

**STUDY OF TAPEWORM INFECTION IN FRESH WATER FISH,  
*HETEROPNEUSTES FOSSILIS* IN RELATION TO BODY  
WEIGHT OF THE HOST**

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**ABSTRACT**

Monthly parasitological surveys were carried out to study host parasite relationship in relation to body weight of the host, *Heteropneustes fossilis*. It was found that fish having 151-200 g weight showed maximum prevalence and relative density but maximum mean intensity of cestode infection was recorded in the host ranging 51-100 g body weight.

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KEY WORDS: Body weight, Cestodes, *Heteropneustes fossilis*, Mean intensity, Prevalence, Relative density,

**Introduction**

The significance of environmental factors and feeding biology are considered to be outmost significance in population dynamics of helminths.

Workers emphasised the regulatory role of hydro biological and biochemical factors to disease dynamics in various fish parasite systems in India. A little attention of the workers has been cited on

**TABLE - 1 : Average annual variations in the prevalence, mean intensity and relative density of cestode infection in relation to the body weight of the host**

Range of the body weight (g)	Number of hosts		Prevalence	Number of cestodes obtained	Mean intensity	Relative density
	Examined	Infected				
51- 100	31	2	0.064	5	2.5	0.161
101-150	36	1	0.027	2	2	0.055
151-200	17	4	0.235	8	2	0.470
201-250	27	5	0.185	11	2.2	0.407

TABLE - 2 : Body weight of the host 51-100 g

Range of the body weight (g)	Number of hosts		Prevalence	Number of cestodes obtained	Mean intensity	Relative density
	Examined	Infected				
Winter	11	0	0	0	0	0
Summer	9	1	0.111	2	2	0.222
Rainy	11	1	0.09	3	3	0.272

the relationship of body weight with the cestode infection in fish<sup>3</sup>. Workers reported interrelationship of *Heterahis pavonis* in poultry with season, temperature and sex of the host. The present paper deals with the relationship of body weight with the cestode infection in fresh water catfish *Heterpneustes fossilis*.

### Material and Methods

Parasitological examinations of five fish per month (seasonally) were conducted in Jhansi during February 2013 to January 2015. Fresh water fish were collected from various water bodies of district Jhansi. The different parts of the host viz. alimentary canal, liver, pancreas were taken out in normal saline water and cestodes were collected and fixed in 5% formalin. The cestodes from each fish were counted. The formulae for different parameters are as below<sup>4</sup>:-

Prevalence =  $\frac{\text{Number of hosts infected}}{\text{Number of hosts examined}}$

Mean intensity =  $\frac{\text{Total number of parasites obtained}}{\text{Total number of hosts infected}}$

Relative density =  $\frac{\text{Total number of parasites obtained}}{\text{Total number of hosts examined}}$

### Observation

There are three seasons from ecological stand point rainy, winter and summer. The rainy season includes the months of July, August, September and October. Winter season includes the months November, December, January and February. While summer includes the months March, April, May and June. From February 2013 to January 2015, the present study showed that maximum prevalence of cestode infection was recorded in the host ranging 151-200g body weight while minimum was recorded in the host ranging 101-150g body weight.

Maximum mean intensity of cestode infection was recorded in the host ranging 51-100g body weight while minimum was recorded in the host ranging 101-150g and 151-200g body weight.

Maximum relative density of cestode infection was recorded in the fish ranging 151-200 g body weight while minimum was recorded in the host ranging 101-150 g body weight. The maximum prevalence was recorded in the host body weight

TABLE - 3 : Body weight of the host 101-150 g

Range of the body weight (g)	Number of hosts		Prevalence	Number of cestodes obtained	Mean intensity	Relative density
	Examined	Infected				
Winter	11	0	0	0	0	0
Summer	17	1	0.058	2	2	0.117
Rainy	8	0	0	0	0	0

TABLE - 4 : Body weight of the host 151-200 g

Range of the body weight (g)	Number of hosts		Prevalence	Number of cestodes obtained	Mean intensity	Relative density
	Examined	Infected				
Winter	10	1	0.1	1	1	0.1
Summer	5	3	0.6	7	2.33	1.4
Rainy	2	0	0	0	0	0

ranging 151-200 g during summer and minimum was recorded in the host body weight ranging 51-100 g, 101-150 g during winter and 101-150 g and 151-200 g during rainy season.

The maximum mean intensity of cestode infection was recorded in the host body weight ranging 51-100 g during rainy season. The minimum mean intensity of the cestode infection was recorded in the host body weight ranging 51-100 g, 101-150 g during winter and 101-150 g, 151-200g during rainy season.

The maximum relative density of cestode infection was recorded in the host body weight ranging 151-200 g during summer. The minimum relative density of cestode infection was recorded in the host body weight ranging 51-100g, 101-150 g during winter and 101-150 g, 151-200g during rainy season.

### Result and Discussion

The body weight of the host is related to a number of factors like age, health, length and availability of food. The present observation

indicates that the fish of intermediate body weight (151-200 g) shows greater prevalence and relative density of cestodes. Parasitologist<sup>2</sup> reported parasitic prevalence during summer and rainy seasons. There was higher prevalence and intensity of *Acanthocephala* occurrence in middle length groups and comparatively lower occurrence in lower and higher length groups of *Channa punctatus*<sup>1</sup>. Infection percentage increased rapidly from spring to summer season<sup>6</sup>. The highest prevalence mean intensity and relative density of cestodes infection were during summer season<sup>3</sup> and the highest prevalence and relative density during summer season while highest mean intensity during rainy season<sup>5</sup>. Worker<sup>7</sup> reported highest prevalence during summer season and lowest in rainy season and highest mean intensity during winter season and lowest during rainy season, and relative density highest during summer season and lowest during rainy season.

On the basis of above discussion it can be concluded that the fish *Heteropneustes fossilis* (Bloch.) in district Jhansi (U.P.). India have the

TABLE - 5 : Body weight of the host 201-250 g

Range of the body weight (g)	Number of hosts		Prevalence	Number of cestodes obtained	Mean intensity	Relative density
	Examined	Infected				
Winter	9	1	0.11	2	2	0.22
Summer	13	3	0.23	8	26	0.615
Rainy	5	1	0.20	1	1	0.20

maximum prevalence recorded in the summer and minimum recorded during winter and rainy seasons. The maximum mean intensity of cestode infection was recorded during rainy season. The minimum mean intensity of the cestode infection

was recorded during winter and during rainy seasons. The maximum relative density of cestode infection was recorded during summer. The minimum relative density of cestode infection was recorded in winter and rainy seasons.

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