

THE ROTIFER GENUS *Platyias* HARRING (1913), IN THE NEOTROPICS

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RESUMO - O GÊNERO *Platyias* HARRING (1913) (ROTÍFERA), NAS REGIÕES NEOTROPICAIS

O gênero *Platyias* foi criado por HARRING (1913). Desde então, várias opiniões diferentes de respeito às características genéricas apropriadas têm sido publicadas. A maioria dos autores se concordam sobre a inclusão de três ou quatro espécies no gênero. Outros propõem a inclusão de várias espécies, atualmente assinadas ao gênero *Brachionus*, no gênero *Platyias*. Este artigo sumariza um consenso prático atual de respeito às características do gênero, aos níveis de gênero e de espécie. Incluem-se figuras de todas as espécies neotropicais do gênero *Platyias*, bem como anotações sobre as distribuições e habitats destas.

ABSTRACT - THE ROTIFER GENUS *Platyias* HARRING (1913), IN THE NEOTROPICS

The Rotifer genus *Platyias* was created by HARRING (1913). Since then, several different opinions about its proper generic characteristics have been published. Most

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authors agree on three or four species always being included in this genus. Other authors propose that several species now assigned to *Brachionus* be included in *Platytias*. This article outlines current practical consensus on generic and specific characteristics of the genus. Figures of all known neotropical *Platytias* rotifers are included, with notes about their distribution and habitats.

INTRODUCTION

The genus *Platytias* has a complex history, and to appreciate the confusion in present nomenclature and species names, a synopsis of its history will be helpful. The generic name *Noteus* was first applied to *Noteus bakeri* by EHRENBERG. Since this animal, according to HARRING, was an obvious *Brachionus* PALLAS rotifer (*Brachionus quadridentatus* HERMANN), the name *Noteus* was invalidated by HARRING (1913). He created another genus name for the rotifer species that were previously extended the obsolete *Noteus*. He separated *Noteus quadricornis* EHRENBERG (1832) from the rest, and added it to his newly created genus *Platytias*. He did not supply any description for the genus, however, so generic characters and description were unavailable to the community of rotiferologists. Hence, in 1913, the genus *Platytias* contained the single species *quadricornis*. Early synonyms included *Brachionus quadricornis* DUJARDIN (1841), *Brachionus intermedius* HERRICK (1885), *Noteus stuhlmanni* COLLIN (1897), *Noteus leydigii* HAECKEL (1900) and *Noteus quadricornis brevispinus* DADAY (1905).

Other *Noteus* rotifers, not included in the genus *Platytias* were added to *Brachionus* by HARRING; *Noteus militaris* EHRENBERG and *Noteus militaris macracanthus* DADAY (1905) as *Brachionus patulus* (MÜLLER); and *Noteus polyacanthus* DADAY (1901) as *Brachionus polyacanthus*

EHRENBERG 1833.

REMANE (1933) pointed out the similarities of the genus *Platyias* to *Brachionus*, and suggested they be combined. His observations were based on what he felt were similar characteristics of anterior and posterior margins, foot openings, dorsal and ventral plate lorica configurations and overall body configuration. He believed *Platyias* to be slightly different, yet could not accept Herring's separation of the genus.

Most rotiferologists of the day did not agree with Remane, and most did not accept the merging of *Platyias* into *Brachionus*. Those who did not accept the union of these genera, agreed with Herring's dissolution of *Noteus*, but found no basis or criteria to differentiate *Platyias* from *Brachionus*.

Seven years later AHLSTROM (1940) revised both the genus *Brachionus* and *Platyias*. Most rotiferologists agreed with Ahlstrom's revision, and subsequent authors of major rotifer works, VOIGHT (1957) and BARTOS (1959), showed *Platyias* to include all the former *Noteus*, as had Ahlstrom. This usage persisted through GILLARD (1948) and EDMONDSON (1959).

From 1940 until 1965, six *Platyias* rotifers were generally recognized; *P. quadricornis*, *P. patulus*, *P. patulus* var. *macracanthus*, *P. polyacanthus*, *P. felicitas* was added by WULFERT (1956) and *P. quadricornis leloupi* was added in by GILLARD (1957). BARTOS (1959) also recognized *P. quadricornis brevispinus* as a distinct subspecies.

WISZNIEWSKI (1954) was the single author to adhere to HARRING's (1913) organization, and admitted only *Platyias quadricornis* in the genus.

In 1965, Wulfert authored a major reorganization of the genus. He reorganized the genus *Platyias*, and transferred many rotifers to the genus *Brachionus*. His work identified two species, one variety and three forms of *Platyias*, and separated five species and one variety for

Brachionus.

After the reorganization, Wulfert distinguished between *Platytias* species chiefly by the lorica configuration. The genus basically had two similar groups, *quadricornis* and *leloupi*. Table 1a shows Wulfert's scheme modified, naming the recognized *Platytias* species and the *Brachionus* species previously held under *Platytias*.

TAXONOMICAL CONSIDERATIONS

The main generic taxonomic characters of the genus *Platytias* are: rotifers with illoricate, retractile head; moderately compressed, rounded lorica divided into dorsal and ventral plates, often with pustulations or spinules; distinctive pattern of facets on dorsal lorica; two anteriomedian spines on the dorsal margin, and two postero-lateral spines; lateral antenna in the last two thirds of the lorica, sometimes on papillae; foot opening in ventral plate; foot jointed, retractile, not telescopic, in three sections; two terminal toes on foot.

The main specific characters for *Platytias* species are based on the lorica configuration, and the size and shape of the lorica and associated spines.

Platytias species measurements should be taken in a particular way so as to avoid inaccurate dimensions. The lorica should be measured from the base of the posterior portion, to the top of the lateral anterior edges. The width of the animal is measured from the widest lateral spot near the center of the animal. The median anterior spines are measured from the base of the spines to the top, accomodating the curve when possible. (This is not a specific character and therefore is not an especially critical measurement). The posterior spines are measured from base to tip. Toes are measured from base to tip. Adding the lorica length to the posterior, and part of the

anterior median spine lengths, renders the animal's total length.

KOSTE's (1972) figure (T. 43) shows *P. leloupi*, but lists *P. quadricornis*! Caution for those who use this.

SPECIES NOTATIONS

Phylum Rotifera CUVIER 1817

Class Eurotatoria DE RIDDER 1957

Subclass Pseudotrocha DE BEAUCHAMP 1965

Order Ploima HUDSON & GOSSE 1886

Family Brachionidae WESENBERG-LUND 1899

Genus *Platytias* HARRING 1913

Platytias quadricornis (EHRENBERG 1832) (Fig. 1)

SYNONYMY: *Noteus quadricornis* EHRENBERG 1832, *Noteus stuhlmanni* COLLIN 1897, *Brachionus intermedius* HERRICK 1885, *Noteus leydigii* HAECKEL 1900, *Brachionus quadricornis* DUJARDIN 1841, *Noteus quadricornis* var. *congolense* VAN OYE 1926?, *Platytias quadricornis andhraensis* DHANAPATHI 1987

DIAGNOSIS: Regular pattern of facets on the dorsal lorica, consisting of one central anterior and two connecting posterior-lateral pentagons, surrounded by eight marginal areas.

DISTRIBUTION: Generally accepted as cosmopolitan species. Recorded from the Amazon by KOSTE (1972), (1974), BRANDORFF & KOSTE (1982), HAUER (1965), KOSTE et alii (1984), and KOSTE & ROBERTSON (1983). Found in Northeast Brazil (AHLSTROM, 1940), Recife by (NEUMANN-LEITÃO & SOUZA, 1987), Rio de Janeiro (MURRAY, 1913), and in coastal lakes of Rio de Janeiro and Mato Grosso do Sul by Turner (unpublished). Other records include Argentina (OLIVER, 1962), Venezuela (MICHELANGELLI et alii, 1979), Antilles

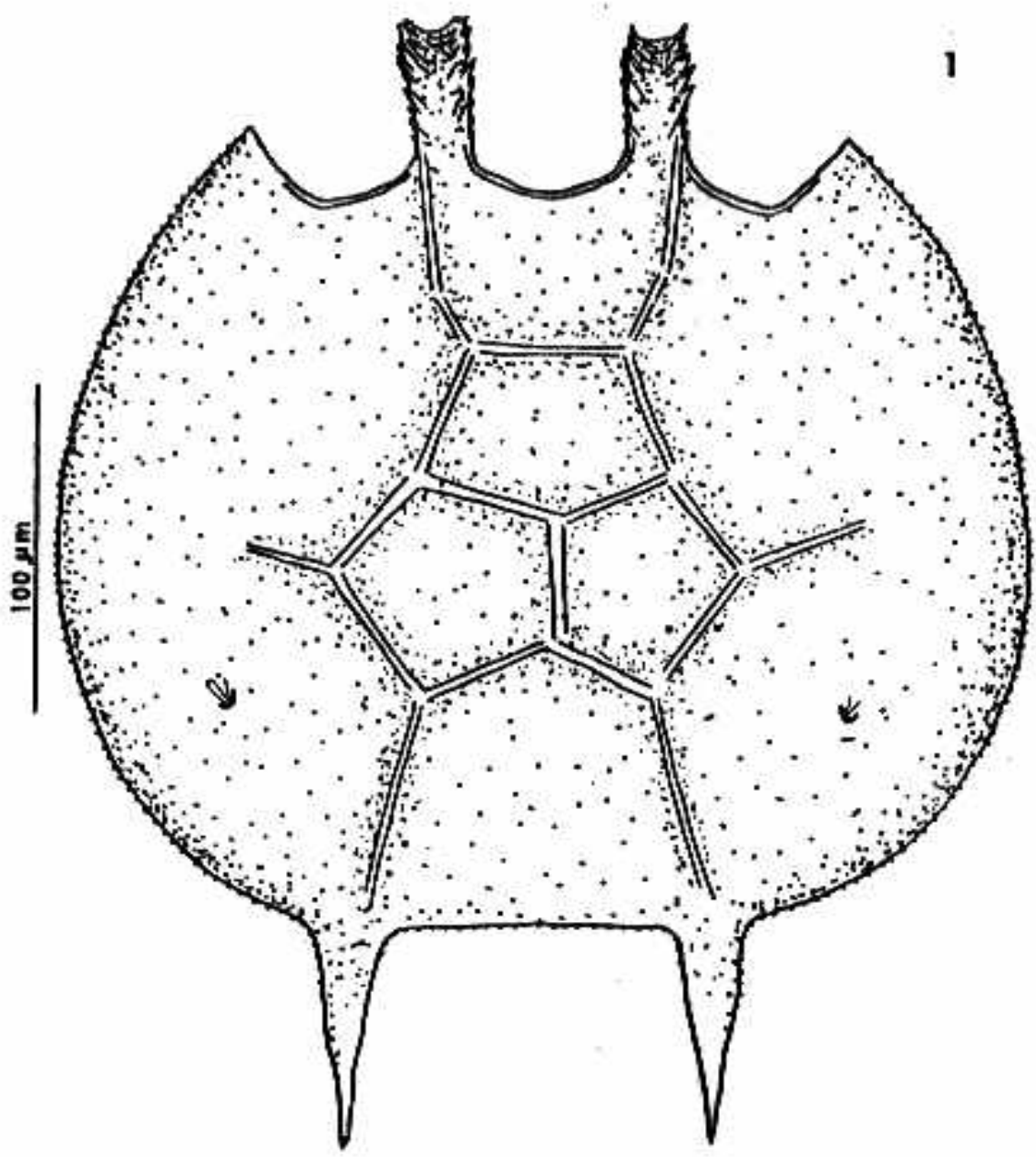


Figure 1 - *Platyias quadricornis*, dorsal view of female lorica showing facet pattern.

(POURRIOT, 1975), Surinam (LEENTVAAR, 1979), Panama (HARRING, 1914), Colombia (HAUER, 1956) and Paraguay (KOSTE, 1986).

Platyias quadricornis hexagona (WULFERT, 1956)

SYNONYMY: *Platyias quadricornis* var. *hexagona*

DIAGNOSIS: Same as *quadricornis* except the two connecting posterior-lateral plaques (facets) are shaped as hexagons.

DISTRIBUTION: Not found in the Neotropics. Found only by WULFERT (1956).

Platyias quadricornis f. *brevispinus* (DADAY, 1905) (Fig. 2)

SYNONYMY: *Noteus quadricornis brevispinus* DADAY 1905, *Noteus quadricornis* var. *congolense?* VAN OYE 1926.

DIAGNOSIS: Reduced overall animal size in the region of less than 200 μ m. Posterior lateral/posterior median spines reduced. Distance between these spines is also reduced.

DISTRIBUTION: This animal may also be cosmopolitan, although many finds are in warmer waters. Turner (unpublished) records it from Recife and Mato Grosso do Sul; KOSTE et alii (1984). KOSTE (1972) and SCHADEN (1978) from the Amazon.

Platyias leloupi (GILLARD, 1957) (Fig. 3)

SYNONYMY: *Platyias quadricornis* var. *leloupi* (GILLARD, 1957), *Platyias longispinosus* ARORA 1966, *Platyias leloupi* f. *greeni* WULFERT (1965).

DIAGNOSIS: Frontal "V" (or pentagonal) facet leading into a dorsal median keel. Variable shaped, dorso-lateral facets located centrally.

DISTRIBUTION: Basically a cosmopolitan rotifer,

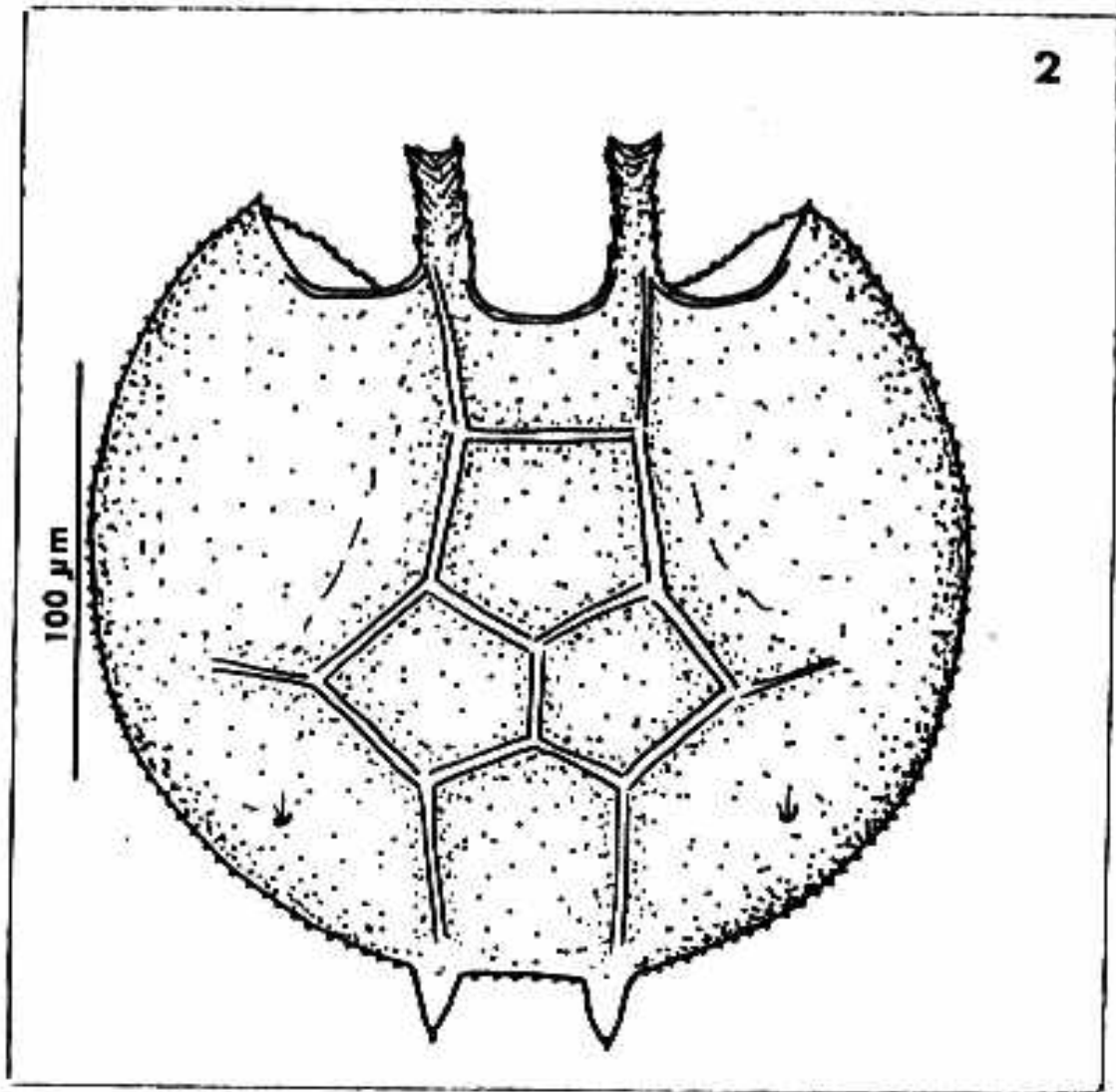


Figure 2 - *Platygias quadricornis* f. *brevispinus*, dorsal view of female lorica showing facet pattern.

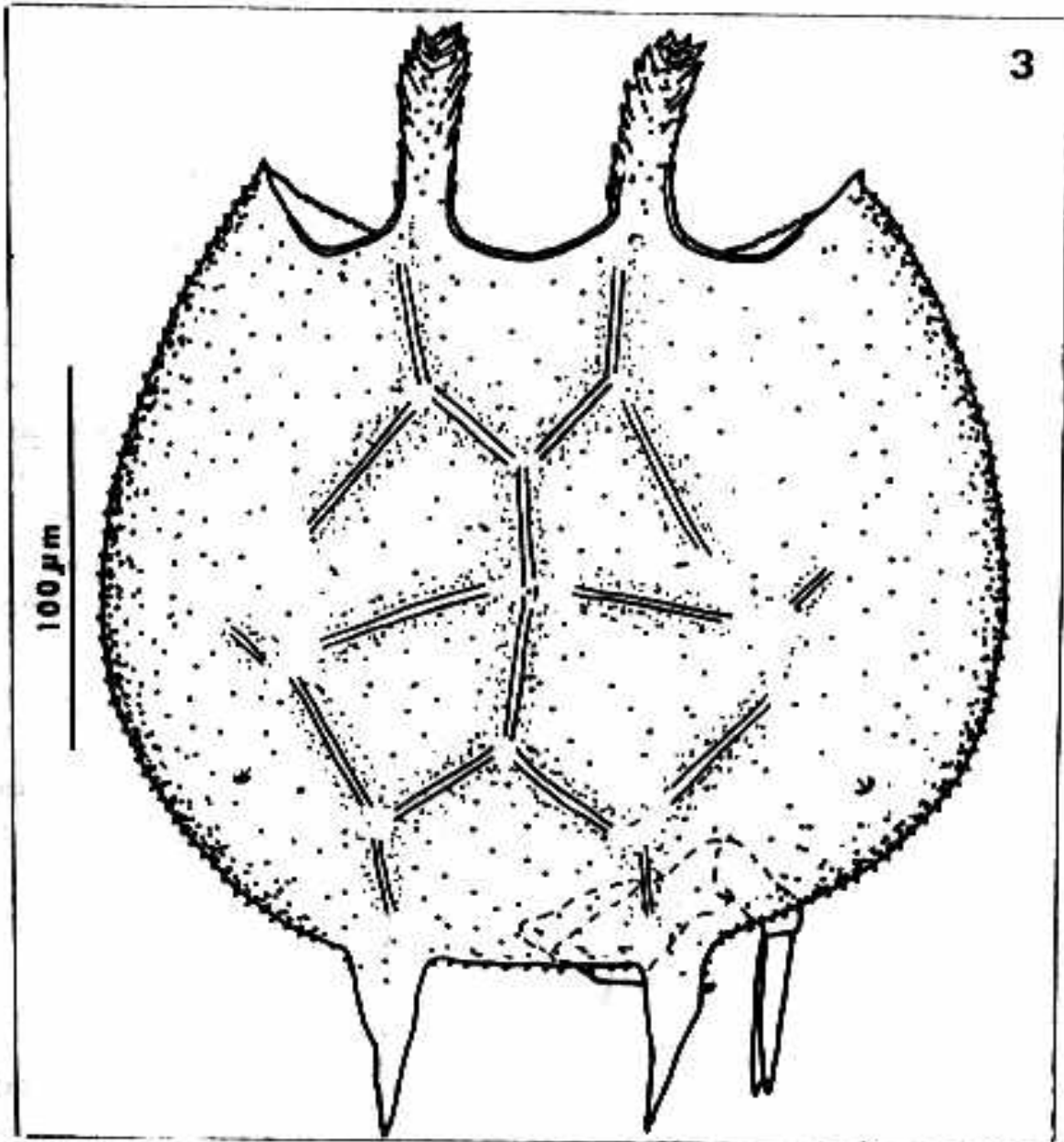


Figure 3 - *Platyias leloupi*, dorsal view of female lorica showing facet pattern and underlying foot and toes.

found in warm waters. Amazon records by BRANDORFF & KOSTE (1982), KOSTE (1974a & b), KOSTE et alii (1984), and KOSTE & ROBERTSON (1983). Other Brazilian records are from Mato Grosso do Sul and Espirito Santo by Turner (unpublished). Additional records are from the Antilles (POURRIOT, 1975) and Paraguay KOSTE (1986).

Platyias leloupi latiscapularis KOSTE, 1972 (Fig. 4)

SYNONYMY: *Platyias leloupi* f. *latiscapularis* KOSTE (1978).

DIAGNOSIS: Similar to *leloupi*, with elongated lorica and dorso-ventrally rounded anterior lateral margins. Dorsal view of lorica lateral margins resembles small 'wings', and folds outward. Dorso-lateral lorica facets not pronounced.

DISTRIBUTION: Originally found in the Amazon by KOSTE (1974a), also found in Mato Grosso do Sul (TURNER, unpublished).

Platyias rotifers in general are found in the shallows, often in and around water plants and sometimes near the bottom. They are occasionally found in the plankton.

NEOTROPICAL RECORDS FOR *Platyias* ROTIFERS

Table 1 - a) Known *Platyias* rotifers, and previous *Platyias* rotifers transferred to *Brachionus*. b) Authors and neotropical records of some species and subspecies of both genera.

A.

Platyias

Platyias quadricornis
P. quadricornis hexagona

Brachionus

Brachionus patulus
B. patulus macracanthus

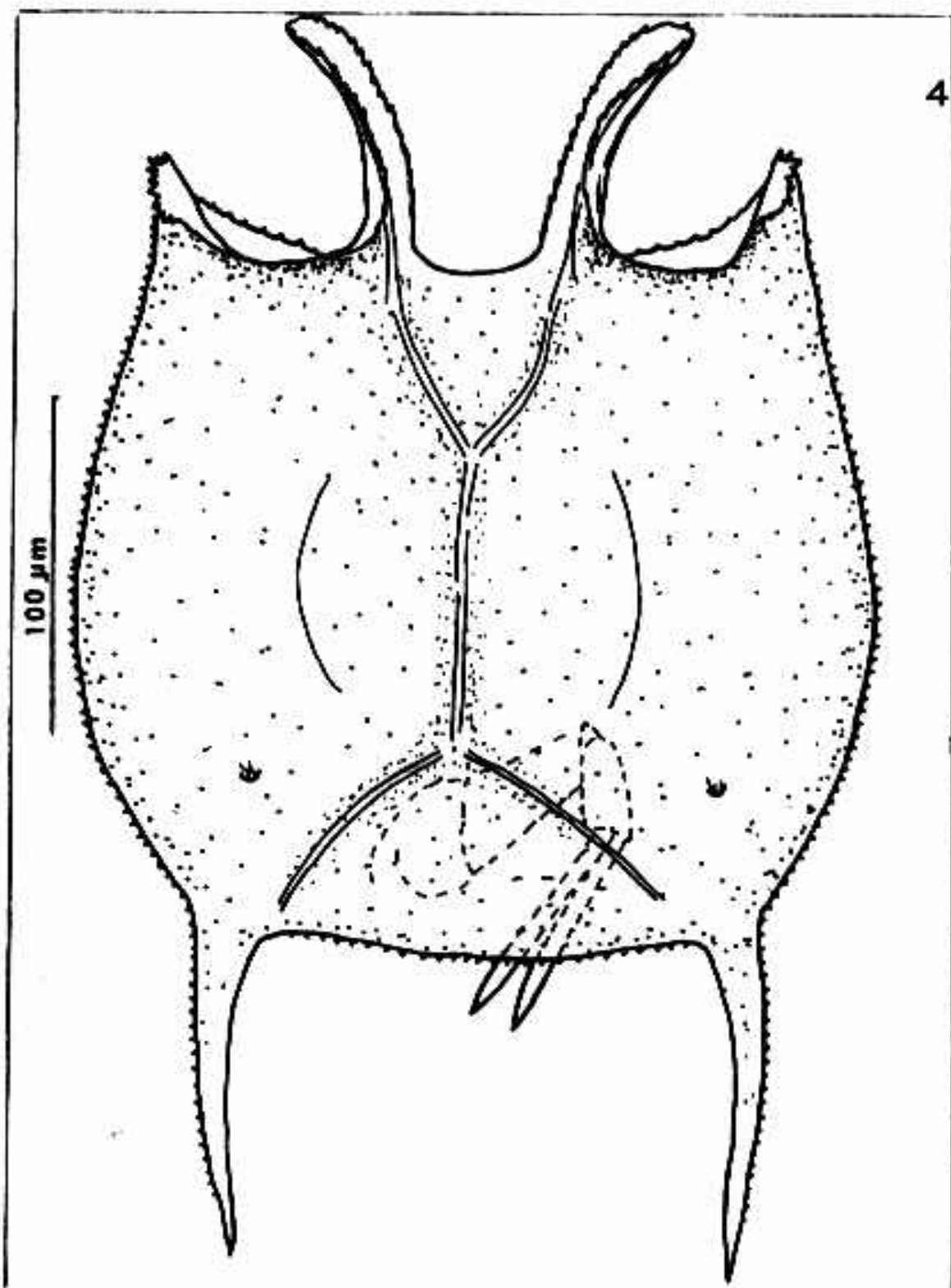


Figure 4 - *Platyias leloupi latiscapularis*, dorsal view of female lorica showing facet pattern and underlying foot and toes.

P. quadricornis f. *brevispinus*
P. leloupi
P. leloupi laticapularis

B. felicitas
B. polyacanthus
B. polyacanthoides

B.

Platyias

quadricornis (EHRENBERG, 1832) - Argentina, Venezuela, Colombia, Paraguay, Brazil, Antilles, Panama, Surinam, Costa Rica

quadricornis f. *brevispina* (DADAY, 1905) - Paraguay, Brazil, Peru, Panama

leloupi (GILLARD, 1957) - Antilles, Peru, Brazil, Paraguay

leloupi laticapularis KOSTE, 1974a - Brazil.

Brachionus (*Platyias*)

patulus (MÜLLER, 1786) - Paraguay, Brazil, Argentina, Antilles, Bolivia, Venezuela, Panama

patulus macracanthus (DADAY, 1905), (not *macrocanthus* JAKUBSKI, 1912) - Paraguay, Brazil, Argentina, Antilles, Venezuela, Surinam, Honduras, Panama, Guatemala

felicitas (WOLFERT, 1956)

polyacanthus (EHRENBERG, 1834)

polyacanthoides (BERZINS, 1957)

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