A NEW SPECIES OF Halicyclops (COPEPODA: CYCLOPOIDAE) FROM AMAZON BASIN, BRAZIL

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ABSTRACT

Halicyclops aberrans sp. n. from two localities of the River Capim, Pará State, Brazil, is described and figured. It differs from all previously described species of the genus in possessing the inner apical spine of the third endopodal segment of swimming legs 3 and 4 reduced and turned upwards, and by the spinal formula of the third exopodal segment of the swimming legs (2.3.3.2).

INTRODUCTION

Only three species of Halicyclops were reported till now from fresh waters: H. sinensis Kiefer, 1928 from the River Yangtze, China (Lindberg, 1952), H. bleaki Lindberg, 1952 from River Mekong, Cambodia and H. rotundipes Kiefer, 1935, a species widespread in coastal areas of the Mediterranean and Black seas, but frequent also in fresh water canals and in a reservoir of Southern Ukraine, USSR (Bazilevich & Kattannikova, 1970).

The material analysed here was collected in the lower River Capim, about 30 km from its mouth in River Guama and 120 km from Belém. The localities sampled were in front of “igaraké”, local name for narrow branches of the river. The water was transparent with pH about 6.0, characterizing it as “clear water” (Cipollini & Carvalho, 1973). More data about the chemical characteristics of the water of Capim are given by Siochi (in Scott et al., 1965). According to this author, this section of the river carries fresh water, although the presence of the marine and brackish water diatoms indicates the influence of brackish water. The water movements are influenced by the tide.

The specimens were studied in lactic acid. The body measurements were taken along the dorsal middle line. The maximum length and width of the segments were measured.

The following abbreviations are used in the descriptive text: MZUSP, Museu de Zoologia, Av. Nazare, 481, São Paulo, Brazil; P1 to P5 = first to sixth leg; B2 = basis, En1 to En3 = first to third endopodal segment; Ex1 to Ex3 = first to third exopodal segment.

Family CYCLOPOIDAE
Subfamily HALICYCLOPINAE
Halicyclops aberrans sp. n.
(Figs 1–18)


Material Examined: Brazil, Pará State, River Capim. Female holotype (MZUSP no. 5478); allotype (MZUSP no. 5479) and 20 paratypes (5 females and 5 males, MZUSP no. 5480; 5 females and 5 males, Museu Goeldi, Belém, Pará) from sample 74 collected by plankton net at surface in front of mouth of “igaraké” Jari, August 12, 1970; M. A. J. de Carvalho.

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ino cot. Other paratypes (in author’s collection), 43 females and 22 males from sample 14, 22 females and 4 males from sample 11 collected near mouth of “fega-
rao”, Pirapura, same date and collector.

Female. Total length, without fur-
cal setae, 580–680 μm (n = 34), holotype
610 μm. Prosome: uroosome ratio = 2.0:2.
5. 1 (n = 34). Prosome (Fig. 1) rounded
anteriorly in dorsal view; greatest width
in posterior region of cephalosome. Poste-
rior border of all prosomal somites
smooth.

Genital somite (Fig. 2) as long as or
a little longer than wide (1.0-1.08: 1),
with a pair of blunt lateral protrusions.
P5 (Fig. 3) dorsolaterally inserted, consist-
ing of inner plumose seta, outer blunt
brocadence and median reduced spine.
Posterior edge of this somite and of two
following urosomal somites with hyaline
membrane irregularly denticulate.

Anal somite (Fig. 4) with bilobed
expansion on anal region; posterior edge
without hyaline membrane and spinulose
on, laterally.

Furcal rami (Fig. 4) short, slightly
longer than wide (1.1-1.2: 1). Lateral
seta plumose and 1.2-1.4 times longer
than furcal ramus. Dorsal and outer apical
setae about twice length of ramus. Inner
apical seta dorsolaterally placed and
nearly 6 times shorter than outer apical
seta. Inner median apical seta (Fig. 5)
3.2-3.8 times longer than outer one and
ornamented as follows: basal portion (bp)
with minute spines on both sides; termi-
nal portion (tp) spinulose proximally and
plumose distally. Outer median apical
seta (Fig. 5) spinulose.

Antennule (Fig. 6) 6-segmented,
reaching middle of cephalosome. Fourth
joint about twice (n = 3) as long as wide.
Antenna and mouthparts with structure
generally observed in genus. Labrum as
Fig. 7.

P1-P4 (Fig. 8-11) biramous, each
ramus 3-segmented. B2 P1 (Fig. 8) with
an inner serrate spine reaching middle of
En2 P1. Ex3 of all legs with spinal formul-
a 2.3.3.2 and setal formula 5.5.5.6. Sub-
terminal spine of Ex3 P4 (Fig. 12) repla-
ced by slender setae turned inwards and
upwards. Outer apical spine of En3 P3
(Figs. 10 and 13) thicker and longer than
innermost. En3 P4 (Fig. 14) twice as long
as wide (40: 20 μm) with 4 spines and 1
shortly plumose seta. Inner distal seta re-
placed by a strong serrate spine (50 μm)
little longer than outer apical spine (40 μm).
Inner apical spine reduced and na-
ked, being more similar to inner proximal
seta than other spines. Outer lateral spine,
inner apical spine and inner proximal seta
equal in length (30 μm); all of them short-
ter than segment. Both inner apical spines
of En3 P3 and P4 eccentrically placed,
being turned upwards when observed on
legs attached to body (Fig. 15).

Single free segment of P5 (Fig. 16)
about 1.5 times as long as broad with 2
finely serrate spines and 2 blunt and long
setae. Measurements of spines and setae,
from outer to inner: 40, 28, 80 and 55
μm.

Ovigerous females with no more
than 5 eggs in each sac.

Male. Total length 500-530 μm
(n = 14), allotype 510 μm. Prosome: uro-
some ratio = 2.0:2.5:1 (n = 14).

En3 P4 (Fig. 17) 1.7 times as long
as wide, with plumose inner seta reaching
beyond apex of spines, unlike in female.

Single free segment of P5 (Fig. 18)
almost as long as wide (18:15 μm) with 4
setae. Apical seta attaining posterior bor-
der of third urosomal somite and inner se-
ta that of second somite. Measurements
of setae from outer to inner: 30, 20, 57
and 44 μm.

P6 (Fig. 18) with spine and 2 setae.
Outer seta twice as long as median one,
almost reaching posterior edge of fourth
urosal somite.

Structure of other appendages and
furcal rami similar to those of female.

Etymology: The specific name
(from the Latin “aberrante” = aberrant).

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Fig. 1-9 - Halicyclops aberrans new species. Female: 1, habitus, dorsal; 2, first urosomal somite with fifth legs and genital somite, dorsal; 3, sixth leg; 4, anal somite and furcal rami, dorsal; 5, median apical furcal setae, dorsal (bp = basal portion and tp = terminal portion); 6, antennule; 7, labrum; 8, first leg; 9, second leg.
Fig. 10–18 — *Halicyclops aberrans* new species. Female: 10, third leg; 11, fourth leg; 12, third exopodal segment of fourth leg (Ex3 P4); 13, terminal portion of third endopodal segment of third leg (En3 P3); 14, third endopodal segment of fourth leg (En3 P4); 15, posterior region of body, lateral (black arrows indicating the position of inner apical spine of En3 P3 and p4); 16, fifth leg. Male: 17, En3 P4; 18, anterior part of urosome showing fifth and sixth legs, lateral.
refers to the aspect and eccentric position of the inner apical spines on Ex3 P3 and P4.

Remarks: Halicyclops aberrans sp. n. differs from the other species of the genus by the structure of the Ex3 P3-P4, the single free segment of the P5 and spinal formula of the Ex3 P1 P4 (2, 3, 3, 2). Wilson (1958) reported this formula as an exception in H. fosteri.

Most species of Halicyclops have three spines on the Ex3. The presence of a slender seta replacing the subterminal spine of Ex3 in H. aberrans is a character shared with H. setifer Lindberg, 1950, H. blachei Lindberg, 1952 and H. fosteri Wilson, 1958. Nevertheless, there are some differences in relation to the insertion point of this seta. While in H. blachei and H. aberrans, the seta occupies an indentation similar to that where the other spines are fixed, in H. fosteri it is placed distally on a marginal scleritization which does not correspond to the usual indentation of the spines and setae (Wilson, 1968). In H. setifer it also seems to be eccentrically placed like in H. fosteri (Kiefer, 1978, fig. 74 A), although in Lindberg's illustration it appears like in H. blachei. In H. fosteri and H. setifer (Kiefer, op. cit.) this seta is always placed like in H. aberrans.

H. aberrans resembles H. venezuelaeantis Lindberg, 1954 only by the ornamentation of the median apical setae of the furcal rami and the length of the innermost appendage of the single free segment of the female P5. However, the length ratio between the setae is very different in each species. The appendage of the P5 is a seta in H. aberrans and a strong serrate spine in H. venezuelaeantis. Besides, the apical seta of the P5 of the former species is about twice longer than the seta of the P5 of the latter species.

This species is the fifth of the group of species in which males and females have four appendages on the single free segment of P5. The other species are: H. alexis Kiefer, 1934 from Haiti, H. crassicornis Herbst, 1955 from Brazil, H. nematoculus Kiefer, 1960 from Madagascar and H. gauldi Plesa, 1951 from Ghana. Tentatively Gondwana distribution is suggested.

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Resumo

Halicyclops aberrans Sp. n. é descrito de material proveniente de duas localidades no Rio Capim (Estado do Pará), ocupadas por água doce. Ela difere de todas as espécies conhecidas de Halicyclops por ter o espelho apical inferior do último artícuo do exopodito da femela reduzido e inclinado para a cabeça, e pelo número de espelhos no último artícuo do exopodito dos quatro pares de patas natatórias (2, 3, 3, 2).

References


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