

NOTES ON GEOGRAPHIC DISTRIBUTION

**Digenea, Lepocreadiidae, *Acanthogalea gibsoni* Gaevskaya, 1983:
New host records and geographical distribution**

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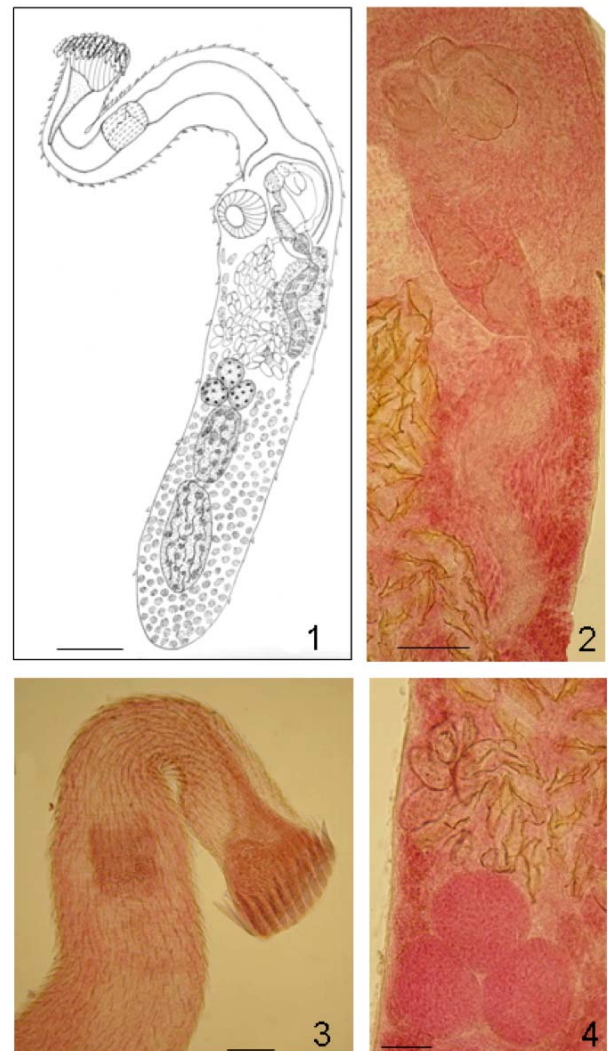
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Members of Lepocreadiidae are recognizable as worms with widely distributed vitelline follicles, a spinous tegument, usually with a distinct external seminal vesicle and a typically I-shaped excretory vesicle (Bray 2005). Gibson (1976) erected the genus *Acanthogalea* to *A. palinurichthydis* for specimens recovered from the stomach of *Hyperoglyphe antartica* (Carmichael, 1819) [= *Palinurichthys antarticus* (Carmichael, 1819)] (Perciformes, Centrolophidae) off Tristan da Cunha, Africa. Later, Gaevskaya (1983) described also from Africa the second species of the genus, *A. gibsoni* parasitizing *Schedophilus velaini* (Sauvage, 1879) [= *Hyperoglyphe moseli* (Cunningham, 1910)] (Perciformes, Centrolophidae) off Namibia.

Balistes vetula is a fish belonging to family Balistidae, with distribution in coastal Africa, Western Atlantic Ocean from Canada to Massachusetts (USA), and northern Gulf of Mexico to southeastern Brazil, found over rocky or coral areas. It can form schools, also being found sometimes alone over sand and grassy areas. *Epinephelus nigritus* is a valuable commercial food fish belonging to family Serranidae, found in Western Atlantic Ocean, from Massachusetts (USA) to the Gulf of Mexico, Cuba, Trinidad and Brazil (in the states of Rio de Janeiro and São Paulo). It is rare in the West Indies (Cuba, Haiti, and Trinidad). It is a solitary species usually found on rocky bottoms; juveniles are occasionally seen on jetties and shallow reefs (Froese and Pauly 2009).

During investigations into helminths parasites of fishes from the littoral of the state of Rio de



Figures 1-4: *Acanthogalea gibsoni*. 1. Total, ventral view. Bar = 200µm. 2. Light micrograph of the terminal genitalia. Bar = 100µm. 3. Light micrograph of the tegument in the anterior region. Bar = 100µm. 4. Light micrograph of the trilobated ovary. Bar = 50µm.

Janeiro, Brazil, specimens of *Acanthogalea* were collected from *Balistes vetula* and *Epinephelus nigritus*, and identified as *A. gibsoni*, which represents the first record of this genus in South America and in two new hosts.

From July 2007 to September 2008, three specimens of *Balistes vetula* and eight specimens of *Epinephelus nigritus* were examined. They were obtained from the fish market of Angra dos Reis, state of Rio de Janeiro, and were captured in the surrounding waters of this area (23°00'24" S, 44°19'05" W). Fishes were identified following Szpilman (2000).

Digenea were cold fixed in AFA (alcohol, formalin and acetic acid), under light cover glass pressure. Specimens were stained with Langeron's alcoholic acid carmine, dehydrated in an ethyl alcohol series, cleared in beechwood creosote and mounted in Canada balsam as permanent slides. Measurements are given in micrometers. The specimens were observed in a Zeiss Axioskop 2 Plus[®] microscope, figure was drawn with the aid of a drawing tube and the images were captured in a Sony MPEGMovie EX DSC-S75[®] digital camera. Specimens studied are deposited in the Helminthological Collection of the *Instituto Oswaldo Cruz* (CHIOC) in Brazil.

Acanthogalea gibsoni Gaevskaya, 1983 (Lepocreadiinae, Lepocreadiidae) (Figures 1-4).

Hosts: *Balistes vetula* (Linnaeus, 1758) (Balistidae) "*lirio*" – one of the three examined specimens was parasitized (33.3 %) (CHIOC no. 37256).

Epinephelus nigritus (Holbrook, 1855) (Serranidae) "*cherne*" – one of the eight examined specimens was parasitized (12.5 %) (CHIOC no. 37257).

Site of infection: intestine.

Locality: Angra dos Reis, state of Rio de Janeiro, Brazil (23°00'24" S, 44°19'05" W).

Considering that the original description was published in Russian, a description and measurements of the two specimens recovered is presented below:

Body elongate 3,550-5,600 by 450-675. Tegument spinous. Oral sucker terminal 190-325 x 200-410, surrounded by an uninterrupted row of 23 spines, followed by funnel-shaped connection. Ventral sucker in middle third of body 170-405 x 180-365. Sucker width ratio 1:0.9. Prepharynx 320-920, pharynx 170-300 x 125-260, oesophagus 600-1,030 long. Intestinal bifurcation in posterior part of forebody. Caeca reaching posterior extremity. Testes two, entire, tandem, in posterior body end. Anterior testis 250-470 x 175-390; posterior testis 260-560 x 175-360. Cirrus-sac long 360 x 105, passing ventral sucker posteriorly. It contains seminal vesicle 90 x 60, pars prostatica and ejaculatory duct. Genital atrium present, genital pore between intestinal bifurcation and ventral sucker. External seminal vesicle 375 x 50, surrounded by gland-cells. Ovary trilobed, pretesticular 175-320 x 190-320. Uterus pre-ovarian. Metraterm formed by thin walls. Vitellaria extending from the posterior margin of ventral sucker to posterior extremity of body with vitelline follicles overreaching testes. Uncollapsed eggs 70-87 x 35-37, collapsed eggs 65-85 x 25-42. Excretory vesicle and excretory pore not seen.

South American specimens differ from those described by Gaevskaya (1983) by having 23 spines instead of 21, the prepharynx and esophagus much longer, and the distribution of vitellaria.

The finding of *Acanthogalea gibsoni* in *B. vetula* and *E. nigritus* from the littoral of the state of Rio de Janeiro represents new hosts records, increasing to South America the geographical distribution of this species.

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Literature cited

Bray, R.A. 2005. Superfamily Lepocreadioidea Odhner, 1905; p. 541-602 In A. Jones, R.A. Bray and D.I. Gibson (ed). Keys to the Trematoda. Volume 2. London: CAB International and Natural History Museum.

Froese, R. and D. Pauly. 2009. FishBase. Electronic Database accessible at www.fishbase.org, version (02/2009). Captured on 15 March 2009.

Gibson D.I. 1976. Monogenea and Digenea from fishes. *Discovery Reports* 36: 179-266.

- Gaevskaya A. 1983. New species of trematodes from the family Lepocreadiidae, parasites of South Atlantic fish. *Zoologicheskii-Zhurnal* 62(5): 788-791.
- Szpilman, M. 2000. Peixes marinhos do Brasil: guia prático de identificação. Rio de Janeiro: Marcelo Szpilman, 288p.

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