EFFECTS OF LENGTHS (= AGE) OF *HETEROPNEUSTES FOSSILIS* ON THE ABUNDANCE OF TWO HELMINTH PARASITES

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INTRODUCTION

Catfish culture in Nepal is of highest significance because of highly nourishing and easy source of protein. Parasites attack fish and destroy them or make wounds and/or produce diseases in their bodies, thus making them unedible. Therefore, to promote catfish culture, studies on all detail of the parasites are required.

In Nepal the study of parasites is very scanty. The review of recent literature indicates that work on various aspects of parasites have been done by the scientists, elsewhere. The present study provides an account of the incidence and intensity of infection of two potential helminths (*Procamallanus heteropneustes* and *Lytocestus indicus*) of the catfish *Heteropneustes fossilis* (commonly known as Singhi) in an attempt to explore the infection patterns of the parasite community which play a significant role in the pisciculture.

MATERIALS AND METHODS

Live specimens of catfish were obtained from the central market of Kathmandu. The fish were first desensitised by giving a blow on the head. Each was then given a number, weighed and its total length was measured. The parasites were sorted out, stained, cleaned and lastly mounted in the usual manner (Cable; 1958) for identification.

In all 496 *H. fossilis* were examined ranging from 10.5 to 24.5 cm. total length and were divided into 5 length-groups of 3 cm. interval with 11, 14, 17, 20 and 23 cm. mean length groups.

The relationship between the host length (i.e. the age) and Incidence of infections were analysed in terms of percentage of parasites in a sample infected with a particular parasite species and the mean intensity of infection refers to the mean number of parasites per fish examined.

RESULTS

155 Out of 496 *Heteropneustes fossilis* (=31.25%) carried the nematode *Procamallanus heteropneustes* and 28 (=5.65%) carried the cestode *Lytocestus indicus* infection. Taking only infected population of fish 175 fish) into consideration, *Procamallanus* infected 88.57% and *Lytocestus* infected 16.00% of fish.

Procamallanus heteropneustes: It was observed that the incidence of this parasite began by 7.10% from the young stage of *H. fossilis* and gradually increased and showed its highest peak of incidence by 40.65% in approximately 17cm. length (i.e. the adult stage, Karim, 1975) group of fish and then decreased by 14.19% approximately in about 20cm. length-group. Incidence again rose gradually by 22.58% and remained at this level in older fish of the present sample.

The fluctuations of mean intensity showed a similar pattern like the incidence. The intensity of infection started from the very early age when the mean number of parasite per fish was 2.11 in 11cm. length-group; 3.34 in 14cm. The highest (6.15) intensity of infection was found in group 3 consisting of fish of about 17cm. length-group, and then with a decrease by 3.84 in about 20cm. length-group. There was again rise in intensity by 5.85 in about 23cm. length-group indicating higher trend of intensity in old ages of the fish (Appendix, Fig. 1).

Lytocestus indicus: The incidence of this parasite began by 10.71% in early stages from then it gradually increased and reached to its highest peak by 32.14% in 20cm. length-group and over of the present sample.

The mean intensity of infection showed almost similar pattern. The mean intensity begining from 1 number reached strongly to its highest peak by 5 parasites in about 17cm. length group and finally fell to 2 in 23cm. length group (Fig. 2).

DISCUSSION

A significant relationship between the hosts' length and the Incidence and intensity of infection was recorded during the period of investigation. It has been observed that the fish of 17 and 20 length groups were found to be heavily infected than the younger and older fish. Furtado and Tan (1973) showed that *Lytocestus parvulus* and *L. lativitallarium* increased with the increase of length of *C. batrachus* in Malaysia and Ahmed and Sanaullah (1977) showed that in Bangladesh, the infection of *Djombangia penetrans* and *Lytocestus indicus* increased to maximum in the 19cm length-group of *C. batrachus* and then decreased. In the present study, similar result was found for *L. indicus* in *H. fossilis. In P. heteropneustes* there was a decrease in the

incidence and intensity in the older fish but it slightly rose in the oldest fish of the sample. Stromberg and Crites (1975) also observed for *C. oxycephalus* in white bass that prevalence and intensity of infection generally increases with the host size upto a point and then decline. In this connection the author agrees with Hine and Kennedy (1974) that feeding behaviour i.e., the voracious food habit of the hosts in the adult age is possibly the most important factor determining the level of infections. Dogiel (1964) has reviewed many aspects of this problem and he has rightly stated, "It appears that age immunity usually develops among mammals and birds, but not among the lower vertebrates and the invertebrates."

APPENDIX

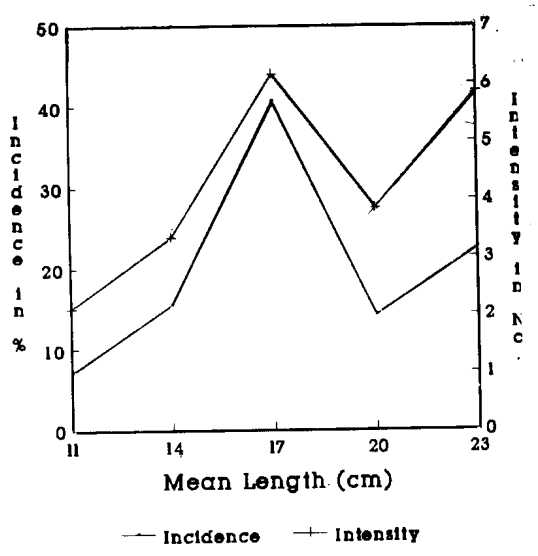

Fig. 1: Incidence and intensity of *Procamallanus heteropneustes* in different length-group of *H. fossilis*

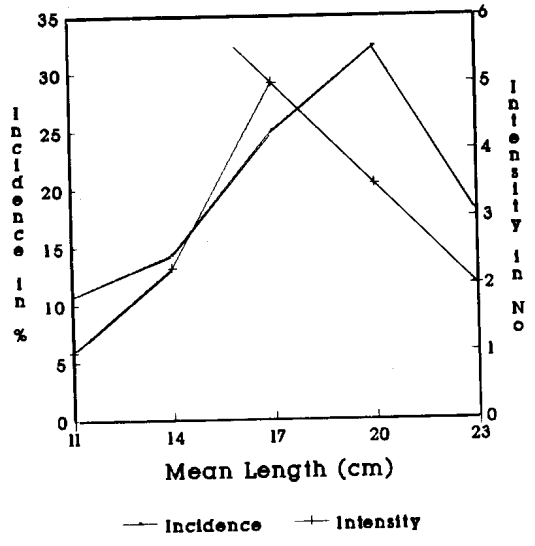

Fig. 2: Incidence and instensity of *Lytocestus indicus* in different length-group of *H. fossilis*

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