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15. Prevalence and seasonal Rate of Infestation of Helminth Parasite in Fresh Water Fish in Aurangabad Region (MS) India

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Abstract

A study was undertaken to investigate the prevalence, mean intensity, abundance and f seasonal rate of infestation of helminthes s parasites in fresh water fish Mastacembalus armatus .association with a nematode species . In all 151 specimens of Mastacembalus armatus were examined , out of which 89 were found infected by nematode species , The site occupied by the parasite is mid gut and hind gut region of intestine and liver but in heavily infected fish the parasite occur throught the length of gut . The study reveals that helminthes show maximum prevalence and seasonal rate of infestation in summer season(75%) followed by winter season (56.6%)and minimum in rainy season (40.47%).

Keywords : Helminthes , infestation, inteasity ,prevalence, nematodes

Introducation

Fish gastrointestinal helminthes parasites are generally found in all fresh water fishes. The parasite prevalence and intensity depend on many factors like parasite and its life cycle host and its feeding habits and physical factor of water body like temperature, pH, humidity rainfall, vegetation, management practice.

Fish play an important role in economy. Mortality of fishes occurs due to heavy infestation of parasite.

Nematodes are found in all the body parts of fish as larvae or adult The organs commonly infected are intestine, liver and body cavity. Nematodes parasites specially larvaemay cause blockage of organ. Among helminthes parasites one of the greatly and deadly harmful are nematodes these have direct or indirect effect on fishes.

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Fishes contribute a lot to country s economy especially in India .Fish is one of the best source of protein. The fish parasite feed either on host digestive content or host tissues. the fish parasite multiply rapidly under favorable condition(Dogiel1956)and parasite interfere with secretary function of alimentary canal . Extensive damage caused by helminthes parasite on fish organ indirectly effect on its growth , development and reproduction and thus may decline in the population of host fish . Heave infestation of parasite interrupts the normal growth of fish . Injured fish cause heavy parasitic infection which detoriate their food and ultimate cause of their mortality.

Therefore the present study was taken up to investigate seasonal rate of infestation, prevalence , mean intensity along with abundance in different season of nematode parasite procamallanus spp.on the fresh water fish Mastacembalus armatus .

Material and Method

The freshwater fishes were collected from different places of Aurangabad region during the period ofjune2014 to May 2015. Fishes were opened up dorso-ventrally and the internal organs examined. The entire digestive system was removed and placed in a Petri dish with physiological saline. Nematodes were fixed in hot 10% Glycerol and cleared in lacto phenol. Drawings were made using a camera lucida. (Francis Weesner 1964). The identification is made with the help of "Systema Helminthum" by Yamaguti (1961). Population dynamics of helminthes parasites were determined by following formulae,

Prevalence, abundance and mean density were estimated following the formulae proposed by Margolis *et al.* (1982) as:

Statistical Analysis

(A) prevalence = Total No. Hosts infected x100

Total No. of Hosts Examined

(B)Mean Intensity =Total No. of parasite

Total No. of Infected Hosts Examined

(C) Relative Density=Total No. parasite

Total No. of host examined .

Results and Discussion

Present investigation fishes were found to be infected with nematode parasites procamallanus spp. The prevalence of infection of nematode parasite in Masteembalance

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armatus during different month in table 1 parasite show highest infection in month of May (93.75%) lowest in lowest in July (30%) The mean intensity highest in May(1.66%) lowest in August(0.75%) .The relative Density is highest in May(1.56%)and lowest in September(0.4% .)

The seasonal variation and efficacy of nematode parasite s was highest prevalence in summer (75%)mean intensity(1.71) relative density (1.28)) and lowest in Rainy season prevalence (40.47%) mean intensity (1.29) relative density (o.52) In Rainy season result were decreasing as compared to summer season show in Table 2

From above data of prevalence and rate of intensity of infection of nematode parasite studied it is clear that water temperature have impact on occurrence of nematode parasites

Above result were compared with earlier workers as Anderson R.M.(1976) who work done seasonal variation in population dynamics of caryphyllaeus luticeps , Dobson , A.P.(1985) studied the competition between the parasite , Thomas , J,D (1964) worked on population dynamic of digenetic trematod in vertebrates

Aviability of food and feeding activity, distribution and environment of host, are influence the parasitic development. Kennedy (1978) and Lawrence (1970) . The parasites causes depletion of the nutritional contents in hosts body and results in the low productivity, loss in fish industry (Hiware1999).

Table 1. :PREVALENCE AND INFECTION OF NEMATODES PARASITES OBSERVED MONTHLY IN Mastcembalance armatus during 2014-15

Month	Total No. of Host Examined	Total No. of Infected Host Examined	Total No .o f parasites	Prevalence	Mean Intensity	Relative Density
June	10	05	10	50	2	1
July	10	03	05	30	1.66	0.5
August	12	04	03	33.33	0.75	0.25
September	12	05	04	50	0.8	0.4
October	12	07	10	58.33	1.42	0.83
November	13	08	07	61.53	0.87	0.53
December	12	07	10	58.33	1.42	0.83
January	16	08	12	50	1.5	0.75
February	13	09	14	69.23	1.55	1.07
March	13	08	15	61.53	1.87	1.15
April	14	10	16	71.42	1.6	1.28

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May	16	15	25	93.75	1.66	1.56
Total	151	89	133	687.45	17.1	10.15

Table 2 : Seasonal Variation and efficacy and Nematode Parasites in Mastcembalance armatus

Season	Total No.of Host	Total No. of Infected Host	Total No. of Parasites	Prevalence	Mean Intensity	Relative Density
Rainy	42	17	22	40.47	1.29	0.52
Winter	53	30	32	56.60	1.3	0.73
Summer	56	42	72	75	1.71	1.28
Total	151	89	133	146.07	4.3	2.53

Figure 1:Nematods In Mastcembalance armatus Visceral Organ

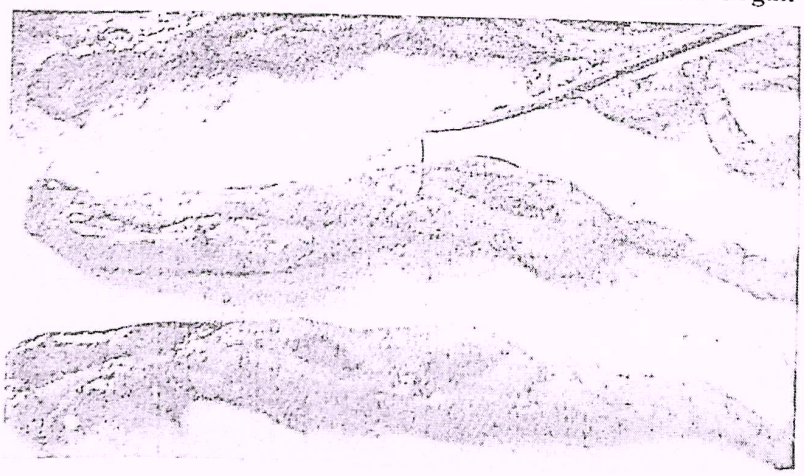

Figure 2: Nematodes attached in Intestine of Mastcembalance arm

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Conclusion

Fish diseases are the great threat our fish culture system. Many fish species affects by various types of diseases every year and as a result, production of fishes decreases significantly. Proper steps should be taken to prevent fish diseases and to protect these important fish species from extinction. From overall study it was observed that the parasites were most important pathogen for diseases outbreak. It was also observed that there was a direct relation between disease outbreak among fishes and environmental factors.

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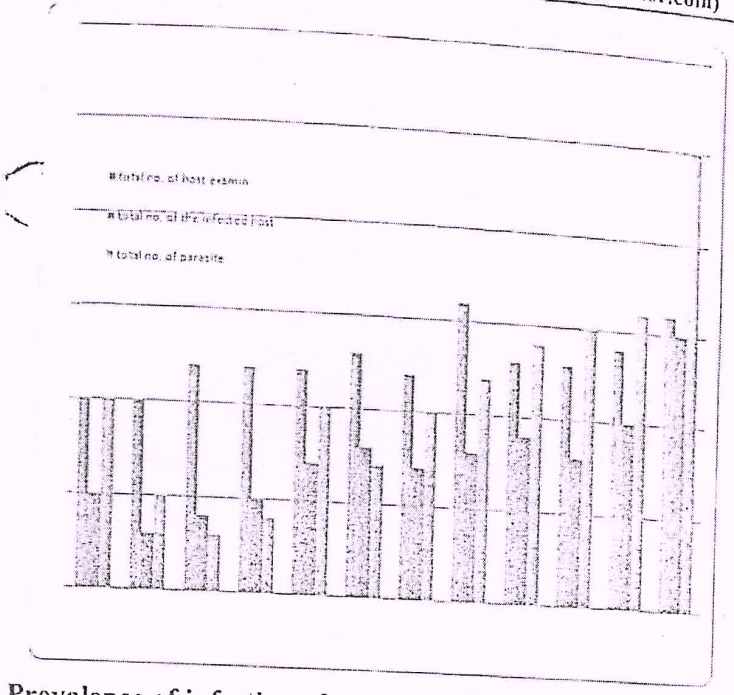

FIG 3 Prevalence of infection of nematode parasites observed monthly in Mastacembalance armatus.