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Diaphanocypris a New Ostracoda Genus Occurring in South and Central America

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Abstract — *Diaphanocypris* Würdig et Pinto gen. nov. is proposed to *Herpetocypris meridana* Furtos (1936) collected in Merida, Mexico. This species, besides being registered in Central America, was assigned as well in the North-East of Brazil and in Argentina by other authors, being cited either in other genera or as new species. Based on specimens collected in the Littoral North of Rio Grande do Sul, Brazil, analysis and detailed description of this species are presented.

Resumo — *Diaphanocypris* Würdig et Pinto, gen. nov. é proposto para a espécie *Herpetocypris meridana*, Furtos (1936), encontrada em Merida no México. Esta espécie, além de registrada na América Central, foi assinalada também no Nordeste do Brasil e na Argentina, por outros autores, sendo inclusive citada em outros gêneros ou como espécies novas. Com base em espécimes encontrados no Litoral Norte do Estado do Rio Grande do Sul são apresentadas análise e descrição detalhada desta espécie.

INTRODUCTION

Several papers have been published on the Ostracoda faunule of the lakes and lagoons of the North Littoral of Rio Grande do Sul. In 1984 the senior author presented her Doctor Thesis: "Ostracodes do Sistema Lagunar de Tramandaí, RS, Brasil — Sistemática, Ecologia e Subsídios à Paleoecologia". From that thesis only some data about the physical and chemical conditions of the lagunar system was published (Würdig, 1987). About the systematization of ostracodes, in which new species, and new genera are created and revised and full descriptions of the found species are presented, nothing was published. Now, in collaboration with the second author, the publication of that part of the thesis is started.

TAXONOMY

Ordo Podocopida Müller, 1894
Sub Ordo Podocopina Sars, 1865
Super Familia Cypridacea Baird, 1845
Familia Cyprididae Baird, 1845
Sub Familia Cypridinae Baird, 1845

Diaphanocypris Würdig et Pinto, gen. nov.

Diagnosis — Carapace in lateral view sub-elliptical elongated. Maximum height postero-median, to less than half of the length of the valve. Dorsal margin arcuate, ventral margin sinuous at antero-median region. Anterior border largely rounded and posterior margin narrowing. In dorsal view compressed. Hinge adont. Wide internal lamellae. Marginal zone narrow with numerous simple and straight porecanals. Vestibulum wide at the anterior and posterior regions, narrowing to the ven-

tral side. Peripheral selvage in both valves. Left valve larger than the right. Muscle scar formed by six marks obliquely disposed. First pair of legs better developed than the others. Furcae with straight rami showing a continuous serrulate, claws pectinated, apical setae long and dorsal setae short.

Type species: *Herpetocypris meridana* Furtos, 1936.

Remarks — The most similar genus to *Diaphanocypris* gen. nov. is *Dolerocypris* Kaufmann, 1990.

Both genera have the carapace long and compressed; wide vestibulum in the anterior and posterior ends of both valves and in some way in the appendages, which present the characteristics of the subfamily Cypridinae. *Diaphanocypris* gen. nov. differs from that genus in having the maximum height of the carapace at posterior middle and the anterior border rounded; the selvage is peripheral in both valves, coinciding with the external margin in the anterior, ventral and ventro-posterior border; absence of a list or other prominent structures; marginal zone narrow and porecanals simple, straight and short; left valve larger than the right. The following differences are also present in the appendages: second article of the palp of the maxillula longer than wide; palp of the mandible with the three ventral seta of the first article much longer; posterior side of the furcae with a continuous line of denticles; claws with a pectinate appearance due a single row of denticles.

According to Furtos (1936) and Ferguson (1967) the species *H. meridana* Furtos, 1936 belong to *Herpetocypris* Brady et Normann, 1889, however this genus differs in the carapace and appendages from that species. According to Morkhoven (1963) *Herpetocypris* is characterized by a well developed list, normally radially striated going through the anterior, ventral and posterior border of left valve; and a well marked septa

in the antero and postero-ventral parts of this valve. Kaufmann (1900) and Sars (1928) registered yet in the diagnosis of that genus rudimentary natatory setae in the second pair of antennae. On the other side, *Diaphanocypris* gen. nov. did not present septa, neither lists in both valves, and the natatory setae are well developed which makes it suitable for swim.

Broodbakker (1983) placed *H. meridana* Furtos as *Tanycypris* Triebel, 1959. According to the diagnosis *Tanycypris* presents elongated carapace with the dorsal and ventral margins more or less straight and parallel; anterior border wider than the posterior; left valve larger than the right and projecting out at the anterior and posterior end; assymetric valves, the left one with spiniform process at the postero-ventral border and the right valve round. *Diaphanocypris* gen. nov. differs from this genus mainly on the carapace outline, for not presenting lists or other structures in the internal lamellae and for the absence of postero-ventral spiniform process of the left valve.

Diaphanocypris meridana (Furtos, 1936) Würdig et Pinto, gen. nov.

Plates I-III

Herpetocypris meridana Furtos, 1936. Carnegie Inst. Washington Publ. 457: 101-4, Figure 60-3.

Strandesia saginata Klie, 1939, Zool. Anz. 128 (11/13): 318-20, figura 1-3.

Herpetocypris bonettoi Ferguson, 1987. Notulae. Acad. Nat. Sci. Philadelphia 405: 1-2, figure 10-3.

Tanycypris meridana (Furtos, 1936) Bijdragen Dierkunda 53(2): 327-68.

Derivatio nominis: From the locality of Merida, Mexico.

Holotypus: Female USNM - 67994

Paratypus: Female USNM - 67975

Locus Typicus: Near Merida - Mexico

Plesiotypi: Female UFRGS n°s MP-0-945 - MP-0-947

Locus: Lagoa dos Passos, at the North Littoral of Rio Grande do Sul State, Brazil.

Diagnosis — Carapace in lateral view sub-elliptical elongate. Maximum height postero-median approximately 2/5 of the valve length. Dorsal margin arcuate and ventral margin with slight antero-median sinuosity.

Anterior border rounded, posterior border narrowed with the point of inflexion at the lower third. Ventral border with the posterior portion rising slightly. In dorsal view lanceolate, maximum wide at medium length which is less than 1/3 of the length of the valves. Acuminate ends. Vestibulum wide at the anterior and posterior regions, narrowing ventrally. Numerous simple, short marginal porecanals.

Left valve larger than the right. Antennae with well developed natatory setae. First article of the mandible endopodite with two of the three dorsal setae long, reaching the extremity of the claws. External masticatory process of the maxillula with two long proximal setae which almost lengthen the extremity of the apical setae. First pair of legs with six plumose setae in the exopodite. Furcae with the rami almost straight, with continuous serrulate at the posterior border. Claws pectinated; apical seta little smaller than the bigger claw, dorsal seta short and spiniform.

Carapace — Plate I Figure 1-3

Smooth, transparent of slight-green colour. Delicate and short hairs regulary distributed all over the anterior, posterior and ventral areas. In lateral view sub-elliptical elongate, with the maximum height in the postero-median region, less than half the length of the valves. Dorsal margin arcuate in a continuous wide curve to the anterior border and to the posterior border through a slight truncation, better seen in the right valve. Anterior border round, posterior border narrow formed by a strightened curvature. Ventral margin with a slight concavity at the anterior-median portion, and a smooth curve rising at the posterior portion. Lanceolate and strongly compressed in dorsal view with the maximum wide at the midlength been less than 1/3 the length of the valves. Both ends acuminate. Hinge adont, right valve with a narrow groove, elongate, which

PLATE I

Diaphanocypris meridana (Furtos), 1936

Figure 1 — Female. Plesiotypus UFRGS MP-0-945

Length of the carapace: 1.297 mm.

1a - Right valve. External lateral view.

1b - Left valve. External lateral view.

1c - Right valve. Internal lateral view.

1d - Left valve. Internal lateral view.

Figure 2 — Female. Plesiotypus UFRGS MP-0-946

Length of the carapace: 1.249 mm.

2a - Detail of the anterior internal lamella of the right valve.

2b - Detail of the posterior internal lamella of the right valve.

2c - Dorsal view.

Figure 3 — Female. Plesiotypus UFRGS MP-0-947

Length of the carapace: 1.255 mm.

3a - Detail of the muscle scars of the right valve.

3b - Left valve. Dorsal view.

3c - Right valve. Dorsal view.

3d - Left valve. Ventral view.

3e - Left valve. Ventral view.

receive the dorsal margin of the left valve. At the antero and postero-dorsal border of the right valve the selvage extend a little more in relation to the median portion of the dorsal margin forming a discrete elongate lamina. Both valves with wide internal lamellae at the antero-median part. On the left valve the selvage is peripheral and coincident with the internal margin. Ventral margin of the right and left valves with a shallow and short sulcus at the middle of the internal lamella. Marginal porecanals numerous, straight, simple and very short, regularly distributed through all the anterior, ventral and posterior border. Normal porecanals simple, open, numerous, distributed all over the surface of the valves. Left valve slightly larger than the right protruding at the anterior border. Muscle scars a group of 6 elongated marks obliquely disposed: one at the upper part, two medians and three at the lower part. A little in front and below two elongated mandibular scars.

ANATOMICAL CHARACTERS

Antennula — Plate II Figure 1a.

Antennula with 7 articles. First podomere of the protopodite with 1 short seta at the middle of the anterior or ventral margin and 2 long distal setae in the posterior margin. Second podomere with Rome's organ not much visible. First podomere of the endopodite with one terminal median seta at the anterior margin, a little longer than the article and one small seta near the dorsal margin. Second podomere with 2 long natatory setae at the ventral margin and 2 small setae latero-dorsal; third podomere with 2 long natatory setae at the ventral margin and 2 near the dorsal margin; one short with the same size of the article and another long, almost four times it; fourth podomere with 4 terminal natatory setae and 1 small ventral seta. Fifth podomere with 2 natatory setae, 1 long sensorial seta aesthetasc **ya** with half the length of the other two and 1 short seta 1/3 the length of the sensorial one. All the natatory setae are slightly plumose, the others discretely pilose.

Antenna — Plate II - Figure 1b.

Protopodite with 2 articles. First podomere with 1 short seta at middle ventral side and 2 short slightly pilose setae distally. In the last third of the ventral margin of the second podomere 1 long seta distally pilose which reaches the end of the podomere. Exopodite, 3 unequal setae near the dorsal margin, between the second article of the protopodite and the first of the endopodite. Endopodite with 3 podomeres, ventral margin of the first podomere with an aesthetasc **y** at the beginning of the second third. Distally an anterior long seta with the end pilose, reaching the end of the third article. Dorso-internally 6 subterminal setae: the dorsal (external) one short, one third the length of the first endopodite. The five others natatory setae are long and plumose from the second third, reaching the terminal claws. Second podomere with 2 dorso-median setae: one reaches the end of the third article and the other a little shorter; 4 setae ventro-median, the internal one, **t4**, smaller, reaches the end of the article, the others **3**, **t2**, **t3**, **t4**, reaching half of the terminal claws and are slightly pilose in its distal end. Distally on the podomere 3 long dorso-lateral setae, **z1**, **z2**, **z3**, reaching the distal end of the claws, and 3 long, robust claws, **G1**, **G2**, **G3**, with a strong serrulate on the distal half of the concave margin. Third podomere with 2 terminal claws, the ventral one, **Gm**, more slender two-third of the bigger one, **GM**, both serrulate, 1 seta with the same size of the bigger claw and 1 short sensorial seta **Y3**, with half of the podomere length.

Mandible — Plate II - Figure 1c-d.

Gnathobase of the protopodite with 7 rows of denticles on the internal-distal end, intercalated with spines and sensorial setae. 2 bigger pilose setae in the lower margin of these rows of denticles. There is one pilose seta in the upper part of the podomere, in front of the gnathobase.

Internal margin of the second podomere with one long and smooth seta; 2 strong setae, **S1** and **S2**, one

PLATE II

Diaphanocypris meridana (Furtos, 1936)

Figure 1 — Female. Plesiotypus UFRGS MP-0-945

1a - Left maxillula. 150 x

1b - Right antenna. 150 x

1c - Left mandibule. 150 x

1d - Detail of the palp of the left mandibule. 150 x

150 μ m

50 μ m

directed to ventral extremity and the other to the dorsal area, each one marginated by two rows of long spines, and a α seta thin and shorter than the third segment. At the dorsal margin the exopodite is represented by a fan of 6 pilose setae. First podomere of the endopodite internally with one short strong seta; β with its base width and distal surface plumed; 1 thin seta with marginal strong hairs, its length near to that of the second article of the endopodite and 3 long setae also with strong hairs, its length about one and half time the length of the second segment. At dorsal margin 3 setae: 2 long, the first one longer than the end of the terminal claws; the second reaching the end of the claws and the third reaching the last part of the second article. Second podomere with numerous hairs on its ventral margin. Dorsal margin with 4 subterminal setae: 3 of them surpass the end of the claws and the fourth one about half-length of the others. Latero-ventrally in the distal part of the segment are 4 smooth setae: 2 central reaching half-length of the claws, the others reaching the beginning of them. In ventral position 1 terminal seta which surpasses slightly the length of the third podomere and 1 small subterminal seta.

The third podomere with 3 strong terminal claws about the same length of the second podomere and 2 smooth ventral setae a little shorter than the claws.

Maxillula — Plate III - Figures 1a-b.

Branchial plate with about 20 plumose setae directed backward and about 5 setae turned upward directed to the palp. First palp podomere with 1 short lateral seta and 1 long pilose dorsal seta, both setae subterminal. In dorsal position 4 terminal setae, pilose at the distal end, reaching the distal part of the claws of the second article. Second podomere with 2 claws and 3 setae all with almost the same size and about two times the length of their segment. The first seta is between the first and the second claws and the second and third setae are ventral. There is a row of hairs at the ventral margin of the article. External masticatory process with 3 subterminal pilose setae at the dorsal margin and 1

lateral short seta with the end like a brush, 2 smooth terminal setae, 2 setae with wide base and the ends pectinate at two side and 1 ventral smooth seta. Internally, in proximal position, there are 2 long plumed setae: one reaching the extremity of the terminal setae of the masticatory process and the other a little more shorter. Central masticatory process with almost 10 terminal setae. Internal masticatory process having about 10 terminal setae, the last two having twice the size of the others. At the internal margin of the maxillula in proximal position there are 2 pilose setae.

First leg (Maxilliped) — Plate III Figure 1c.

Protopodite with 2 small setae α proximally. Surface with long hairs. Mastic area with about 13 pilose setae. Endopodite with 3 unequal plumose setae: the central very long, one and half the size of the endopodite, the second with half size of the first and the third one half size of the second. Exopodite plate with 6 plumose setae.

Second leg. — Plate III - Figure 1d.

Protopodite with 2 fused articles. Ventral margin of the first, second and third podomere of the endopodite with 1 distal seta. The seta of the first podomere is median and slightly pilose and reaches the beginning of the third podomere. The seta of the second article is about two times the length of the segment and that of the third podomere is short, surpassing slightly the fourth article. Fourth podomere with two small setae, one dorsal and smooth and the other ventral and pilose, flanking the terminal claw which is long, slightly arcuate and serrulate from the distal two-third at its concave border. There is a sheath of small marginal hairs between the second, the third and fourth segment and on the end of the fourth podomere. Some piles spraided at the ventral margin of the first and second podomere of the endopodite.

Third leg - Plate III - Figure 1e.

Protopodite with 2 fused articles. First podomere

PLATE III

Diaphanocypris meridana (Furtos, 1936)

Figure 1 - Female. Plesiotypus UFRGS MP-0-945

1a - Left maxillula. 150 x

1b - Detail of the palp and of the masticatory process of the right maxillula. 250 x

1c - 1st. right leg. 150 x

1d - 2nd. left leg. 150 x

1e - 3rd. right leg. 150 x

1f - Copulatory apparatus and furcae. 150 x

1g - Detail of the distal part of the right furca. 250 x

with 1 subterminal ventral seta, the size almost the same as that of the article. Second podomere with a medium ventral seta a little bigger than half-length of the next article and 1 dorso-distal seta with half-length of that one. Ventral margin of the first podomere of the endopodite with 1 distal seta which reaches the second-third of the second article. Second and third article of the endopodite fused: bearing 1 ventral, medium seta slightly pilose, surpassing a little the fourth article and the pincer organ. Fourth podomere short with 1 dorsal seta directed backward, 1 beak like claw slightly curved and serrate at the distal concave margin, 1 small curved seta. *Pz2*, close to the base of the claw. In the internodistal side of the third podomere a hairy lobe and a small seta, *Pz1*. The dorsal seta is pilose at its end and has almost the same size of the median seta of the anterior article. Near to the extremity of the fourth podomere one can see a row of small hairs.

Furca — Plate III - Figures 1f-g

The furcal ramus is narrow and almost straight, with the length fourteen times bigger than the width take at its median part. It presents at the posterior side a continuous and strong serrulate which decreases in direction to the proximal zone. Distal claws pectinated. Terminal claw, *Ga*, approximately half-size of the ramus, subterminal claw, *Gp* a little more than the half of the bigger one. Dorsal seta, *Sa*, short. Apical seta, *Sp*, smooth and a little smaller than the terminal claw. Both setae slightly pilose.

Dimensions

Plesiotypi: Female. UFRGS MP-0-945. Right valve. Length 1.237 mm, height 0.535. Left valve. L. 1.237 mm, H. 0.561 mm.

Female. UFRGS MP-0-946. Right valve. L. 1.244 mm; H. 0.515 mm. Left valve. L. 1.249 mm; H. 0.535 mm. Female. UFRGS MP-0-947. Right valve. L. 1.249 mm; H. 0.561 mm. Left valve. L. 1.235 mm; H. 0.566 mm.

Remarks — The present species has the same morphological characters of *Herpetocypris meridana* Furtos 1936. The comparisons were more over the description of the carapace and some appendages: the illustrations of the shell and the end of the third pair of legs and furca, which are very well characteristic of this species.

After Furtos two other authors have described that and the end of the third pair of legs and furca, which are very well characteristic of this species.

After Furtos two other authors have described that species: Klie (1939) under the name of *Strandesia saggita*, occurring in several States of North Brazil and Ferguson (1967) as *Herpetocypris bonettoi* occurring in Santa Fé, Argentina. Although Ferguson (op.cit.) has represented only the outline of the carapace and 3 appendages: furca, antenna and the third leg, letting the last two limbs incompletes, judging by the similarity of the outline of the carapace and furca should be the same species.

Studied material: 84 females and 6 juveniles.

Occurrence: In lakes, ponds, small canals, marshes, swamps and floods of rivers. In Brazil at North Littoral of Rio Grande do Sul State, and at the States of Paraíba, Alagoas and Pernambuco. In Argentina at Provincia Santa Fé. In México at Merida.

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