei* appears to have a pantropical distribution.

As the description of *D. kostei* was published during the second quarter of 1981 and that of *D. halbachii* during July 1981, the former is the senior, valid name of the taxon.

FAMILY TRICHOCERCIDAE

Trichocerca abilioi n. sp. (figs 4a-e)

TYPE LOCALITY

Temporary lagoon along rio Branca, about 5 km S. of Boa Vista, Roraima, Brasil, 24 June 1987. Conductivity 5.7 μ S; O₂ 7.2 mg/l; T^o (surface) 32.9 °C; pH 6.1. Leg. N. dos Santos Silva.

MATERIAL EXAMINED

Female holotype (I.N.P.A. Rot-047), three female paratypes (one K.B.I.N. I.G. 27989 R.I. 15, two in

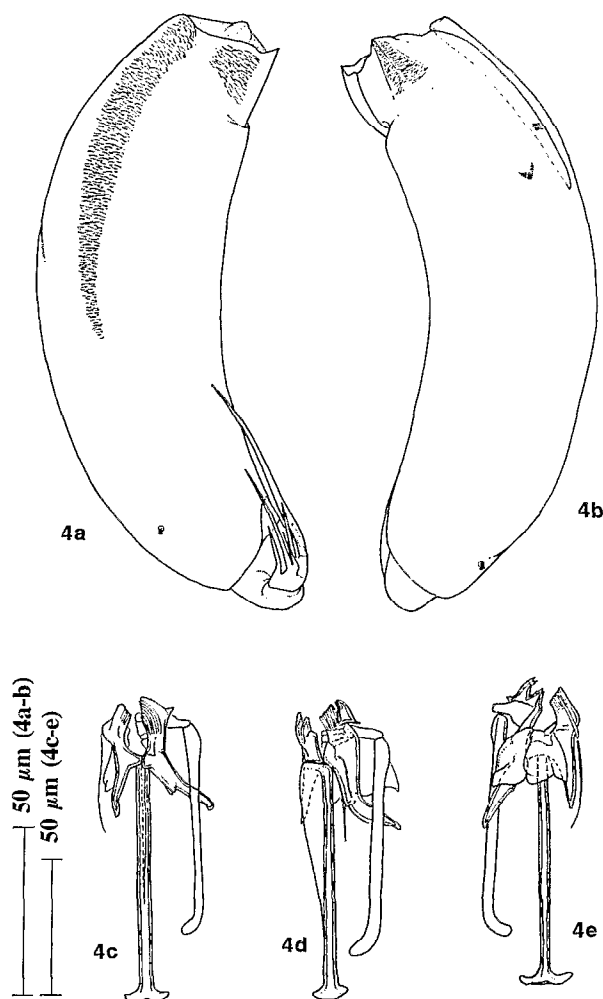
R.U.G.), one trophi preparation (R.U.G.). Several specimens seen in samples from the Pantanal region, Brazil (August 1985, leg. A. L. Oliveira-Neto), one specimen from lake Iyi-Efi, Nigeria (February 1991, see SEGERS *et al.*, 1993 a)

DIFFERENTIAL DIAGNOSIS

Trichocerca abilioi n. sp. belongs to a group of elongate *Trichocerca* with subequal toes, such as *T. tigris* (O. F. Müller), *T. myersi* (Hauer), *T. scipio* (Gosse), *T. vargai* Wulfert or *T. kostei* Segers. The disposition of the projections of the head aperture, with its conspicuous triangular ventral projection, and the shape of its trophi easily distinguish the species. The external morphology of the Nigerian specimens is identical to that of the Brazilian material, their trophi have more acutely pointed rami but are otherwise highly similar.

DESCRIPTION

Female : Lorica (figs 4a, b) relatively stiff. Body elongate, slightly curved. Margins of head aperture ventrally with a broad-based, triangular projection, left-lateral side with a shallow median projection anterior of a short striped field, right lateral side with inconspicuous trapezoidal striped field ventrally. A shallow subdorsal keel on left side of body in anterior third, an elongate striped field subdorsally on right side, reaching up to medially. Foot short, terminal. Toes subdistally, held ventrally. Toes spiniform, curved proximally and distally, the right one about half as long as the left one. Each of these with two substyli of different shape and length near their basis. Openings of lateral antennae in dis-



Figs 4a-e. — *Trichocerca abilioi* n. sp. a, b : lateral views; c-e : trophi. c : ventral, d : lateral, e : dorsal view. *Trichocerca abilioi* n. sp. a, b : vues latérales; c-e : trophi. c : vue ventrale, d : latérale, e : dorsale.

tal part of body, the left more distally than the right. Eye present.

Trophi (figs 4c-e) asymmetrical. Fulcrum elongate, with median antero-ventral crest and terminal basal plate. Left ramus with large, outwards directed alulus. Suprauncus with rows of long, inwards-curved teeth anteriorly on the ventral side, and a antero-lateral spine. Supraramus present. Left uncus with single basal part, and fan-shaped distal part consisting of 3-4 fused teeth. Left manubrium elongate, widened proximally, distally with simple cruch. Right ramus smaller than left, with straight alulus.

Suprauncus with antero-median row of short, fused teeth and rounded antero-lateral projection. Supraramus present. Right uncus and manubrium strongly reduced.

Male : unknown.

MEASUREMENTS

Body length 162-209 (198), height 39-54 (49), foot l. 10-16 (16), trophus l. 55-60 (57), right toe l. 26-44 (42), left toe l. 44-62 (broken) (measurements on Nigerian specimen between brackets).

Fulcrum l. 43-45, left manubrium l. 40, left ramus l. (incl. alulus) 22-26, right ramus l. (incl. alulus) 20-22.

ETYMOLOGY

The species is named after Abilio Lopez de Oliveira-Neto, who originally collected and recognised the species as new.

DISTRIBUTION

T. abilioi n. sp. occurs in South America (Brazil : type locality and several places in the Pantanal region), and in Africa (Nigeria).

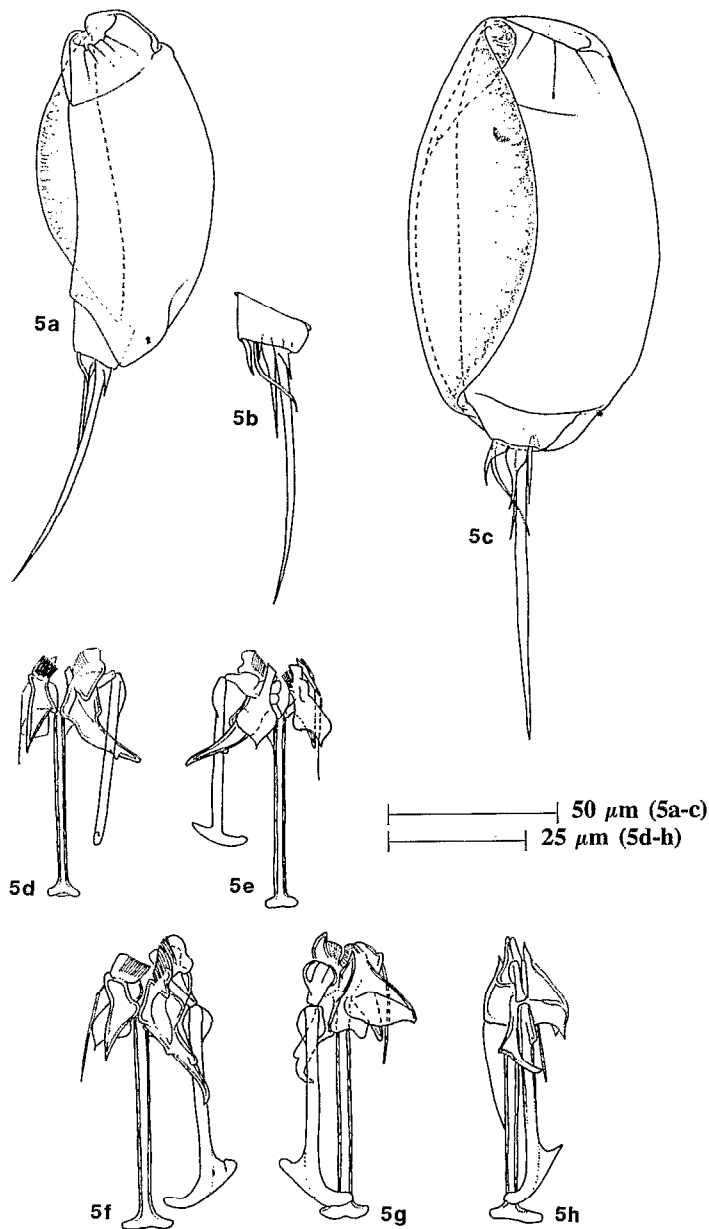
Trichocerca hollaerti De Smet, 1990 (figs 5a-h)

COMMENTS

Trichocerca hollaerti is an easily recognisable species which, according to DE SMET (1990), can be confused only with *T. flagellata* Hauer (figs 6a-d). Both species have a similar head aperture, disposition of the toes and substyli and a generally similar trophi structure. They can hardly be mistaken, considering that *T. flagellata* has a shallow and short dorsal keel, a rounder lorica and a relatively long, smoothly curved left toe.

However, as *T. hollaerti* is characterised by having a lateral keel over the entire body, by a head aperture having longitudinal folds and by having a single elongate right, and a S-shaped, short left toe, it resembles most *T. lophoessa* (Gosse). They differ only by the structure of their trophi, that of *T. lophoessa* has so far only been figured by STEMBERGER (1979). Especially its bifid left alulus and single-sided distal cruch of its left manubrium distinguishes *T. lophoessa* from *T. hollaerti*.

T. hollaerti has, after its description from Zaire, been recorded from Nigeria (SEGERS *et al.*, 1992). The record of *T. lophoessa* from Madagascar (figs 5c, f-h; SEGERS, 1992) concerns a misidentified *T. hollaerti*. The present record is the first outside Africa.



Figs 5a-h. — *Trichocerca hollaerti* De Smet. a : lateral view ; b : foot and toes, ventral view ; c : subventral view ; d-h : trophi. d, f : ventral view, e, g : dorsal view, h : lateral view (c, f-h : Madagascan specimen).

Trichocerca hollaerti De Smet. a : vue latérale ; b : pied et orteils, vue ventrale ; c : vue subventrale ; d-h : trophi. d, f : vue ventrale, e, g : vue dorsale, h : vue latérale (c, f-h : spécimen malgache).

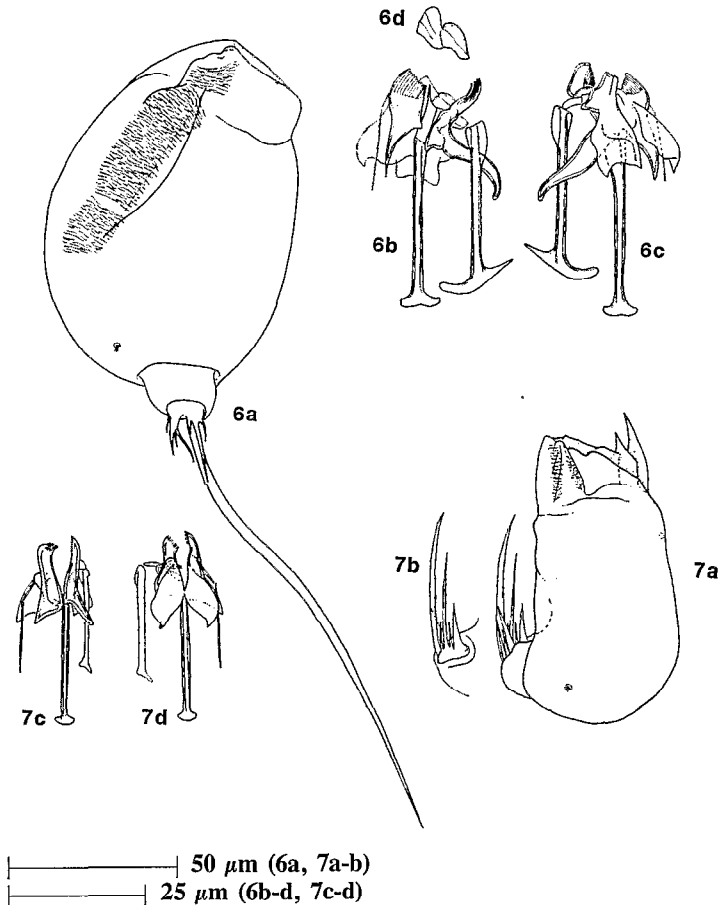
***Trichocerca rotundata* Myers, 1937; new synonym :
T. parvula Carlin, 1939 (Figs 7a-d)**

COMMENTS

A single specimen of this rare species was found in locality 2 (see above). The species can be confused with *T. porcellus* (Gosse) and *T. musculus* Hauer (see KOSTE, 1978; e.g., *Diurella porcellus* after JENNINGS,

1903?), but is distinguished by its smaller size and differently shaped trophi with simple left alulus (bifid in *T. musculus* and *T. porcellus*) and slightly differentiated terminal part of left manubrium (with strong distal crutch in *T. musculus* and *T. porcellus*).

Trichocerca rotundata appears to have been overlooked by most authors dealing with the Palaearctic fauna. The species has, after its description, only



FIGS 6a-d. — *Trichocerca flagellata* Hauer. a : ventro-lateral view; b-c : trophi. b : ventral, c : dorsal view; d : left uncus.

Trichocerca flagellata Hauer. a : vue ventro-latérale; b-c : trophi. b : vue ventrale, c : vue dorsale; d : uncus gauche.

FIGS 7a-d. — *Trichocerca rotundata* Myers. a : left lateral view, b : foot and toes, right lateral view, c-d : trophi. c : ventral, d : dorsal view.

Trichocerca rotundata Myers. a : vue latérale gauche, b : pied et orteil, vue latérale droite, c-d : trophi. c : vue ventrale, d : vue dorsale.

been treated by NOGRADY (1979), who found the species in Canada. Similar specimens have been recorded and described from Europe under the name *Trichocerca parvula* Carlin. The synonymy of the two follows from a comparison of the external morphology and trophi structure of *T. parvula* as reported by KOSTE (1978) and WULFERT (1940) with the report of *T. rotundata* by MYERS (1937) and NOGRADY (1979), and of the present material.

CONCLUSION

Our results demonstrate that the taxonomy of Brazilian Rotifera remains incompletely known, even though the region is the most intensively studied tropical country. As all species treated are litto-

ral, it appears, as usual, to be the littoral rotifera in particular that are insufficiently known (SEGERS *et al.*, 1991; 1992).

More and more evidence becomes available that illustrates a relation between the rotifer faunas of the tropical region of South America and Africa. In previous papers (SEGERS, 1994; SEGERS *et al.*, 1993b), some taxa that either are known from both regions only (e.g., *Lecane dumonti* Segers), or, at least, have close relatives in both regions (e.g., *L. nelsoni*) were identified. An additional example is described here (*T. abilioi*). These, together with a further list of species, recorded from Africa and South America (*Keratella americana* Carlin, *Lecane climacois* Haring and Myers, *L. decipiens* [Murray], *L. myersi* Segers and *Lepadella minoruoides* Koste and ROBERTSON : SEE SEGERS *et al.*, 1993a), indicate that the hypothesis of recent faunal exchange, for-

warded by SEGERS *et al.* (1993 a) is probably not the only factor playing a role. It may be true for an easily recognizable, common American species as *K. americana*, that has been found only once or twice in the old world, but can hardly account for cases of species as rare as *L. dumonti*, *L. climacois*, *L. myersi*, *L. nelsoni*, *Lepadella minoruoides* and *T. abilioi*. At least in some cases should the disjunct distribution of these species be treated as demonstrating an extant zoogeographical relation between the two regions.

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