

**INTEGRATED RESEARCH JOURNAL  
OF  
MANAGEMENT, SCIENCE AND  
INNOVATION**



**ISSN 2582-5445**

*An Internationally Indexed Peer Reviewed & Refereed Journal*

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## **Monogenetic fish borne trematodes infection of Lentic habitat in Hasanpur, District Palwal, Haryana**

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### **Abstract**

Fish is an important source of food in developing countries as it is rich source of protein and vitamin E. But due to infection of parasitic trematodes they cause very harmful affect to the health of people who consume them. In the present finding it is clear that intensity of infection of monogenetic trematode is some what different in the case of individual parasitic species. The work also reveals that the temp. of aquatic habitat has not clear cut impact on the occurrence pattern of parasites, it is supported by with work of Jha et al. 1992.

**Key words : Monogenetic, Lentic, Nutrition, Genital atricum**

### **Introduction**

Fish is an important source of food, nutrition, income and livelihood for million of people around the world. Moreover, fish continues to be one of the most traded food commodities worldwide with more than half of fish exports by value originating in India. Monogenetic trematodes are a group of parasites that use one host (as fishes) to complete their life cycle.

Infection by fish borne trematodes affect human health, particularly in Asia. Trematode parasites not only utilize the host resources but also weaken the hosts and reduce their competitive ability.

### **Material and Methods:**

For the purpose of study the fishes of different size were collected from river Yamuna of Hasanpur, Palwal and surrounding costal region.

The monogenetic trematodes were collected from the gills of fishes. For this the gills were removed from the gill chambers and transferred into Petridishes containing 0.7% saline solution. The gill fillaments were teased under a stereoscopic binocular microscope with the help of two fine needles and contents allowed to stand for about half an hour or so. The confect of the petridish was examined and the flukes, those released into the salt solution were collected with the help of a microdropper. For the collection of these parasites *Mizelle's technique* was used.

The collected monogenetic trematodes transferred to a mixture of 70% alcohol and 5% glycerine for detailed study of structure. The worms were fixed under slight pressure of cover slip in bouins fluid, stain with chrlich's haemotoxylin, clear in clove oil and mounted in Canada balsam.

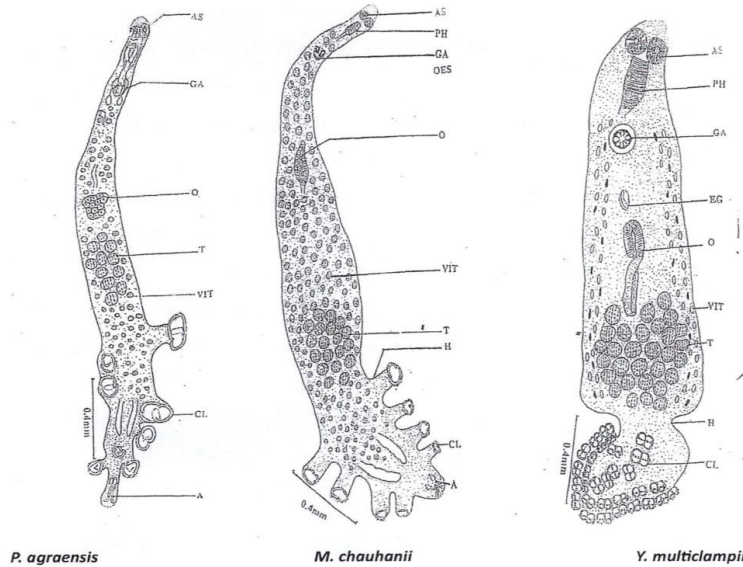
**Observation :**

In Yamuna river of Hasanpur, Palwal three type of edible fishes studied for monogenetic trematodes which are *Labeo rohita*, *Labeo dero* and *mystus vitatus* in their gills *paramazocraes agraensis* sp. nov., *Mazocraes chauhani* and *Yogendrotrema multiclampii* have reported respectively. These parasites present in 100 gram to 150 gram body weight fishes.

In case of *paramazocraes agraensis* body elongated tapering gradually anteriorly. Anterior blunt with two semicircular oral sucker and in *M. Chauhani* body elongated narrower anteriorly and broader posteriorly. Anterior suckers paired, spherical and symmetrically placed while in case of *Y. multiclampii* body elongated gradually tapering at anterior end, broader posteriorly and becomes narrower to form haptor. Anterior suckers oval, muscular and aseptate.

In *P. agraensis* Haptor with 4 pairs of pedunculate clamps; anterior two clamps are larger than other clamps, clamps on left side are arranged in a sequence while on the right they are on different locations. In case of *M. chauhanii* Haptor is triangular, tapering posteriorly into a small terminal lappet bearing three pairs of unequal anchors but in case of *Y. multiclampii* Haptor bears thirty equal number of clamps on the two sides and thus it is microcotylid type.

In *P. agraensis* testes oval or sub spherical 8-11 in number, Vasdeferens long, genital atrium muscular and armed. In case of *M. chauhanii* testes with numerous follicles arranged in irregular manner, vasdeferens not traceable due to heavy concentration of vitelline follicles. But in case of *Y. multiclampii* testes have 25-30 follicles, oval in shape, located in the post equatorial of the main body. Vasteferens long and reach to open in the genital atrium.



**Key to lettering in figures**

- A : Anchor
- AS : Anterior Sucker
- CL : Clamp
- EG : Egg
- GA : Genital Atrium
- H : Haptor
- O : Ovary
- OES : Oesophagus
- PH : Pharynx
- T : Testis
- VIT : Vitelline duct

**Result and Discussion**

From the present study it is clear that intensity of infection of monogenetic trematode parasites is some what different in the case of individual parasite species and almost having clear cut pronounced seasonality in occurrence. Moreover, the water temp. seems to have no clear cut impact on the occurrence pattern of parasites in majority of cases as also pointed out by **Jha et al. 1992**. Very few references are available on the incidence of infestation in a particular host species or of a trematode. Some of the researcher who have contributed research related to helminthic infection and prevalence in fishes are **Singh and Pragati (2000)**, **P. Kaur et al. (2012)**, **Debraj and Soumendranath (2020)**.

The present result about the rate of infection and the length and weight of the fish reveal a little similarity to the finding made by Maurya and Singh H.S. (2004).

**Table – 1 : The systematic position of the fish and the habitat of monogenetic trematodes**

Host	Locality	Monogenetic trematodes
Labeo rohita (Ham.) (cyprinidae)	Yamuna river Hasanpur, Palwal	Paramazocraes agraensis sp. nov. (from gill)
Labeo dero (Ham.)	Yamuna river	Mazocraes chauhanii (from

(cyprinidae)	Hasanpur, Palwal	gill)
Mystus vittatus (Block) (Begridae)	Fish market Hasanpur, Palwal	Yogendrotrema multiclampii (from gill)

**Table – 2 : Comparison of Reported Monogenetic trematodes**

Organ	<i>P. agraisis</i>	<i>M. chauhanii</i>	<i>Y. multiclampii</i>
Clamps	4 pairs, anterior, 2 clamps on one side and larger than other clamps	4 pairs, more or less rounded or irregular, decreasing in size backwardly	30 pairs clamps, equal in size, typical microcotylid type
Testes	8-11, oval, irregular in position	Numerous follicles arranged in 3 longitudinal rows	20-30 follicles, oval, located in the post equatorial region of the main body
Genital atrium	6 pairs of hooks, 2 pair anteriorly placed (one small and other large) 2 pairs posteriorly and 2 pairs laterally placed	Rounded with muscular cushion, 1 pair lateral sickle five pairs smaller, simple, in two horizontal row	Genital atrium armed with 8-9 radially arranged spines. Each spine has broad base and pointed tip.
Ovary	Irregular, Pre testicular, vagina funnel shaped, having an opening	Irregular, pre-testicular vagina medium, unarmed and irregular oval in shape	Medium convoluted, pre-equatorial and convoluted.

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