



Diversity of Tapeworms from Avian and Mammalian Host from Marathwada Region M. S. India

KEYWORDS

Avian and mammalian Tapeworms, Diversity, Marathwada Region.

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ABSTRACT Vertebrates are the important components of the ecosystem. They are very important from the ecological and economical point of view. Man uses many birds and mammals as delicious and nutritious food. Similarly birds also produce some important products like meat, eggs and beautiful feathers. These birds and mammals are known to harbour a number of parasitic infection i.e. trematodes, cestodes and nematodes which cause deterioration in their health and increase the rate of mortality of hosts. The parasite does not have the capability to obtain food directly from the ecosystem and hence they have no option but to adopt to live in or on some other organisms and derive their food either ecto or endo parasitically from it. The flesh of birds and mammals are not properly cooked, cysts are entered inside the body of human and cause dangerous diseases to human beings. Since the work on the avian and mammalian tapeworms in India had left a great deal of scope for research. Currently Marathwada Region (M.S.) is a hot spot for Biodiversity studies. Keeping in view of the above facts, the present investigation is aimed at studying one of the parasitic group which is most widely distributed and show a very high degree of biological diversity.

Hence the study was undertaken on the status of diversity Avian and mammalian tapeworms of genus *Cotugnia*, *Davainea*, *Raillietina*, *Valipora*, *Mogheia*, *Moniezia*, *Stilesia* and *Avitellina* from Marathwada region (M.S.) India. Tapeworms were collected and studied from different birds and mammals and identified.

INTRODUCTION

Biodiversity represents a continuum across a variety of scales, ranging from genetic to population, species, community, habitat, ecosystem, and landscape diversity (Brooks and Hoberg, 2000). Species diversity, however, plays a pivotal role in the study and perception of biodiversity. After the agreement to conserve biodiversity in the Rio Convention (1992), the exploration of biodiversity became more imperative than ever since we cannot defend or manage something if we do not know it. Parasites, constituting more than half of all biodiversity (Toft, 1986), are the integrative core of biodiversity survey and inventory, conservation and environmental integrity and ecosystem function. In the realm of conservation biology parasites have dual and conflicting significance (Brooks and Hoberg, 2006), because they may regulate host populations, playing a central role in maintenance of genetic diversity and structuring host communities and, at the same time, they represent threats to human health, agriculture, natural systems, conservation practices, and the global economy (see Horwitz and Wilcox, 2005). At a higher level than the communities of parasites themselves, they can track broadly and predictably through ecosystems.

Biodiversity in a crude way is referred to listing of species, their number and status in particular region. Biodiversity provides the basic biotic resource that sustains the human race. This includes diversity within species, between species and of ecosystem; Biodiversity is the most significant national asset and constitutes an enduring resource for supporting the continued existence of human societies. Biodiversity is not merely a natural resource; it is an embodiment of cultural diversity and the diverse knowledge traditions of different communities across the world. Variation is the law of nature. It occurs everywhere and moment. The variation takes place at micro levels at short space and small time period, but these becomes apparent only over a large space and big time gap. The variety and variability of organisms and ecosystems is referred to as biological diversity or biodiversity. The biological variations initiate at the micro level and become apparent at species level.

The economic impact of helminth diseases on livestock encompasses mortality losses, morbidity losses (measured in terms of less than optimum production of milk, meat and wool), enhanced susceptibility to bacterial and viral diseases, and losses resulting from condemnation of carcasses and organs, as well as the cost of drugs and veterinary care (Herlich, 1978). 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 avian and mammalian tapeworm and geographical distribution from various places of Marathwada Region M.S., India.

MATERIAL AND METHODS

During survey of cestode parasites of Birds and mammals from different localities of Marathwada Region, (M.S.) India. Cestode parasites were recovered from the intestine of some avian and mammalian hosts. These worms 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.

RESULTS

The occurrences of avian and mammalian tapeworms in relation with its geographical area and host species from Marathwada Region Maharashtra state India are as follows.

Table- Distribution pattern of avian and mammalian tapeworms from Marathwada Region Maharashtra state, India.

S.N.	Name of species	Name of host	Habitat of Parasite	Locality
	Avian Tapeworms			
1	<i>Cotugnia digonopora</i> (Pasquale, 1890), Diamare, 1893.	<i>Gallus gallus domesticus</i>	Intestine	Aurangabad, Nanded, Osmanabad.
2	<i>Cotugnia bahli</i> , Johri, 1934	<i>Gallus gallus domesticus</i>	Intestine	Osmanabad, Beed, Aurangabad, Latur
3	<i>Cotugnia aurangabadensis</i> , Shinde, 1969	<i>Gallus gallus domesticus</i>	Intestine	Beed, Nanded
4	<i>Cotugnia hafezzi</i> Nanware et. al., 2010	<i>Gallus gallus domesticus</i>	Intestine	Aurangabad, Nanded, Parbhani
5	<i>Cotugnia indiana</i> Kasar et. al., 2010	<i>Gallus gallus domesticus</i>	Intestine	Nanded, Osmanabad
6	<i>Davainea indica</i> , Shinde, 1972	<i>Gallus gallus domesticus</i>	Intestine	Latur, Beed
7	<i>Davainea shindei</i> Jadhav et.al., 2008	<i>Gallus gallus domesticus</i>	Intestine	Aurangabad, Nanded
8	<i>Davainea yamagutii</i> Dhondge et.al., 2011	<i>Gallus gallus domesticus</i>	Intestine	Nanded, Hingoli
9	<i>Raillietina (R.) friedbergeri</i> Linstow, 1877	<i>Gallus gallus domesticus</i>	Intestine	Nanded, Latur
10	<i>Raillietina (R.) tetragona</i> Fuhrmann, 1920	<i>Gallus gallus domesticus</i>	Intestine	Osmanabad, Beed
11	<i>Vallipora mutabilis</i> , Linton, 1927	<i>Gallus gallus domesticus</i>	Intestine	Aurangabad, Beed
12	<i>Vallipora macrorostatum</i> Dhondge et. al., 2011	<i>Gallus gallus domesticus</i>	Intestine	Osmanabad, Nanded
13	<i>Moghiea passerae</i> V.B. Garad and Sanjay S. Nanware, 2006	<i>Gallus gallus domesticus</i>	Intestine	Nanded
	Mammalian Tapeworms			
14	<i>Moniezia (B.) aurangabadensis</i> Shinde, 1985	<i>Capra hircus</i>	Intestine	Aurangabad, Beed
15	<i>Moniezia (B.) caprae</i> Nanware, 2010	<i>Capra hircus</i>	Intestine	Aurangabad, Nanded
16	<i>Moniezia madhukarae</i> Kasar et.al., 2010	<i>Ovis bharal</i>	Intestine	Nanded, Latur
17	<i>Moniezia (B.) maharashtrae</i> Nanware, 2010	<i>Capra hircus</i>	Intestine	Osmanabad, Latur
18	<i>Moniezia (B.) kalavati</i> Nanware, 2010	<i>Capra hircus</i>	Intestine	Osmanabad, Beed
19	<i>Moniezia (B.) mansurae</i> Shaikh et.al., 2011	<i>Ovis bharal</i>	Intestine	Parbhani, Hingoli
20	<i>Stilesia gharwalensis</i> Malhotra and Capoor, 1983	<i>Capra hircus</i>	Intestine	Aurangabad, Jalna
21	<i>Stilesia kothwarensis</i> Malhotra and Capoor, 1983	<i>Ovis bharal</i>	Intestine	Aurangabad, Beed
22	<i>Stilesia pandae</i> Nanware et.al., 2004	<i>Capra hircus</i>	Intestine	Parbhani, Nanded
23	<i>Stilesia jadhavae</i> Nanware et.al., 2005	<i>Capra hircus</i>	Intestine	Osmanabad, Nanded,
24	<i>Avitellina centripunctata</i> (Rivolta, 1874) Gough, 1911	<i>Capra hircus</i>	Intestine	Aurangabad, Latur
25	<i>Avitellina nagbhusanami</i> Shinde et.al., 1983	<i>Ovis bharal</i>	Intestine	Latur, Aurangabad

Diversity of avian tapeworms includes 13 species of five genera. Five species of genus *Cotugnia*, three species of *Davainaea*, two species of *Rallietina*, two species of genus *Vallipora* and one species of *Mogheia* were reported from *Gallus gallus domesticus*. Where as 12 species of three genera were reported from mammalian hosts. six species of genus *Moniezia*; four species of genus *Stilesia* and two species of genus *Avitellina* were collected from *Capra hircus* and *Ovis bharal*.

DISCUSSION

The twenty five species of cestode parasites of avian and mammalian hosts from Marathwada Region M.S. India includes 08 genera. All these species are differs from each other in general topography of organs. The parasites belonging to the genus *Cotugnia* and *Moniezia* are highly diversified.

In case of locality or distribution of avian and mammalian tapeworms, the maximum numbers of parasites are collected or large numbers of species are recorded from Aurangabad District as compare to Marathwada region. Similar results were recorded by Bhure et. al.,2010. Kenndy C.R. (1971, 1976) explained the ecological factors i.e. distribution and environment of host, the diet and mode of feeding of host and parasites are influence the parasitic development. Mar-

athwada is temperate region in Maharashtra. The water becomes warm which is suitable for the growing of Zooplankton, some aquatic invertebrates i.e. mollusks and crustacean, these aquatic animals as a food of freshwater fishes as well as the intermediate host of many parasites.

Availability of food and feeding activity of the host also may be one of the reasons for occurrence of parasitic diversity. The maximum infections are occurred in the host *Gallus gallus domesticus* and *Capra hircus*. The infections are host specific because the morphological, physiological and ecological factors affect the host specificity. The morphological factors are those which like a parasite with its host at the site of attachment. The ecological factors are such as, distribution, and environment of the host, the diet and mode of feeding. These adaptations often provide important role for limiting a parasite to a particular host sp., particular season.

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