

A New Monogenean-ectoparasites *Yogendrotrema balrampurai* n.sp. from Fresh-Water Cat Fish *Sciaena coiter* (Ham.) of District Balrampur, Uttarpradesh, India

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ABSTRACT

The fresh-water fish *Sciaena coiter* (Ham.) was collected from local fish market of district Balrampur, Uttar Pradesh, India. Five specimens of fresh-water fish *Sciaena coiter* (Ham.) were examined, of which only one specimen was found infected with single specimen of said species. The site of infection being the gill filaments of the host. **Kumar and Agarwal, 1993** erected the genus *Yogendrotrema* from Varanasi with *Yogendrotrema rajghatai* as type species. The present form differs from the known species *Yogendrotrema rajghatai* in having septate oral sucker, extension of Vitellaria in haptor region also. On subsequent study, the present form appear to be a new species of the genus *Yogendrotrema*, Kumar and Agarwal, 1993 and is regarded as a new species and named *Yogendrotrema balrampurai* n. sp. since it is recorded from district Balrampur.

KEYWORDS: Monogenean-ectoparasites, *Sciaena coiter*, *Yogendrotrema balrampurai*

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INTRODUCTION:

Monogenean is a class of parasitic flatworms that are mainly ectoparasites of fishes but occasionally they are found as endoparasites (**Gussev and Fernando, 1973**). Monogenean occurs commonly as ectoparasites on the gills and skin of fishes and lower aquatic invertebrates. Monogenean are browsers that move about freely on the fish's body surface feeding on mucus and epithelial cells of the skin and gills; however, a few adult monogenean will remain permanently attached to a single site on the host (**Srivastava and Kumar, 1983**). Monogenean undergo asexual mode of reproduction and multiply rapidly to form dense population on the gills of the host (**Mishra, 2021a&b**). The population structure of this monogenean, however, depends on a wide range of environmental factors; the relative importance of these factors varies from species to species and also within the same species depending on the host taxonomy and the nature of habitat (**Chubb, 1977**). Monogenean constitutes a group, which play an important role as pathogens of severe diseases (**Hoffman, 1979 and Srivastava, 1980**). This is because they affect those organs and tissues which are vital to the normal functioning such as gills and skin, the organs of respiration (**Mishra, 2007, 2014a**). In majority of cases, monogenean cause dual type of injury to their hosts. Through their hooks and other organs of attachment, they break the continuity at the site of attachment and result is to

localize hemorrhage (**Mishra, 2008, 2014b**). Monogenean infestations cause irritation and excessive mucus production and create an opening for bacterial invasion (**Dubey, et. al., 1990 and Mishra, 2020a**). A few monogeneans on a healthy mature fish are not usually significant; however, moderate numbers can cause significant mortalities (**Pandey and Mehta, 1986**). When fish are exposed to environmental or behavioural stressors, the potential damage from monogenean is greater. Prevention of monogenean infestations by appropriate quarantine is preferable to treatment of the parasites after they have become established in a system (**Pandey, 1973 and Mishra, 2020b**).

Monogeneans are the most ubiquitous and abundant group of helminth parasites in the aquatic environment (**Bychowsky, 1957 and Ivona, 2004**). Monogeneans feed upon the blood and cells of ruptured tissues (**Bychowsky, 1957; Mishra, 2015 and Bommakanti, 2016**). Researchers have established that the volume of the blood sucked from the fish is quite appreciable and this leads to certain conditions like anemia and mortality (**Lutta, 1941; Golovina, 1976 and Mishra, 2014c**).

The genus *Yogendrotrema* (**Kumar and Agarwal, 1983**) has been recorded and described in detail from the gills of teleost fishes of super family Siluroidea. Several workers like

Jain (1957); Tripathi (1959); Achmerow (1964); Rajeshwari and Kulkarni (1983); Gussev (1974); Kumar and Agarwal, (1977) and Singh, et. al., (1992) has reported different species of this genus from different teleost as different name (Maurya and Agarwal, 2007). During the study of fresh-water monogenean of district Balrampur, we came across single infected specimen of *Wallago attu*, infected with monogenean belonging to the genus *Yogendrotrema* (Achmerow, 1964 and Gussev, 1974). On subsequent study, the present form appears new to us and described here in as such.

MATERIAL AND METHODS:

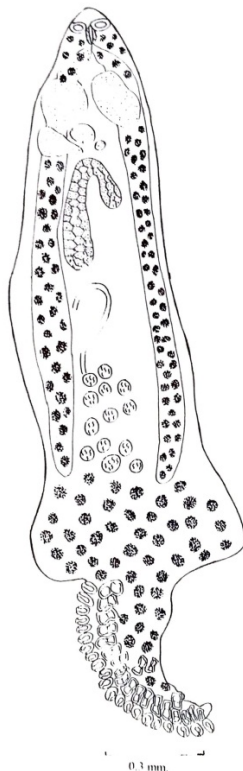
The fishes for the present investigation were collected from fresh-water bodies and local fish market of district Balrampur, Uttar Pradesh, India. The monogenean were collected by Mizelle's freezing techniques. They were kept in refrigerator for 8 to 48 hours. The low temperature not only relaxes the worm but also help in automatic removal of mucus in which there flukes were entangled. Subsequently, the gills were removed, placed in separate tubes, half filled with water and shake vigorously. This solution now poured in clean petri-dish diluted with water and examined under binocular microscope. The worms thus collected were washed and fixed in hot 70% ethyl alcohol or 10% neutral formalin. Study of chitinoid hard parts were made in either temporary (glycerin) or permanent preparations. Permanent preparations were made after dehydrating through ascending grades of alcohol, clearing in xylene and mounting in Canada balsam. Camera Lucida sketches were made from permanent preparations within a week since the stain fades away in ten days.

GENERIC DIAGNOSIS:

Body elongate, haptor with 22 pairs of clamps in two symmetrical rows. Without caudal anchors. All clamps are with uniform skeleton, equal in size, margins having tripartite appearance. Oral suckers oval, pre-pharynx absent, pharynx small, oval and muscular. Oesophagus short, without outgrowth. Testes 13 - 15 in number, post-ovarian. Cirrus and cirrus sac absent. Genital atrium armed with 12 radially arranged spines. Ovary pre-equatorial, convoluted caeca.

DESCRIPTION:

The body is elongated, tapering at anterior end, broader at posterior end and measuring 2.24 - 2.41 * 0.44 - 0.47 mm. The head is provided with a pair of muscular, oval suckers which are septate, oval and measures 0.041 - 0.043 * 0.060 - 0.062 mm. The septa are lateral to the centre. The pharynx is elongated, oval, muscular, well developed and measures 0.054 - 0.056 * 0.035 - 0.036 mm. Intestinal caeca are simple, bifurcated and terminate blindly at the posterior region of the body anterior to the haptor. At the outer margins the intestinal caeca gives off numerous blind branches throughout the length except posterior part.



The testes are round to oval, post-ovarian, post-equatorial, inter-caecal, 13 - 16 in numbers and measures 0.031 - 0.050 * 0.021 - 0.060 mm. A 'Y' shaped vas-deferens arises from the anterior region of the testis and proceeds anteriorly. The genital atrium is muscular cup like structure, measuring 0.030 - 0.032 mm in diameter. The genital atrium is armed with 12 radially arranged spines. Each spine has broad base and pointed tip.

The ovary is pre-equatorial, pre-testicular and measures 0.47 - 0.50 * 0.053 - 0.10 mm. Vitelline follicles extend from behind the pharynx up to haptor. The haptor is triangular in shape and measures 0.61 - 0.65 * 0.24 - 0.27 mm. The haptor contains two rows of clamps and each has 21 clamps. The clamps are microcotylid type and each measure 0.05 - 0.07 mm in diameter.

Prevalence: One specimen from a single host out of five examined.

DISCUSSION:

Kumar and Agarwal, 1983 erected the genus *Yogendrotrema* for the worms collected from *Rhinomugil corsula* from Varanasi with *Yogendrotrema rajghatai* as type species. The present form belongs to the Genus *Yogendrotrema*, Kumar and Agarwal, 1983.

The known species of the genus is only one i.e., *Yogendrotrema rajghatai*. The present form differs from the known species in having septate oral sucker, extension of Vitellaria in haptor region also. On the basis of these, it is regarded as a new species and named *Yogendrotrema balrampurai* n. sp. since collected from district Balrampur, Uttar Pradesh, India.

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