



ORIGINAL ARTICLE

Diversity and Distribution Patterns of Cestode Parasites of Freshwater Fishes from Marathwada Region of Maharashtra State, India

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ABSTRACT

Study was carried out to determine diversity and distribution pattern of cestodes of the genus *Lytocestus* Cohn, 1908, *Senga* Dollfus, 1934, *Polygoncobothrium* Diesing, 1854, *Ptychobothrium* Loennberg, 1889 and *Gangesia* Woodland, 1924, from certain freshwater fishes from Marathwada Region (M.S.) India during May, 2012 to May, 2015. Diversity of Piscean tapeworms includes 09 species of five genera. two species of genus *Lytocestus*, four species of *Senga*, one species of *Polygoncobothrium*, one species of genus *Ptychobothrium* and one species of *Gangesia* were reported from freshwater fishes from different localities of Marathwada Region. This survey provides baseline data for the future monitoring of these potentially important parasitic infections in this region.

Keywords: Diversity and Distribution pattern of Cestodes, Freshwater fishes, Marathwada Region

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INTRODUCTION

Biodiversity provides the basic biotic resource that sustains the human race. This includes diversity within species, between species and of ecosystem. Parasitic diversity refers to variety and variability of different species of parasitic taxa. Parasitic diversity includes specially helminth and protozoan diversity. Helminth parasite includes cestode, trematode and nematode parasites. The study of helminthic diversity is very important in medical point of view because parasites cause some diseases to animals and humans health.

Various factors are responsible for determination of biodiversity of parasites in nature i.e. varied climate of the area, introducing new species in a particular area, habitat loss, industrialization, pollution and availability of particular host. Zoogeographical distribution of any organism is the representation if its adjustment and adaptation to the particular surrounding, there all its biological demands are met and the organism enjoys its surrounding for the continuation of its generations. Geographical distribution is the functionally preferred area of activity by the organism on survey of literature it was found that the parasites enjoys some restricted range on a earth, Thus, an attempt is being made to study the geographical distribution of Cestode parasites from freshwater fishes from various places of Marathwada Region.

MATERIAL AND METHODS

During survey, cestode parasites were collected from freshwater fishes from different localities of Marathwada Region, (M.S.) India. Collected Cestodes were preserved in 4% formalin. stained with Harri's Haematoxyline, dehydrated in ascending grades of alcohol,

cleared in xylene, mounted in Canada Balsam. Camera lucida drawings were prepared and photomicrographs were taken by trinocular computerized research microscope. All the measurements are recorded in millimeter. These Cestodes were prepared for identification by standard methods (Yamaguti, S., 1959; Wardle, R.A., Mcleod, J.A. and Radinovsky, 1974; Khalil, Jones and Bray, 1994; Bhure, 2008)

RESULT

Occurrences of Cestode parasites of freshwater fishes in relation with its geographical area and host species from Nanded Region Maharashtra State India are shown in Table 1.

Table 1: Distribution pattern of Cestode parasites of freshwater fishes from Marathwada Region of Maharashtra State, India

Name of species	Name of host	Habitat	Locality
<i>Lytocestus follicularae</i> Bhure et.al., 2010	<i>Clarias batrachus</i> (Linneus, 1758)	Intestine	Beed, Aurangabad, Jalna, Latur, Osmanabad and Nanded
<i>Lytocestus osmanabadensis</i> Bhure et.al., 2010	<i>Clarias batrachus</i> (Linneus, 1758)	Intestine	Osmanabad, Aurangabad, Latur, Nanded, Hingoli
<i>Senga microrostellata</i> Sp. Nov.	<i>Mastacembelus armatus</i> (Lecepede, 1800)	Intestine	Parbhani
<i>Senga sataraensis</i> Bhure et. al., 2011	<i>Mastacembelus armatus</i> (Lecepede, 1800)	Intestine	Latur
<i>Senga madhavae</i> Bhure et. al., 2010	<i>Mastacembelus armatus</i> (Lecepede, 1800)	Intestine	Osmanabad
<i>Senga mangalbai</i> Bhure et. al., 2011	<i>Mastacembelus armatus</i> (Lecepede, 1800)	Intestine	Nanded
<i>Polyoncobothrium armatusae</i> Sp. Nov.	<i>Mastacembelus armatus</i> (Lacepede, 1800)	Intestine	Nanded, Hingoli, Parbhani
<i>Ptychobothrium vitellaris</i> Sp. Nov.	<i>Mastacembelus armatus</i> (Lacepede, 1800)	Intestine	Mahur, Dist. Nanded
<i>Gangesia striatusii</i> Sp. Nov.	<i>Channa striatus</i>	Intestine	Omerga Dist. Osmanabad

Diversity of Piscean tapeworms includes 09 species of five genera. Two species of genus *Lytocestus*, four species of *Senga*, one species of *Polyoncobothrium*, one species of genus *Ptychobothrium* and one species of *Gangesia* were reported from freshwater fishes from different localities of Marathwada Region.

Lytocestus follicularae Bhure et al., 2010 and *Lytocestus osmanabadensis* Bhure et al., 2010 are recorded from Nanded, Osmanabad, Aurangabad, Beed, Latur and Hingoli districts and reported from intestine of host *Clarias batrachus*. *Senga microrostellata* Sp. Nov., *Senga sataraensis* Bhure et. al., 2011, *Senga madhavae* Bhure et. al., 2011 and *Senga mangalbai* Bhure et. al., 2011 were reported from intestine of *Mastacembelus armatus* of Parbhani, Latur, Osmanabad and Nanded district of Marathwada Region. *Polyoncobothrium armatusae* Sp. Nov. recorded from intestine of *Mastacembelus armatus* (Lacepede, 1800) from Nanded, Hingoli and Parbhani District. *Ptychobothrium vitellaris* Sp. Nov. were collected from intestine of *Mastacembelus armatus* (Lacepede, 1800) from Mahur, Dist. Nanded and *Gangesia striatusii* Sp. Nov. reported from intestine of *Channa striatus* from Omerga Dist. Osmanabad

DISCUSSION

A present investigation deal with Diversity of Piscean tapeworms includes 09 species of five genera. Two species of genus *Lytocestus*, four species of *Senga*, one species of

Polygonobothrium, one species of genus *Ptychobothrium* and one species of *Gangesia* were reported from freshwater fishes from different localities of Marathwada Region.

All these species are differs from each other in general topography of organs. In case of locality or distribution of cestodes, the maximum numbers of parasites are collected or large numbers of species are recorded from Nanded District as compare to other part of Marathwada region. Similar finding were reported by Bhure et. al., (2010), Deshmukhb (2015). Nanware et. al., 2013 reported 85 different species of Piscean tapeworms belonging to 08 genera viz. *Lytocestus* Cohn, 1908 (20 sp.); *Lytocestoides* Baylis, 1928 (08 sp.); *Bothrioccephalus* Rudolphi, 1898 (02 sp.); *Proteocephalus* Weinland, 1958 (01 sp.); *Polygonobothrium* Diesing, 1834 (04 sp.); *Senga* Dollfus, 1934 (22 species); *Gangesia* Woodland, 1924 (18 sp.); and *Silurotaenia* Nybelin, 1942 (10 sp.) from different localities of Marathwada Region of Maharashtra. Bhure et.al., 2013 described twelve species of genus *Cotugnia*, five sp. of *Davainea*, five sp. of *Rallietina*, four sp. of *Valipora* and four sp. of *Mogheia* Parasitic in *Gallus gallus domesticus* of locality Nanded . Bhure and Nanware,2015 studied Faunestic diversity of Piscean, Avian and mammalian cestodes of genus *Lytocestus*, *Senga*, *Gangesia*, *Cotugnia*, *Davainea*, *Raillietina*, *Moniezia*, *Stilesia* and *Avitellina* from Nanded region (M.S.) India. Kenndy C. R. (1971, 1976) explained ecological factors i.e. distribution and environment of host, diet and mode of feeding of host which are influenced by parasitic development. Marathwada is temperate region in Maharashtra State. Water becomes warm which is suitable for growth of Zooplankton, aquatic invertebrates as mollusks and crustacean. These aquatic animals serve as a food of freshwater fishes as well as intermediate hosts of many parasites. Availability of food and feeding activity of host also may be one of causes of occurrence of parasitic diversity. Maximum infections occurred in *Mastacembelus armatus* (Six species of Cestodes were recorded from present investigations). Infections are host-specific because morphological characters, physiological and ecological factors affect host specificity. Morphological characters are like hold fast organs of a parasite for adhesion with its host at the site of attachment. Ecological factors are such as distribution and environment of host, the diet and mode of feeding. These adaptations often provide important role for limiting a parasite to a particular host sp. in particular season. The results indicate that, morphological, physiological and ecological factors affecting the distribution and diversity of parasites of freshwater fishes.

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