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# *Characithecium* (Monogenoidea: Dactylogyridae) parasitic on the Neotropical fish *Oligosarcus jenynsii* (Teleostei: Characidae) from the Pampasic region, Argentina, with the emendation of the genus

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## Abstract

Presently, only 2 species of dactylogyrid monogeneans have been reported Characidae inhabiting lakes and streams from the Pampasic region (central Argentina). During a parasitological survey on the characid *Oligosarcus jenynsii*, from Nahuel Rucá Lake (Buenos Aires province, Argentina), dactylogyrids were found on the gills. Specimens were identified as members of *Characithecium*: *C. chascomusensis* **n. comb**, *C. longianchoratum* **n. sp.**, *C. robustum* **n. sp.**, *C. quadratum* **n. sp.** and *C. chelatum* **n. sp.** These species can be distinguished from each other mainly by differences in the shape of the accessory piece of the male copulatory organ, morphology of anchors and ventral bars as well as position of vaginal aperture. The observation of some additional features present in all species studied, such as the vaginal aperture position (as midventral, lateroventral or lateromarginal) and the variability in the morphology of ventral bar (posteromedial projection present or absent) justified an emended diagnosis of *Characithecium*.

**Key words:** South America parasites, Neotropical monogenean, dactilogyrids, *Characithecium chascomusensis* n. comb, *Characithecium longianchoratum* **n. sp.**, *Characithecium robustum* **n. sp.**, *Characithecium quadratum* **n. sp.**, *Characithecium chelatum* **n. sp.**, characid fish, *Oligosarcus jenynsii*

## Introduction

Characidae is the fourth most diverse family of fishes and the most diverse among Neotropical fishes, with more than 1,000 species distributed from the southern USA to northern Patagonia (Argentina) in South America (Ornelas-García *et al*. 2008; Mirande 2010). The dactylogyrid fauna of characids has been extensively studied in northern South America, especially in Brazil (Thatcher 2006; Cohen & Kohn 2009; Cohen *et al*. 2013) and, in lesser extent, in Central America (Mendoza-Franco *et al*. 2009). At present, the knowledge of monogenean parasitizing characids in the southern boundaries of the family distribution, represented by the Pampasic region in central Argentina, is scarce and fragmentary, in comparison with their northern counterparts. This fauna comprises, to date, the records of only 2 species of *Palombitrema* Price & Bussing, 1968 that have been reported from Chascomus Lake (Buenos Aires province). These species include *P. heteroancistrium* (Price & Bussing, 1968) Suriano, 1997 a parasite of *Astyanax fasciatus fasciatus* Cuvier, and *P. chascomusense* (Suriano, 1981) Suriano, 1997, a parasite of the curimatid *Cyphocharax voga* (Hensel) as well as of *Oligosarcus jenynsii* (Günther) (Suriano 1981; 1997).

During a parasitological examination of *O. jenynsii* captured in Nahuel Rucá, a shallow lake located in Buenos Aires province, Argentina, dactylogyrid monogeneans were found in the gills. *Oligosarcus jenynsii* is one of the most widely distributed and dominant species in the ecosystems at regional scale (Rosso 2006). However, little is known about its parasite fauna. Herein, 5 species were identified as members of *Characithecium* Mendoza-Franco, Reina & Torchin, 2009 a monospecific genus containing *C. costaricensis* (Price & Bussing, 1967) Mendoza-Franco, Reina & Torchin, 2009, reported from 3 species of *Astyanax* across Central America (Mendoza-Franco *et al*. 2009). Four of the species found are described for first time, whereas the fifth species was identified as *P.*

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## References

Agarwal, N. & Kritsky, D.C. (1998) Neotropical Monogenoidea. 33. Three new species of *Ancistrohaptor* n. g. (Dactylogyridae, Ancyrocephalinae) on *Triportheus* spp. (Teleostei, Characidae) from Brazil, with checklist of ancyrocephalines recorded from Neotropical characiform fishes. *Systematic Parasitology*, 39, 59–69. http://dx.doi.org/10.1023/a:1005896323016

Bush, A.O., Lafferty, K.D., Lotz, J.M. & Shostak, A.W. (1997) Parasitology meets ecology on its own terms: Margolis et al. Revisited. *Journal of Parasitology*, 83, 575–583. http://dx.doi.org/10.2307/3284227

Cohen, S.C. & Kohn, A. (2009) Lists of species. On Dactylogyridae (Monogenea) of four species of characid fish from Brazil. *Check List,* 5, 351–356.

Cohen, S.C., Kohn, A. & Justo, M.C.N. (2013) *South American Monogenoidea prarasites of fishes, amphibians and reptiles*. Rio de Janeiro, 662 pp. [Kohn, A., Justo, M.C.N. & Cohen, S.C. (Eds.)]

Kritsky, D.C. & Boeger, W.A. (2002) Neotropical Monogenoidea. 41: New and previously described species of Dactylogiridae (Platyhelminthes) from the gills of marine and freshwater perciform fishes (Teleostei) with proposal of a new genus and hypothesis on phylogeny. *Zoosystema,* 24, 7–40.

Kritsky, D.C. & Leiby, P.D. (1972) Dactylogyridae (Monogenea) from the freshwater fish, *Astyanax fasciatus* (Cuvier), in Costa Rica, with descriptions of *Jainus hexops* sp. n., *Urocleidoides costaricensis,* and *U. heteroancistrium* combs. n. *Proceedings of the Helminthological Society of Washington*, 39, 227–230.

Kritsky, D.C. & Thatcher, V.E. (1974) Monogenetic Trematodes (Monopisthocotylea: Dactylogyridae) from freshwater fishes of Colombia, South America. *Journal Helminthology*, 48, 59–66. http://dx.doi.org/10.1017/s0022149x00022604

Kritsky, D.C., Boeger, W.A. & Thatcher, V.E. (1985) Neotropical monogenea. 7. Parasites of the pirarucu, *Arapaima gigas* (Cuvier), with descriptions of two new species and redescription of *Dawestrema cycloancistrium* Price and Nowlin, 1967 (Dactylogyridae: Ancyrocephalinae). *Proceedings of the Helminthological Society of Washington*, 98, 321–331.

Kritsky, D.C., Thatcher, V.E. & Boeger, W.A. (1986) Neotropical Monogenea. 8. Revision of *Urocleidoides* (Dactylogyridae, Ancyrocephalinae). *Proceedings of the Helminthological Society of Washington*, 53, 1–37.

Mendoza-Franco, E.F., Posel, P. & Dumailo, S. (2003) Monogeneans (Dactylogyridae, Ancyrocephalinae) of freshwater fishes from the Caribbean coast of Nicaragua. *Comparative Parasitology*, 70, 1–11. http://dx.doi.org/10.1654/1525-2647(2003)070[0032:mdaoff]2.0.co;2

Mendoza-Franco, E.F., Reina, R.G. & Torchin, M.E. (2009) Dactylogyrids (Monogenoidea) parasitizing the gills of *Astyanax* spp. (Characidae) from Panama and Southeast Mexico, a new species of *Diaphorocleidus* and proposal for *Characithecium* n. gen. *Journal of Parasitology,* 95, 45–55. http://dx.doi.org/10.1645/ge-1592.1

Mendoza-Franco, E.F., Scholz, T., Vivas-Rodríguez, C. & Vargas-Vázques, J. (1999) Monogeneans of freshwater fishes from cenotes (sinkholes) of the Yucatan Peninsula, Mexico*. Folia Parasitologica,* 46, 267–273.

Menezes, N.A. (1987) Três espécies novas de *Oligosarcus* Günther, 1864 e redefinição taxonômica das demais espécies do gênero (Osteichthyes, Teleostei, Characidae). *Boletim de Zoologia,* 11, 1–39. [São Paulo]

Mirande, J.M. (2010) Phylogeny of the family Characidae (Teleostei: Characiformes): from characters to taxonomy. *Neotropical Ichthyology***,** 8, 385–568. http://dx.doi.org/10.1590/s1679-62252010000300001

Mizelle, J.D. (1936) New species of trematodes from the gills of Illinois fishes. *American Midland Naturalist,* 17, 785–806. http://dx.doi.org/10.2307/2420687

Mizelle, J.D. & Klucka, A.R. (1953) Studies on monogenetic trematodes. XIV. Dactylogiridae from Wisconsin fishes. *American Midland Naturalist,* 49, 720–733. http://dx.doi.org/10.2307/2485203

Mizelle, J.D. &Price, C.E. (1963) Additional haptoral hooks in the genus *Dactylogyrus*. *Journal of Parasitology,* 49, 1028–1029. http://dx.doi.org/10.2307/3275746

Ornelas-García, C.P., Domínguez-Domínguez, O. & Doadrio, I. (2008) Evolutionary history of the fish genus *Astyanax* Baird & Girard (1854) (Actinopterygii, Characidae) in Mesoamerica reveals multiple morphological homoplasies. *BMC Evolutionary Biology*, 8, 340.
http://dx.doi.org/10.1186/1471-2148-8-340

Price, C.E. & Bussing, W.A. (1967) Monogenean parasites of Costa Rican fishes. Part 1. Descriptions of two new species of *Cleidodiscus* Mueller 1934. *Revista di Parassitologia*, 28, 81–86.

Price, C.E. & Bussing, W.A. (1968) Monogenean parasites of Costa Rican fishes. II. Proposal of *Palombitrema heteroancistrium* n. gen., n. sp.!. *Proceedings of the Helminthological Society of Washington*, 35, 54–57.

Rosso, J.J. (2006) *Peces pampeanos, guía y ecología*. Editorial L.O.L.A., Buenos Aires, Argentina, 224 pp.

Suriano, D.M. (1981) *Androspira* gen. nov. (Monogenea Ancyrocephalinae) parasito branquial de *Pseudocurimata gilberti* (Quoy & Gaimard, 1824) Fernández-Yepes, 1948 (Pisces Tetragonopteridae) de la Laguna de Chascomús, República Argentina. *Neotropica*, 27, 67–78.

Suriano, D.M. (1997)*Palombitrema heteroancistrium* Price and Bussing, 1968 (Monogenea: Ancyrocephalidae) from *Astyanax* (A.) *fasciatus fasciatus* (Cuvier, 1819) (Pisces: Characidae) in Chascomús Lake, Argentina: Anatomy and systematic position. *Physis*, Section B, 53, 7–10.

Thatcher, V.E. (2006) *Amazon fish parasites. 2nd Edition*. Pensoft, Sofia, Bulgaria, 508 pp.

Wong, W.L., Tan, W.B. & Lim, L.H.S. (2006) Sodium dodecyl sulphate as a rapid clearing agent for studying the hard parts of monogeneans and nematodes.*Journal Helminthology*, 80, 87–90.
http://dx.doi.org/10.1079/joh2005320