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Zoology

PREVALENCE OF CESTODE PARASITES FROM FRESHWATER FISH CLARIAS BATRACHUS (LINNEAUS)

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ABSTRACT In the present study, a total of 201 walking catfish, Clarias batrachus were collected during the period of July 2023 to June 2024, to evaluate the prevalence of cestode parasites from Kaigoan toka, (MS) India. of these, 36 fish were found to be infected with one genus of genera of cestode viz., Lytocestus cestodes,. Seasonal studies show that the overall prevalence of the collected cestode parasites was highest during during the winter season incidence of infection was high as compared to summer season.

KEYWORDS : Prevalence, Lytocestus, Clarias batrachus

INTRODUCTION

Important information regarding the success of the parasite life cycle, the degree of its pathogenecity, and the efficacy of host immunity can be obtained by assessing the infection levels in both the host and host population (Angali Dhar 2003). A caryophyllaeid cestode parasite called Lytocestus indicus (Moghe, 1931). They frequently found in the stomach and intestine duodenal junction of freshwater fish. Most predatory or carnivorous freshwater fish, including Wallago attu, Channa punctatus, and Clarias batrachus, have this common cestode parasite, which is more prevalent in the tropics and subtropics. This parasite was observed to regularly infect its host, Clarias batrachus, in the current investigation. Numerous researchers (Moghe, 1925 and 1931; Hopkins, 1959); Satpute and Agarwal, 1974 a, b; Dogioel et al., 1970; Kennedy, (1968, 1971, 1975, 1976, 1977); Kadav and Agarwal, 1983; Zaman and Seng, 1990; Laxma Reddy and Benarjee, 2008, 2011; Hiware et al.,(1999, 2005, 2007, 2008) and Pawar (2011, 2016, 2022). Therefore, it is anticipated that the current study's findings will be useful for next studies on piscian cestodes in Kaigoan toka area. In light of the significance of these fish cestode parasites, the current study was conducted to examine and assess the frequency and seasonal fluctuations of freshwater catfish cestode parasites.

MATERIAL AND METHODS

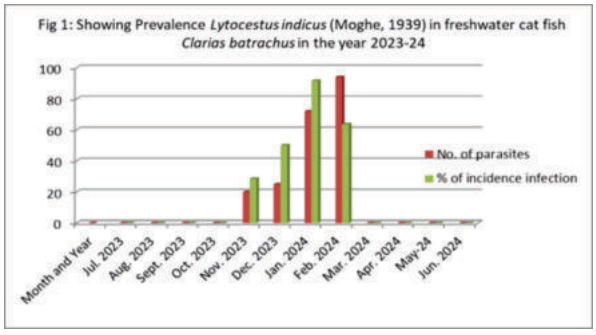
The freshwater catfish Clarias batrachus, were obtained from freshwater Kaigaon toka and local fish markets in, year-round, in all months and seasons, with a somewhat regular schedule between July 2023 to June 2024. The parasites extracted from the diseased fish were counted, and fresh parasites were preserved in 4% formalin for 48 hours before being stained with haematoxyline to mount and prepare a permanent slide for taxonomy (Pearse, 1968; Bancroft, 1975). Using the following method, the effect of yearly seasons on the population of fish cestode parasites was calculated based on the percentage of infection incidence (Prevalence).

$$\text{The \% of incidence of infection} = \frac{\text{Infected host X 100}}{\text{Total hosts examined}}$$

RESULT AND DISCUSSION

Table 1: Showing Incidence Of Infection Of Lytocestus Indicus In Clarias Batrachus During July 2023 To June 2024 From Kaigoan Toka (MS) India.

Sr. No.	Month and Year	No. of host examined	No. of host infected	No. of parasites Collected	Percentage of incidence infection
1.	Jul. 2023	25	---	---	---
2.	Aug. 2023	20	---	---	---
3.	Sept. 2023	20	---	---	---
4.	Oct. 2023	19	---	---	---
5.	Nov. 2023	18	06	20	28.57
6.	Dec. 2023	11	05	25	50.00
7.	Jan. 2024	13	11	72	91.66
8.	Feb. 2024	24	14	94	63.63
9.	Mar. 2024	10	---	---	---
10.	Apr. 2024	08	---	---	---
11.	May 2024	13	---	---	---



In 2023-2024 the prevalence appears to be high almost for five months i.e. December, January and February and low in remaining month. It is evident from the graph that the mean prevalence of infection is higher than it was in 2003–2004.Seasonal variations in the incidence (prevalence) of infection in both cycles were observed. While the incidence of infection was higher in the winter than in the summer, it was completely absent during the rainy season. Kennedy (1971, 1975, and 1977) and Rohde (1993) claim that the temperature, the host's feeding patterns, the availability of an infective host, and the parasite's development are the elements that affect the parasite infection. Freshwater fish are an easy subject for research on these factors. Kennedy's (1971) experimental research shown that the cestode Caryophyllaeus laticeps may colonize fish and endure low temperatures for extended periods of time. As the water temperature increased, however, new infections were eradicated. Thus, he claims that a key determinant of the seasonal periodicity of infection is temperature. Similarly, Rohde (1993) essentially expresses the same opinion that parasitization is controlled by temperature. According to him, illnesses are more common in worm waters with varying species than in colder ones. In the current study, the prevalence of infection is lowest during hot temperatures and highest during low temperatures. This lends credence to the theory that temperature has a direct or indirect impact on the seasonality of parasite illnesses. According to Pennuyuick (1971a, 71b), feeding activity of the host is also one of the causes of seasonal variation in infections. Sticklebacks' feeding habits and the type of food they eat influence the extent of cestode infection.

CONCLUSION

Due of the good climatic circumstances over the winter, catfish became heavily afflicted with parasites. Though not frigid, the water is warm. When opposed to the hot summer months, the zooplankton fauna may be more abundant at moderate temperatures. This most likely correlates with the fish's peak feeding activity and the richness of their intermediate host fauna, which includes fish, tiny mollusks, and crustaceans, leading to a high infection rate. Seasons and temperature, therefore, are key factors in the recruitment of parasite fauna.

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