

***Brasacanthus sphaeroides* gen. n., sp. n.**
(Acanthocephala, Echinorhynchidae)
from a coastal marine fish of Paraná State, Brazil¹

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ABSTRACT. *Brasacanthus sphaeroides* gen. n., sp. n. is described from the marine fish, *Sphaeroides greeleyi* (Steindachner), taken in Paranaguá Bay, Paraná State, Brazil. The new genus differs from *Acanthocephalus* Koelreuter, 1771, the nearest genus in the family Echinorhynchidae, by having very flat and variable lemnisci in both sexes and a uterine egg reservoir in the female. The species is characterized by its spherical body form and in having parallel or diagonal testes.

KEY WORDS. Acanthocephala, fish parasite, puffer parasite, Paraná, Brazil, South America

Acanthocephalans occur in all classes of vertebrate hosts and are common endoparasites of fishes. THATCHER (1991) listed 32 species in 14 genera from Amazonian freshwater fishes. About 20 species have been reported from Neotropical marine fishes but only three of these are known to occur in Brazil (YAMAGUTI 1963). The present paper describes a new genus and species of acanthocephalan from a marine "puffer", *Sphaeroides greeleyi* (Steindachner).

MATERIAL AND METHODS

Fish hosts were netted in Paranaguá Bay, Paraná State, Brazil, and brought on ice to the Department of Zoology of the Federal University of Paraná, Curitiba, for examination. The still living acanthocephalans were removed from the intestinal tracts of their hosts and kept in tap water until the proboscides were well extended. They were then fixed in hot alcohol-formalin-acetic acid (AFA) solution for 24 hours. After fixation, the worms were pierced with a fine needle, stained in 95% alcohol containing equal parts of orange-g and eosin stains, dehydrated in phenol, cleared in methyl salicylate and mounted in Canada balsam. Drawings were made with the aid of a camera lucida, and photomicrographs with a digital camera mounted on a light microscope. Measurements were made with a measuring ocular and are given in micrometers (μm) except where indicated as millimeters (mm). The extremes are followed by the means in parentheses.

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RESULTS

Acanthocephala Rudolphi, 1808
Echinorhynchidae Cobbold, 1879

Brasacanthus gen. n.

Generic diagnosis. Echinorhynchidae: Body small, trunk rotund, with numerous small hypodermic nuclei. Lacunar system with reticular anastomoses. Neck short, proboscis cylindrical with 12-14 rows of 10-12 hooks each; hooks increase in size medially and then decrease in size towards the base. Lemnisci long, flat, irregular, frequently doubled back anteriorly. Proboscis sheath cylindrical, double-walled, with ganglion at base. Testes spherical, parallel or diagonal, posterior to equator; cement glands pyriform, 6 in number. Uterus forming elongate cylindrical or spherical egg reservoir; eggs elongate, fusiform, with polar prolongations of the fertilization membrane. Parasites of marine fishes.

Type species. *Brasacanthus sphaeroides* sp. n.

Brasacanthus sphaeroides sp. n.

Figs 1-10

Host. *Sphaeroides greeleyi* (Steindachner); Tetraodontidae.

Site. Intestinal tract.

Prevalence. 7/12 (58%).

Intensity. 1-45.

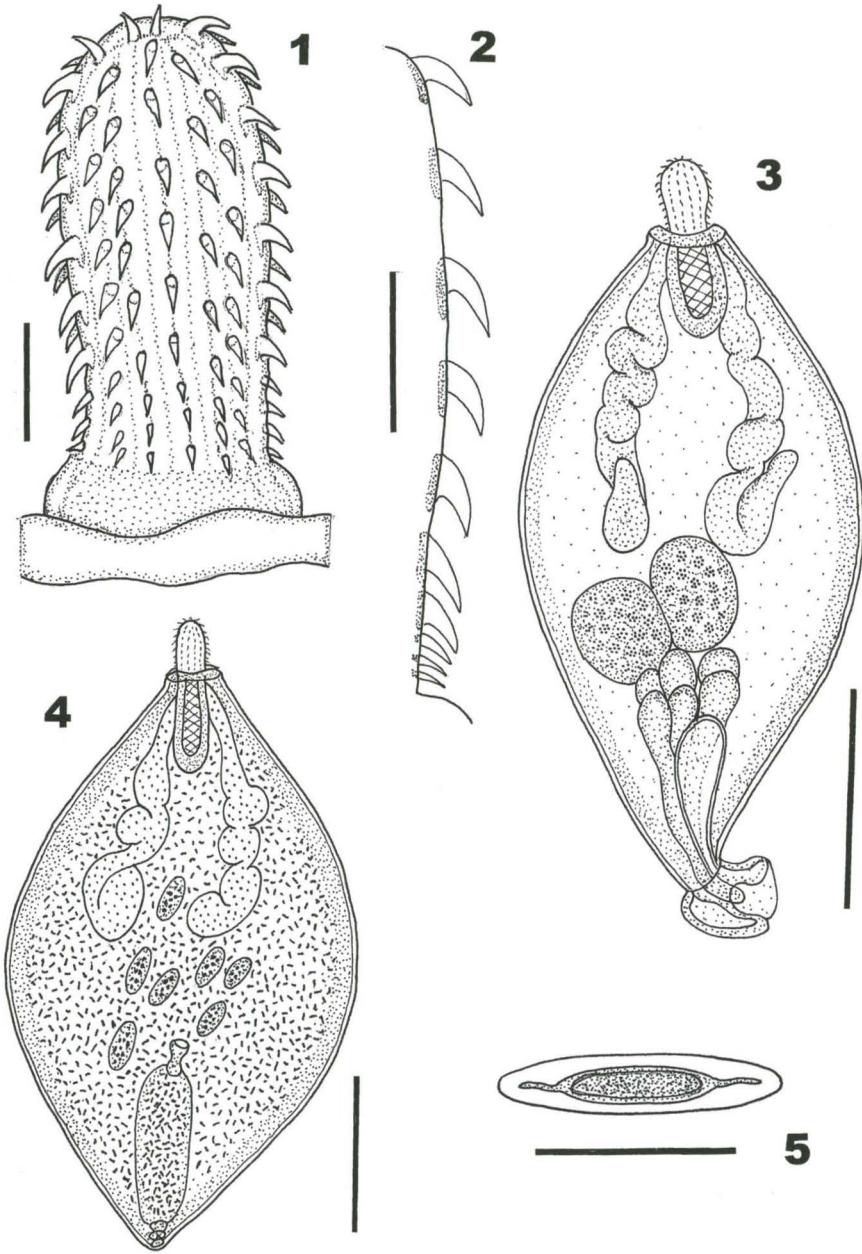
Locality. Paranaguá Bay, Paraná State, Brazil.

Holotype female, 5 female and 5 male paratypes deposited in the Helminthological Collection, Instituto Oswaldo Cruz, Rio de Janeiro, Brazil.

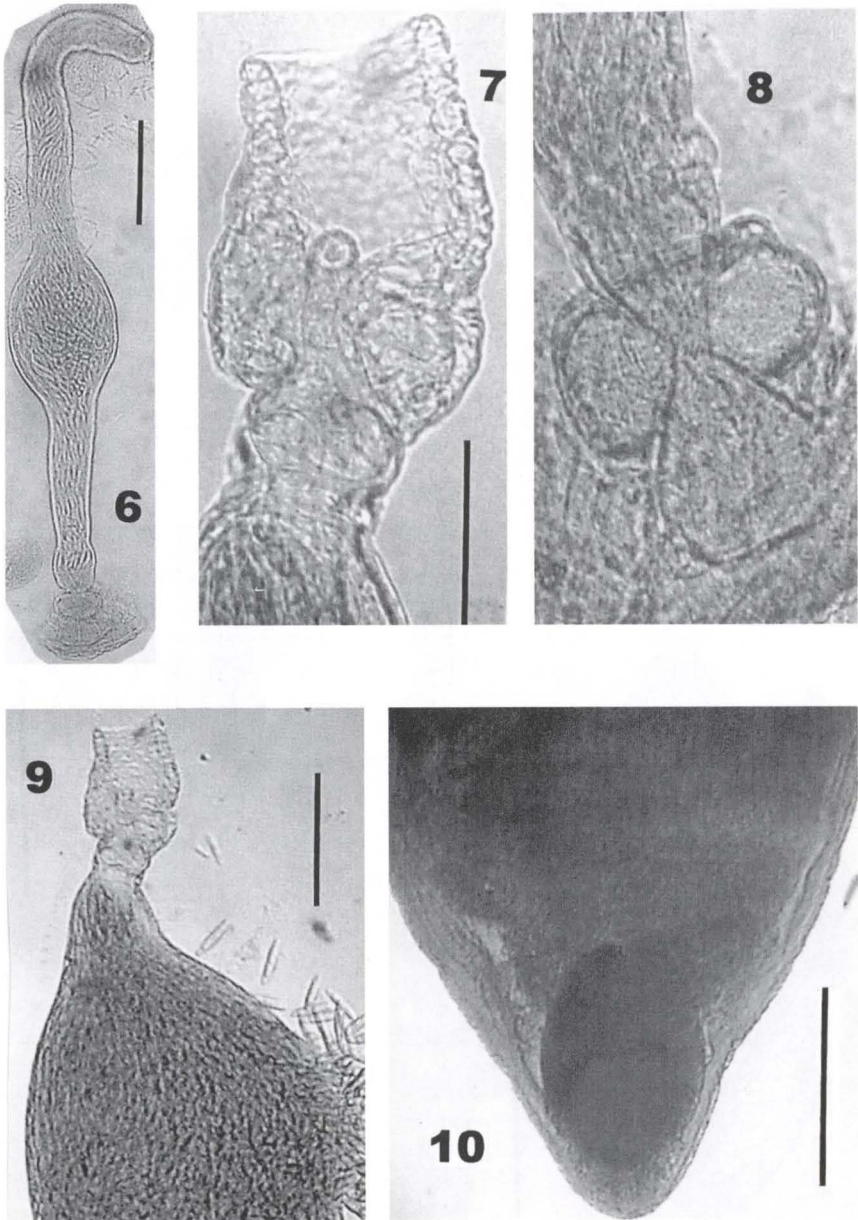
Etymology. Bras = Brazil, acanthus = hook and sphaeroides = spherical which is in reference to the rounded body shape of both the host and parasite.

Species description. With the characters of the genus. Both sexes: Proboscis armament consists of 14 longitudinal rows 10 and 11 hooks in alternate rows. Hooks near the apex measure about 22-23 long; near the middle 31-38 and near the base 14-16. (Figs 1-2). Larger hooks rooted, smallest hooks not rooted. Neck short, unarmed.

Male (Fig. 3, 10 specimens measured). Trunk expanded medially, measures 2.46-3.53 (3.02) mm long and 1.09-1.70 mm in maximum diameter. Proboscis subcylindrical, 315-400 (350) long and 120-170 (149) in diameter. Proboscis sheath measures 350-550 (458) long and 150-300 (253) in diameter. Lemnisci measure 1100-1500 (1364) long and 100-250 (135) wide. Testes subspherical; right testis measures 260-547 (354) in diameter; left testis is 225-562 (354) in diameter. Cement glands pyriform, 6 in number, measure 150-230 (196) in greatest diameter. Saeffti-gen's pouch measures 500-700 (610) long and 240-275 (253) in greatest diameter. Copulatory bursa measures 350-502 (404) long and 300-562 (412) in diameter. Genital complex about 50% as long as trunk.



Figs 1-5. *Brasacanthus sphaeroides* gen. n., sp. n. (1) Female proboscis, scale = 100 μ m; (2) single row of female proboscis hooks showing size variation and roots on larger hooks, scale = 100 μ m; (3) male specimen, entire, scale = 1000 μ m; (4) female specimen, entire, scale = 1000 μ m; (5) mature egg, scale = 50 μ m.



Figs 6-10. *Brasacanthus sphaeroides* gen. n., sp. n., photomicrographs of female reproductive organs. (6) Uterus, showing early expansion of egg reservoir, scale = 250 μ m; (7) uterine bell, scale = 100 μ m; (8) vaginal sphincter; scale = 100 μ m; (9) medium sized egg reservoir, scale = 250 μ m; (10) large, spherical egg reservoir, scale = 1000 μ m.

Female (Figs 4-10, 10 specimens measured). Trunk expanded medially, measures 3.65-6.08 (4.37) mm long and 1.54-3.12 (2.06) mm in maximum diameter. Proboscis subcylindrical, 350-450 (396) long and 140-190 (175) in diameter. Proboscis sheath measures 460-700 (613) long and 250-340 (295) in maximum diameter. Lemnisci measure 1200-1850 (1560) long and 105-160 (128) wide. Ovarian balls measure 105-215 (140) long and 60-125 (75) wide. Genital complex about 30% the length of trunk. Eggs measure 65-78 (71) long and 14-15 (14.5) in diameter.

DISCUSSION

Brasacanthus gen. n. has proboscis armament similar to that of *Acanthocephalus* Koelreuter, 1771, but differs from that genus in a number of important respects. The new genus has a rounded shape, parallel or diagonal testes, long flat and variable lemnisci and a prominent uterine egg reservoir. Species of *Acanthocephalus* are elongate, have tandem testes, short lemnisci and lack an egg reservoir. According to YAMAGUTI (1963) and PETROCHENKO (1971) only *Acanthocephalus parallelotestis* Achmerov & Dombrovskaya-Achmerova, 1941, has testes that are side by side. In this species, however, the trunk is long and slender and the testes are long and cylindrical (not spherical).

Apparently, only one species of acanthocephalan has been reported to mature in puffers worldwide. The species called *Arythmacanthus fusiformis* was described by YAMAGUTI (1935) and used as the type for a new family, Arythmacanthidae. This species was found in a puffer (*Sphaeroides* sp.) on the coast of Japan. It is a rotund form with diagonal testes but the trunk is conspicuously spined and the proboscis armament is entirely different from that of the present species.

ACKNOWLEDGEMENT. The author is grateful to Walter P. Boeger, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil, for making these specimens available for study.

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