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VERSITA

Redescription of *Bacciger microacetabularis* (Martorelli et Suriano, 1983) nov. comb. parasitizing *Paralichthys orbignyanus* (Pisces, Paralichthyidae) from Argentina

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Abstract

In this paper *Steringotrema microacetabularis* (Suriano et Martorelli, 1983) is redescribed and transferred to *Bacciger* Nicoll, 1924 in the Faustulidae Poche, 1926 based on newly collected material from the type-host, *Paralichthys orbignyanus* Valenciennes, 1839 and the type-locality, Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina. A careful re-examination of the new specimens shows that some anatomical characteristics were ignored or incompletely described by the previous authors and they are included herein. The species is tentatively transferred to *Bacciger* with which it appears to have closest affinity. Despite the anatomical differences detailed in this paper, confirmation of this proposal must await further work, including molecular studies.

Keywords

Digenea, *Bacciger microacetabularis*, redescription, fish, *Paralichthys orbignyanus*, Argentina

Introduction

Steringotrema microacetabularis (Fellodistomidae) was originally described by Suriano and Martorelli (1983) parasitizing the flounder *Paralichthys orbignyanus* Valenciennes, 1839 from Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina.

Bray *et al*. (2008, in press) suggested that *S. microacetabularis* ac-tually belongs to *Bacciger* Nicoll, 1924 (Faustulidae Poche, 1926). Based on molecular studies, Hall *et al*. (1999) included all members of the Baccigerinae sensu Bray (1988) in the family Faustulidae. The main morphological features of the faustulids are: spinous tegument, uterine seminal receptacle absent, canalicular seminal receptacle which forms part of Laurer's canal, and Laurer's canal opens close to the posterior extremity (Cribb *et al*. 1999, Hall *et al*. 1999).

During parasitological surveys carried out recently on samples from the same host and locality as that of the original description, digeneans identified as *S. microacetabularis* were collected. Careful examination of these specimens showed that some anatomical characteristics were omitted or incompletely described by Martorelli and Suriano (1983). Here *S. microacetabularis* is redescribed and transferred to *Bacciger*.

Materials and methods

A total of 25 specimens of the flounder *P. orbignyanus* Valenciennes, 1839 (444.67 ± 82.15 cm total length), caught in Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina (37°32´ to 37°45´S, 57°19´ to 57°26´W) were examined. Fish were caught during January 2004 and April 2008. Flounders were dissected immediately after capture, and the intestines were removed and examined under a stereoscopic microscope. Parasites were collected and studied. Some specimens were observed alive and other fixed in hot 4% formaldehyde and preserved in 70% ethanol. Whole-mounts were stained in Semichon's acetocarmine, cleared in methyl salicylate and

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mounted in Canada balsam. Illustrations were made with a drawing tube and digeneans were measured using light microscopy. Measurements are given in micrometres unless otherwise stated, with the mean followed by a range in parentheses.

Results

Bacciger microacetabularis **(Suriano et Martorelli, 1983) nov. comb.** (Figs 1 and 2)

Redescription: Measurements based on 31 whole mounted specimens. Body ovoid, elongate, 800 (500–1200) long, 370 (240–510) in maximum width, body-surface spined. Oral sucker subglobular, subterminal, 140 (80–210) long, 160 (90–210) wide. Prepharynx not observed in all specimens. Pharynx 90 (50–130) long, 70 (60–110) wide. Oesophagus very short. Intestinal bifurcation anterior to acetabulum. Intestinal caeca parallel to lateral margins of body, ending near posterior end of body. Forebody smaller than hindbody, 220 (130–350) long, representing 28.16 (22.25–36.91)% of body length. Ventral sucker smaller than oral sucker, 70 (50–100) long, 80 (60–130) wide; ratio of oral to ventral sucker width 1:0.51 (0.40–0.71) mm. Hindbody 520 (260–800).

Testes rounded to oval, symmetrical, in the second half of hindbody, 170 (80–270) long, 120 (60–160) wide. Cirrus-sac thin-walled, arched, elongated, containing seminal vesicle, pars prostatica, and short ejaculatory duct opening into genital atrium. Seminal vesicle bipartite; proximal part 50 (30–60) long, 40 (20–60) wide, distal part 50 (30–60) long, 50 (30–70) wide. Genital atrium tubular. Genital pore ventro-medial, close to anterior margin of ventral sucker.

Ovary lobate, pretesticular, 100 (70–140) long, 140 (100–190) wide, located at 50 (20–90) from posterior margin of ventral sucker. Canalicular seminal receptacle prominent, oval, preovarian, 70 (40–90) long, 60 (40–80) wide. Laurer's canal transversely oriented, opening at posterior extremity. Ootype preovarian. Mehlis' gland discrete. Uterus mainly postesticular. Metraterm weakly developed, running parallel to left side of cirrus-sac. Vitelline follicles in separate lateral groups, extending from oesophagus to ovarian region. Common vitelline duct transversely oriented just anterior to ovary. Eggs numerous, operculate, 16 (15–17) long, 10 (10–11) wide. Excretory vesicle Y-shaped. Excretory pore terminal.

Taxonomic summary

Host: Flounder, *Paralichthys orbignyanus* Valenciennes, 1839 (Pisces, Paralichthyidae).

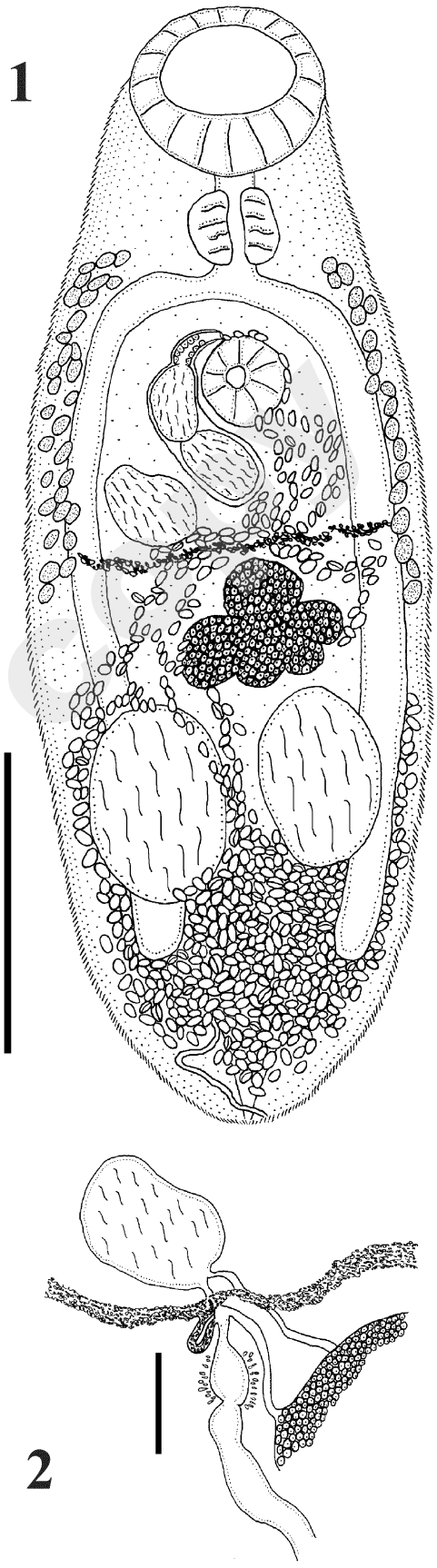
Site: Intestine.

Locality: Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina (37°32′ to 37°45′S, 57°19′ to 57°26′W).

Prevalence: 68%.

Mean intensity and range: 187 (1–1782).

Material deposited: Voucher specimens are deposited in the Helminthological Collection of the Museo de La Plata (CHMLP), La Plata, Argentina. Collection No. 5866.



Figs 1–2. *Bacciger microacetabularis* nov. comb.: **1.** Ventral view. **2.** Detail of terminal genitalia. Scale bars = 250 µm (1), 60 µm (2)

Discussion

After examination of our newly collected specimens it is evident that most morphological features agree with those of *Steringotrema microacetabularis* as originally described by Suriano and Martorelli (1983) from the same host species, the flounder *Paralichthys orbignyanus* Valenciennes, 1839 from Mar Chiquita coastal lagoon, Buenos Aires Province, Argentina.

Our specimens differ from the original description by Suriano and Martorelli (1983) in the following features: (1) the spinose tegument; (2) the presence of a short prepharynx; (3) the intestinal caeca ending to near the posterior end of the body, instead of to the testicular level; (4) the seminal vesicle extends posteriorly to the ventral sucker, instead of remaining preacetabular; (5) the prominent seminal receptacle (in the original description it is overlooked); (6) the vitelline follicles extending from the oesophagus to the ovarian region, instead of to the preovarian region.

Unfortunately, the original material of Suriano and Martorelli (1983) is not available so direct comparison is not possible.

In agreement with Bray *et al*. (2008, in press), who suggested that *S. microacetabularis* actually belongs in the genus *Bacciger* Nicoll, 1924 (Faustulidae), and on the basis of the present redescription the species is renamed *Bacciger microacetabularis* (Suriano and Martorelli, 1983) nov. comb.

According to the present redescription, the specimens resemble *Bacciger* in having an tegument armed with small spines, the presence of a short prepharynx, a bipartite internal seminal vesicle, a short narrow ejaculatory duct, a median genital pore in the posterior forebody; a lobated ovary, a canalicular seminal receptacle and the opening of Laurer's canal close to the posterior extremity (Bray *et al*. 2008, in press).

However, *Bacciger microacetabularis* is distinguished from other *Bacciger* species by the long intestinal caeca extending to near the posterior end of the body, instead of short caeca; the follicular vitellarium extending to the ovarian region, rather than restricted to the forebody and overlapping the ventral sucker; the testes in the second half of the hindbody, instead of in the anterior hindbody and the cirrus-sac elongated instead of oval (Bray *et al*. 2008, in press).

At present, three species of *Bacciger* have been reported from South America: *B. pellonae* Thatcher, 1992 parasitizing *Pellona castelnaeana* Valenciennes, 1847 from Brazil and *B. astyanactis* Lunaschi, 1998 from *Astyanax fasciatus* (Cuvier, 1819) and *B. delvalleensis* Lunaschi, 2001 parasitizing *A. eigenmanniorum* (Cope, 1894), both from Argentina (Thatcher 1992; Lunaschi 1998, 2001). *Bacciger microacetabularis* is distinguished from these three species in having longer intestinal caeca, a larger seminal receptacle and vitelline follicles extending from the oesophagus to the ovarian region instead of two compact masses restricted to the forebody.

In addition, *B. microacetabularis* differs from *B. pellonae* in having the ovary pretesticular instead of postesticular and in having the testes located in the second half of the hindbody instead of the forebody. From *B. astyanactis* it differs in having lobed and pretesticular ovary instead of an oval, intertesticular ovary. Finally, *B. microacetabularis* is distinguished from *B. delvalleensis* by having a ventral sucker smaller than the oral sucker and a lobed and pretesticular ovary rather than a spherical and postesticular ovary (Thatcher 1992; Lunaschi 1998, 2001).

Is worth noting that there are no previous records of members of the Faustulidae from marine hosts in the southwestern Atlantic Ocean (Kohn *et al*. 2007). In addition, *B. microacetabularis* is the only species harboured by a estuarine-dependent marine fish from South America. In Mar Chiquita coastal lagoon, Cremonte (1999) and Vázquez *et al*. (2006) cited the presence of a trichocercous cercariae belonging to the Baccigerinae, actually Faustulidae, parasitizing the clam *Tagelus plebeius* (Lightfoot, 1786). These cercariae could be related to the species here redescribed due to the overlapping in the distribution of both molluscan and fish hosts.

Bacciger seems the closest faustulid genus to *Steringotrema microacetabularis* sensu Martorelli and Suriano (1983), hence the new combination formed here. However, due to the anatomical differences detailed in this paper, confirmation of this conclusion must await further work, principally molecular studies.

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