A Report on Prevalence, Abundance and Intensity of Fish Parasites in Cat Fishes of River Siang in Arunachal Pradesh, India

Biplab Kumar Das¹ HiranyaChamuah Saikia² Anup Kumar Doley³
¹PG Student ²Professor and Head of Department
³Department of Life Science and Bioinformatics ²,³Department of Zoology
¹Assam University, Silchar, Assam, India ²Dhemaji College, Dhemaji, Assam, India ³Silapathar Science College, Silapathar, Assam, India

Abstract—The present investigation was on occurrence on different parasite founds in 38 different cat fishes of River Siang. The present study on helminth parasite of cat fishes with respect to length and weight revealed that Cestode infection was the highest in all fish sample of the fish species. The high worm burden was located in the gut mainly the intestine of the fish. Also some eggs were detected in the liver of two host fishes. In this study 38 specimen fishes were examined which contained both male and female specimens. Wallagoattuusspecimen shows highest prevalence of about 100% than the other cat fishes specimens.

Key words: Cat fishes, Helminth Parasite, Cestode, RiverSiang

I. INTRODUCTION

Fish is an excellent source of food. Its flesh is nutritionally equivalent to meat in protein contents, low in saturated fats and high in essential mineral and vitamins. To obtain healthy and quality meat fish, it is necessary that the fish should be free from all types of infection like viral, bacterial and parasitic. Helminths are found in all animals including fish throughout the world [8]. Parasites in fish are a natural occurrence and common. Parasites can provide information about host population ecology. In fisheries biology, for example, parasitic communities can be used to distinguish distinct populations of the same fish species co-inhabiting a region. Additionally, parasites possess a variety of specialized traits and life-history strategies that enable them to colonize hosts. The parasitic infection is sometime very fatal and cause high mortalities when their life cycles are well supported by intermediate hosts. The helminth parasites mainly found in freshwater fishes are trematodes, cestodes, acanthocephalans and nematodes that complete their life cycles through intermediate hosts like snails and piscivorous birds [1, 3,8]. The need to assess the parasitic infection arises because the fish suffering from parasitic infection and/or disease result into severe damage to fishery industry. For successful prevention and elimination of such parasitic infection, it is extremely important to achieve early and correct data about the prevalence and intensity of a particular parasitic infection in specific group of fishes with well-established mode of infection including the larval stage of parasite for which that fish constitute the final host [6].

II. STUDY SITE

The River Siang, is largest river of Brahmaputra river system, originates from ChemaYungdung Glacier near Kubi at 5150 m in Tibet. In Tibet it is popularly known as Tsang-Po, flows in West–East direction. After traversing a distance of about 1625 km river in Tibet and then it takes a turn in south direction, enters the territory of India near Tuting in the Upper Siang district of Arunachal Pradesh and flows 58 km through North–South direction in East Siang district towards Assam and finally it merges with Lohit and Dibang in Assam and it becomes the mighty River Brahmaputra [10].

A sample of 38 fishes comprising 10 specimen of Heteropneustes fossilis, 16 specimen of Mystusvittatus, 2 specimen of Wallago attu, 6 specimen of Eutropiichthysvacha, and 4 specimen of Clariasbatrachus and Separataaor were obtained from different location of the Siang River [13].

Then the fishes were brought into the laboratory and the length and weight of each fish were recorded and also record the sex of the host. Fish were dissected one by one exposing their visceral organs and, the digestive glands are taken out with the help of forceps and kept in the petriplates containing water. The stomach and intestine were cut open lengthwise as to expose the lumen and observed carefully for the presence of helminth parasite. The parasites recovered were kept in saline water for sometimes so that the impurities if present can be washed away in saline solution. For preservation following chemicals were used - for nematode 70% alcohol is applied, for acanthocephalan AFA is applied and for cestode 5% formalin is applied. Finally, the collected parasites were observed under microscope. Then the permanent slides were prepared after being dehydrated in step wise procedure for cestodes and trematodes.
IV. RESULTS AND DISCUSSION

From the sample of 10 specimens of Heteropneustes fossilis, only (50%) were found infected. The total numbers of 5 cestodes and 1 acanthocephalan were obtained from 5 fishes. Out of 4 specimen of Clarias batrachus, only 2 (50%) were found infected and the number of 6 cestodes were obtained from 2 fishes. From 2 specimens of Wallago attu all are found infected with a total no of 9 nematodes. And out of 6 specimen of Eutropichthys vacha, 14 specimen of Mystus vittatus and 1 specimen of Sperata aor, no parasite (0%) were found. Fig II shows the number of helminth parasites found in the gut of some cat fishes. Fig III shows the prevalence of helminth parasites. Fig IV shows the abundance and means intensity of helminth parasite in relation to the sex of the host.

In this study of helminth parasite found in catfishes are generally cestode and nematode but acanthocephalan is rare and no trematode is found and parasites are found in catfish are generally more in female. The parasite found in catfish is very much depends on the intermediate host such as piscivorous birds for the spread of cestode infection [13, 14]. The hygienic conditions are also very important for healthy environment where fish are raised. The major factors determining the fish parasite fauna as well as intensity and prevalence of infestation in aquatic environments can be summarized as being the diet of the host, life span of the host, the motility of the host throughout its life including the variety of habitats it encounters, its population density and the size attained, with large hosts providing more habitats suitable for parasites that small ones [8, 13, 14]. In this study, the host of intermediate length and weight were found to be more infected than the host of smaller length.

REFERENCES


