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New Species Of The Genus *Oogyrodactylus* Harris, 1983 From Aquarium Fishes Of Meerut, India.

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Abstract

During the present study of monogeneans of aquarium fishes, we came across single infected specimen of aquarium fish, Poecilia sphenops (Black molly), infected with monogeneans belonging to the genus Oogyrodactylus Harris, 1983. Although oviparous, the Oogyrodactylids are closely related to the viviparous gyrodactylids. Both families share a combination of characters, including haptor morphology, articulated marginal hooks and spike sensilla, which are not seen in other monogeneans. On subsequent study, the present form appears new to us and described here in as such.

Keywords : *Aquarium fish, Poecilia sphenops,Oogyrodactylus, monogenean.*

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Introduction

Genus *Oogyrodactylus* was first abstracted by Harris in 1983 for the monogeneans recovered from fins and skin of the fish, *Farlowella amazonum,* a South American loricarid catfish from London. The Oogyrodactylidae fam. Nov., containing two genera *Oogyrodactylus* and *Phanerothecium* is placed with the Gyrodactylidae in Gyrodactylidea. Although, oviparous *Oogyrodactylids* are closely related to the viviparous Gyrodactylids. Both families share a combination of characters, including haptor morphology and articulated marginal hooklets. There is a close resemblances between the reproductive system of the immature *Oogyrodactylus* and that of the mature *Gyrodactylus,* suggesting that progenesis, involving the precocious maturation of oocytes may have been important in the evolution of the viviparous genera.

During the study of monogeneans of aquarium fishes, we came across single specimen of aquarium fish *Poecilia sphenops* (Black molly), infected with monogeneans belonging to the genus *Oogyrodactylus.* On subsequent study, the present form appears new to us and described here in as such.

Materials And Methods

The fishes, for the present investigation, were purchased from local aquarium vendors and kept in laboratory glass aquariums. The monogeneans were collected in cold water, washed thoroughly and fixed in hot 70% Alcohol or 10% neutral Formalin. The study of chitinoid hard parts was made in Glycerin mounts and such semi-permanent preparations were sealed with sealant. The permanent mounts were also made after staining in Aceto Alum Carmine, dehydrating through ascending grades of Ethanol, clearing in Xylene and mounting in Canada balsam. Camera Lucida sketches were made both from temporary and permanent preparations. Microphotographs were taken with the help of Motic Microscope and Image Analyzing System. All measurements were taken with the help of stage micrometer and occulometer as the method suggested by Mizelle (1936 and 1938), Gussev (1955), Malmberg (1957) and Singh (1959). All measurements are in millimeter.

Results

Oogyrodactylus sphenopus (Plate 1)

Description based on two specimens. Body elongated and elliptical in shape with distinct prohaptor and haptor. The worms measuring 0.017 (0.16-0.18) in length and 0.028 (0.026 - 0.030) in maximum width. The cephalic end of the body is poorly marked, bluntly pointed and is provided with a pair of antero-lateral papillate head organs laterally mounted on each other, its

globular vesicles are present in the head organs. The opistho-haptor part of the body is fairly set off from the body proper. One pair of bilobed cephalic glands are also present anterior of pharynx and leads at the base of head organs with the help of fine ducts. Pharynx is bipartite and '8' shaped, measuring 0.021x0.014 (0.020-0.022 x 0.012-0.016). The anterior part of the pharynx is made up of seven cells, smaller in diameter and measures 0.0135x0.016 (0.012- 0.015x0.015-0.017), while the posterior part of the pharynx is larger, made up of eight cells and measures 0.014x0.017 (0.013 - 0.015x0.016 -0.018). A bunch of basophilic cells is also present over the pharynx. It is made up of five pairs of cells. The oesophagus and intestine are not visible in the specimens due to expansion of uterus.

Testis is single, post-equatorial and oval in outline, measures 0.018 (0.016-0.020) in length and 0.0135 (0.012 - 0.015) in width. It leads into funnel shape seminal vesicle measures 0.014x0.0075 (0.012-0.016x0.005-0.010) through a fine vas deferens, measuring about 0.023 (0.024-0.026) in length. Seminal vesicle leads posteriorly into cirrus through a long vas efferentia or ejaculatory duct, running over the uterus, measuring 0.0575 (0.055-0.059). Cirrus is anterior to the uterus. Cirrus pouch is distinct, oval in outline, measures 0.007 (0.006 - 0.008) is length and measures 0.0045(0.003- 0.006) in inner diameter. The armature of the cirrus comprises of one large conical spine at the centre, measuring 0.003 (0.002-0.004) in length. Three pairs of small spines are found arranged laterally, each measuring 0.002 (0.001-0.003) in length. 15-20 ovarian lobules (pre-testicular in location) with diffused vitellaria measures 0.00105x0.005 (0.003-0.018x0.002-0.008) each. Small, triangular ovary measuring 0.012x0.014 (0.011-0.013x0.012-0.016) leads posteriorly into very small ootype complex, measures 0.003x0.0035 (0.002-0.004x0.003-0.004). The ootype complex terminates into very large uterus containing one egg, measuring 0.031x0.0175 (0.030-0.032 x 0.016-0.019). The uterus is situated in the pre-testicular, inter-caecal region, occupying almost the entire inter-caecal field with usually containing one or two eggs, measures 0.030x0.0165 (0.028-0.032x0.015-0.018). Recetaculum seminis is pitcher shaped also leads into ootype complex, measuring 0.016x0.012 (0.014-0.018x0.010-0.014), which opens into uterus. Two eggs are also visible in the uterus, measuring 0.026x0.016 (0.025-0.027 x 0.015-0.017). Haptor measures 0.049x0.046 (0.048-0.050x0.045 - 0.047) comprises a pair of anchor, three transverse bar *i.e.* the two dorsal transverse bars and the ventral transverse bar, and eight pairs of

marginal hooklets. Anchor is moderately stout and diverging 0.062 (0.060-0.064) long, comprising of root 0.0235 (0.022-0.025), straight shaft 0.0225 (0.021-0.024) and a deeply recurved point 0.020 (0.018-0.022) long. First dorsal transverse bar measures 0.015x0.005 (0.014-0.016x0.004-0.006) moderately stout, elongated, bilobed in middle and pointed and curved at the margins. Second dorsal transverse bar measuring 0.012x0.003 (0.010-0.014x0.004-0.006) long, having a bulge at 1/3rd from the one end of the bar. Both margins are pointed but one is downwardly and another is upwardly directed. Ventral transverse bar 0.048x0.005 (0.046-0.050x0.004-0.006) moderately stout, inverted "C" shaped and comprises of two parts, a median portion (true bar) and two upwardly projecting processes 0.012 (0.010-0.014) apart from each other, measures 0.013 (0.012-0.014) long, which fasten the bar with the anchor. The true bar is more or less rectangular having curvature in between with attachment processes projecting upwards. The marginal hooklets measures 0.019 (0.018-0.020) are composed of a sickle 0.0035 (0.003-0.004) and a handle 0.027 (0.026-0.028) long. Sickle consists of proximal (basal) and distal parts. Handle is attached ventrally with part of sickle. Sickle-filament loop is a fine tendon like structure, measures 0.010x0.0025 (0.009-0.011x0.002-0.003) attached with the basal part of the sickle on its inner root. The articulating portion of the handle is slender and straight while the other end-the 'heel', is slightly swollen for providing the site for the attachment of muscles.

Discussion

The diagnostic features of family *Oogyrodactylidae* are:- Reproductive system protandrous, oviparous, with separate male and female genital aperture, vagina absent. Single germarium, single post-germarial testis and 4 longitudinal rows of post-germarial vitellaria. Male copulatory organ a tubular, weakly sclerotized penis. Larva an unciliated oncomiracidium with well developed cephalic lobes.

The generic diagnosis of genus *Oogyrodactylus* are:- Anchors with well developed roots, ventral bar lacking membrane. Cirrus muscular and extrusible, with small sclerotized ring at tip. Cirrus bulb present at base. Cirrus sac absent. Seminal vesicle elongated, lying parallel with long axis of body, vas deferens entering centrally.

The present worm is entirely different form previously described species in following features-

1. Anchors are stouter and very short inner root.
2. Two dorsal transverse bars present. Both are stout with recurved ends.
3. Ventral transverse bar is inverted "C" shaped with clear and long processes.

4. Marginal hooklets are different in having long sickle filament loop and short pivot of handle from the previously described species.

5. Cirrus is gyrodactylid type not dactylogyrid type as in previously described species. Cirrus with cirral sac and large and small hooks.

On the basis of all the characters, the present worm is described as a new species *Oogyrodactylus spenopus* n.sp. This genus is being recorded for the first time in Indian waters.

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EXPLANATION OF FIGURES (Plate 1) :

1. *Oogyrodactylus sphenopus* n. sp. whole mount,
2. Eggs,
3. Pharynx,
4. Cirrus,
5. Haptor,
6. Anchors,
7. Ventral transverse bar,
8. First dorsal transverse bar,
9. Second dorsal transverse bar,
10. Marginal hooklet.

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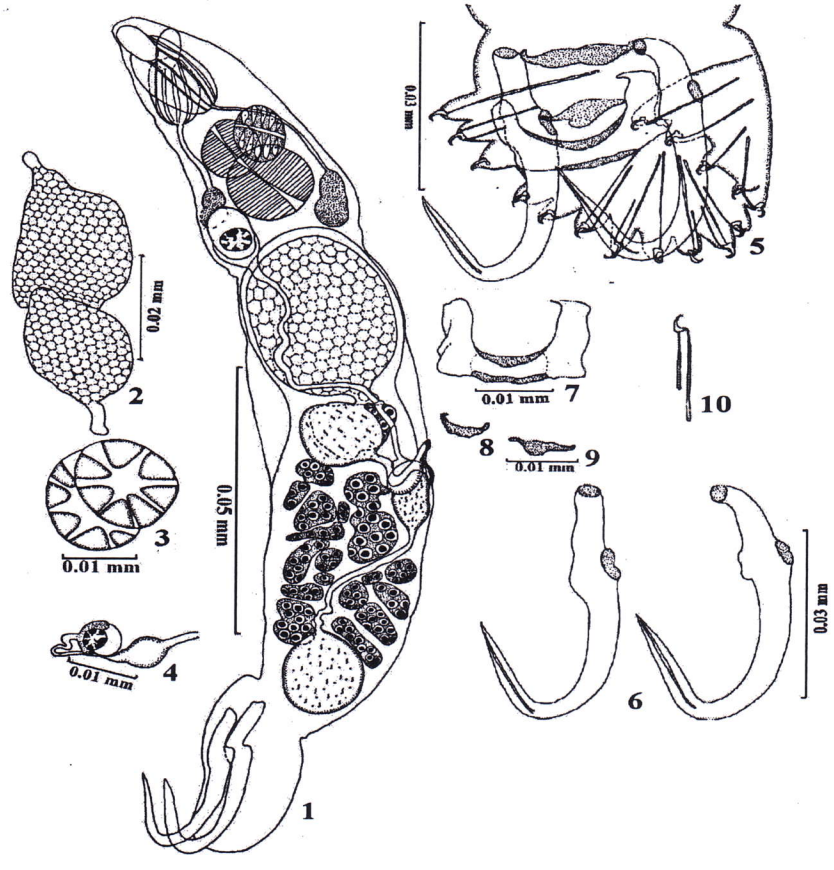

PLATE-1