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REDESCRIPTION AND NEW DATA ABOUT THE SOFT PARTS OF
THE HOLOTYPE OF *Cyprinotus cingalensis* Brady, 1886

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SINOPSE

No trabalho são apresentados fotografias e desenhos das partes moles do holótipo de *Cyprinotus cingalensis* Brady, 1886, com novos dados, permitindo a comparação e discussão de suas características com aquelas apresentadas por outros autores.

ABSTRACT

Photographs and drawings of the holotype of *Cyprinotus cingalensis* Brady, 1886 are presented. They show new data on the soft parts which permit a comparison and discussion of their characteristics with those presented by former authors.

2-INTRODUCTION

In 1965 when the authors were studying Brazilian species of the genus *Cyprinotus* (PINTO and PURPER, 1965), it was asked to the Hancock Museum for the genotype slide of *Cyprinotus*, to be compared with the Brazilian material, as the original description of the genus was restricted to the carapace only.

The slide with appendages of the holotype was lent by the Hancock Museum at Newcastle-upon-Tyne to the authors. The carapace at that time was lent to another researcher outside England.

The slide received was unstained, many appendages were superimposed and the medium was contracted in such a way that did not permit a good observation. By putting carefully the slide under a source of light for many days, the medium spread out and left the appendages free. Finally, using the contrast-phase light, good photographs and drawings of all appendages were obtained.

The work about the soft parts was finished by that time but as the authors would like to publish a complete data on the genotype, they waited for the carapace. Meanwhile, NEALE (1979) published a paper on the type of *Cyprinotus* where the carapace of *C. cingalensis* have been excellently represented.

Despite the carapace of *C. cingalensis* figured by NEALE (op. cit.) does not belong to Brady's material, the appendages figured by him belong to the same slide of the holotype used by the present authors. For this reason the authors think that it will be interesting to publish the paper they have already prepared on the soft parts. By the use of this special technic mentioned above, it was obtained some significant details different from those reached by NEALE (1979) with normal technics.

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3-SYSTEMATIC DESCRIPTION

Family Cyprididae Baird 1845
Subfamily Cyprinotinae Bronstein 1947
Genus *Cyprinotus* Brady 1886

Cyprinotus cingalensis Brady 1886

Description of the soft parts

Male

The antennula - Pl.1, fig.1; Pl.4, fig.1

The antennula is hepta-articulated. The basal podomere is the largest one being almost three times longer and two times wider than the second one. It presents three setae: one annulated and haired seta attached on the dorsal border and two attached closely together near the ventral distal end. In high magnification they are inconspicuously haired. The second podomere is almost one half the third in length and about twice wider than it. It presents a haired seta on the dorsal distal end. The third podomere is about one and a half the fourth and bears one long seta at the dorsal distal end. The fourth podomere is almost the same length as the fifth. It bears two long setae at the dorsal distal end and a medium one at the ventral distal end. The fifth podomere presents also two long setae at the dorsal distal end and one at the ventral distal end, much longer than that of the fourth podomere. The sixth podomere is almost the same length as the seventh one but a little wider. It bears at the dorsal distal end two long setae and a small one (this one could be broken) and at almost the ventral side another two long ones. The terminal podomere bears at the distal end four setae: two long, one short and one that could be broken.

The antenna - Pl.1, fig.2; Pl.4, fig.2

The antenna is much more powerful than the antennula. The basal podomere is almost triangular and less than half the length of the second podomere. The second one is a little bigger than the third and bears one very long seta at the ventral distal end and a long seta at the dorsal distal end with some few little hairs on the sides of its insertion. This seta in high magnification is inconspicuously haired. The third podomere is two times the length and wider than the fourth one. It presents at the ventral proximal side a club-shaped seta and a very long seta at the ventral distal end which reaches the end of the terminal claws. At the innerface, the distal end of this podomere presents six very long natatory setae. The fourth podomere is a little shorter than the fifth and it is fused with it; it presents two long setae at the dorsal distal side and other three smaller setae at the ventral side. The fifth podomere is about two times the length of the sixth; it presents at the dorsal distal end four strong long setae which reach the end of the terminal claw, one small seta at the ventral distal end and a thin one attached at the junction with of the sixth podomere. The last seta has the same size of the sixth podomere. The sixth podomere is piriform, about one-half the width of the fifth and presents a strong haired claw, a strong seta at the dorsal end and one club-shaped seta at the ventral distal end.

Mandible - Pl.1, fig.3,4; Pl.4, fig.3

The basal podomere of the protopodite has at its distal portion a teeth rows. This teeth are better developed at the distal end of the protopodite, becoming shorter proximally. The protopodite presents at the distal outer side a short seta. The second podomere of the protopodite, has at its mid-length the exopodite plate which is difficult to see but it seems to have at least three setae. Near the distal ventral end it seems to have (it was observed only in the other mandible) two long setae, one smooth and one haired. The palp is tri-articulated. The first podomere bears at the distal ventral end three long setae; one smooth and two haired. At the dorsal end there are also three smooth setae. The second podomere bears at the dorso mid-length four setae; one at the ventral distal end and three short ones almost at the junction with the next podomere. The third podomere has five setae, four almost of the same length and one smaller.

Maxilla - Pl.2, fig.1

The material is in a very bad position on the slide and no one can be sure if it has one or the two maxillary palp together. Apparently the maxillary palp is formed by two podomeres being the last one too small. The first podomere presents three long setae at the dorsal border and a plumose one on the ventral side. The second podomere is about half the wide of the first one; it presents seven long distal smooth setae and one on the middle portion of this podomere. The masticatory process is composed of three articles almost of the same width. Each article have groups of 7 to 10 setae which are almost of the same length. At the base of the inner masticatory process there are also two little setae.

Maxilliped - Pl.2, fig.2,3; Pl.5, fig.1,3

The maxilliped has a well developed vibratory plate which is provided with about six plumose setae. The maxillipeds prehensive palps very well developed and conspicuously dissimilar. One of them has the propodus as an arredounded rectangle, the length almost equal to the width and the dactylus slightly curved in an open semi-lunar form; the other one has the propodus in a rectangular shape, the length almost one and an half the width and the dactylus long, strong and slightly curved. Both dactylus have the final end broken. The protopodite is provided with many little setae being some of them haired in high magnification.

Second pair of thoracic legs - Pl.2, fig.4; Pl.4, fig.4

The second pair of thoracic legs is hexa-articulated. The basal podomere presents on its ventral distal end one little seta inconspicuously annulated and haired in high magnification. The second podomere is about half the first one and more or less fused with it. It presents a curved seta attached on the knee corner of it. The third podomere is bigger than the fourth and presents a seta on the ventral distal end which reaches the end of the following podomere. The fourth podomere is bigger than the fifth and presents a seta on its ventral distal end. It is of the same length of the podomere. The fifth podomere is almost three times the length of the sixth and presents two setae attached on its ventral distal end. The smaller one is less than half of the biggest one. That is almost two times and one half the length of the sixth podomere. The last podomere presents a very long, strong and haired claw and a little seta just on the base of it.

Third pair of thoracic legs - Pl.2, fig.5; Pl.3, fig.1; Pl.5, fig.2

The third pair of thoracic legs is penta-articulated. The first podomere is fused with the second one and both reach the length of the third. They present two setae on the ventral side and one long seta on the dorsal side. The third podomere is about one and a half times the length of the fourth one and presents at its ventral distal end a seta which is longer than the length of the fourth podomere. The fourth podomere has a medium seta at the middle of the ventral side that reaches its end. The fifth podomere is very short. It presents two long curved claws and near the base of them a backward directed seta, all of them have almost the same length of the fourth podomere.

Note: One of the legs presents only the base of one of the claws probably was broken.

Furca - Pl.3,fig.3; Pl.5, fig.4

The furca is very well-developed and presents the half of the posterior portion of the ventral side strongly concave. The dorsal side is slightly convex producing a wide base. It presents two claws in the terminal portion; the distal one almost straight and lesser than half of the ramus is length. The other one is a slightly shorter than that and slightly curved. Both of them are haired in high magnification. On the distal ventral portion there is a bristle just on the base of the terminal claw. On the middle of the dorsal border there is a seta which is oriented backward and has about the same length of the sub-terminal claw.

Zenker's Organ - Pl.3, fig.4; Pl.5, fig.5

Ejaculatory tubes with about twelve rosettes.

Copulatory appendage - Pl.3, fig.2; Pl.5, fig.6

Very well developed having a big terminal lappet of subtriangular shape.

Remarks

Comparing the appendages and the soft parts described and figured by NEALE (1979) with those under study the authors had found some differences which are referred below. It also would be observed that when describing the appendages there are some divergence, among the present authors and NEALE (op. cit.) concerning about the number of podomeres in the appendages and among the position of the setae in the dorsal and/or ventral side respectively. We are following KESLING (1951).

PINTO & PURPER

Antennula

Second podomere - a haired seta on the dorsal distal end.

NEALE

Antennula

Second podomere - smooth.

Sixth podomere - two long setae and a small one at the dorsal distal end. Another two long setae at almost the ventral side.	Sixth podomere - two long and one shorter, smooth setae dorso-distally.
Terminal podomere - two long, one short and one that could be broken.	Distal podomere - two long, two medium and two short, smooth setae.

Note: two of the setae mentioned by NEALE for the distal podomere belong to the sixth one.

Antenna

With six podomeres.
 Basal podomere - smooth.
 Second podomere - one very long seta at the ventral distal end and a long seta at the dorsal distal end.
 Third podomere - sensory structure at the ventral proximal side; a long seta at the ventral distal end; six very long natatory setae at the innerface of the distal end.

Antenna

With four podomeres.
 - - -
 Proximal podomere - smooth.
 Second podomere - long, smooth dorsal and ventral seta proximally and six long, smooth setae dorso-distally.

Note: NEALE considered only four podomeres because the basal podomere is not mentioned and the fourth and fifth podomeres which are fused, are described as only one.
 The long proximal ventral seta mentioned by NEALE as belonging to the second podomere, belongs to the anterior one.

Fourth podomere - two long setae at the dorsal distal side; three smaller setae at the ventral side.
 Fifth podomere - four strong long setae at the dorsal distal end, one small seta at the ventral distal end and one thin attached at the junction with the sixth podomere.
 Sixth podomere - a strong haired claw, a strong seta at the dorsal end and one club-shaped seta at the ventral distal end.

Third podomere - a smooth dorsal seta at mid-length and a short and a long seta dorso-distally. The ventral part of this podomere not clearly seen but appears to have a medium long seta distally.

Distal podomere - toothed claw and two fine, smooth setae.

Figure 2

Mandible

Protopodite - with a short seta at the distal outer side.

Palp, first podomere - three long setae at the distal ventral end; three smooth setae at the dorsal end.

Palp, second podomere - four setae at the dorso mid-length, one at the ventral distal end and three short ones at the junction with the next podomere.

Mandible

Protopodite - without seta.

Palp, first podomere - three setae of different size at the distal dorsal end.

Palp, second podomere - one seta at the dorso distal end and one (or two?) at the ventral side.

Note: NEALE figured but did not describe the number of setae to each palp podomere. The number of setae mentioned here as of NEALE is that observed by the present authors based in the figure 2 Limb 3 of his paper.

Figure 3

Maxilla

Masticatory process - three articles presenting each one a group of 7 to 10 setae.

Maxilla

Masticatory process - three endites with some six setae each.

Note: the setae of the maxillary palp is not described by NEALE and the representation of this appendage in the figure 2, Limb 4 is too small to permit to count the setae.

Figure 4

Maxilliped

The only parts represented by NEALE were the dactila of the left and right maxilliped. They generally correspond to the author's observation made by the present authors.

Fifth Limb

Figure 5

Second thoracic leg	Sixth limb
With six podomeres.	With five podomeres.
Basal podomere - one little annulated and haired seta on the ventral distal end.	Not mentioned.
Second podomere - a curved seta attached on the knee corner of it.	First podomere - not described.
Third podomere - a seta on the ventral distal end.	Second podomere - a smooth, dorso-distal seta.
Fourth podomere - a seta on its ventral distal end.	Third podomere - a smooth, dorso-distal seta.
Fifth podomere - two setae on its ventral distal end.	Fourth podomere - one short and one medium, smooth dorso-distal seta.

Third thoracic leg	Figure 6	Seventh limb
First and second podomeres fused - two setae on the ventral side one on the dorsal side.		Proximal podomere with smooth proximal ventral seta, another seta at mid-length and a smooth distal seta.

Note: the smooth proximal ventral seta mentioned by NEALE is not a seta but a strange structure connected to this limb looking as a seta.

Figure 7

Copulatory appendage

Note: not described by NEALE. Otherwise the figure represented by him (b) differs in the shape of the terminal lappet, from the data obtained by the present authors (a).

Figure 8

Zenker's Organ
With twelve rosettes.

Zenker's Organ
I With eleven rosettes.

Figure 9

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Plate 1

Cyprinotus cingalensis Brady, 1886. Holotype.

Fig. 1 - Antennula

Fig. 2 - Antennae

Fig. 3 - Mandible

Fig. 4 - Mandible high magnification

Plate 2

Cyprinotus cingalensis Brady, 1886. Holotype.

Fig. 1 - Maxillae

Fig. 2 - Maxilliped

Fig. 3 - Prehensile palp of maxilliped

Fig. 4 - Second thoracic leg

Fig. 5 - Third thoracic leg

Plate 3

Cyprinotus cingalensis Brady, 1886. Holotype.

- Fig. 1 - Third thoracic leg
- Fig. 2 - Copulative appendage
- Fig. 3 - Furcae
- Fig. 4 - Zenker organ

Plate 4

Cyprinotus cingalensis Brady, 1886. Holotype.
Photos using contrast-phase technic.

- Fig. 1 - Antennula
- Fig. 2 - Antennae
- Fig. 3 - Mandible
- Fig. 4 - Second thoracic leg

100μ 59

Plate 5

Cyprinotus cingalensis Brady, 1886. Holotype.
Photos using contrast-phase technic.

- Fig. 1 - Maxilliped
- Fig. 2 - Third thoracic leg
- Fig. 3 - Prehensile palp of the Maxilliped
- Fig. 4 - Furcae and Zenker Organ
- Fig. 5 - Zenker Organ
- Fig. 6 - Copulative appendage

100μ