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Studies on prevalence of Cestodes parasitizing Gallus gallus domesticus

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Abstract

The present investigations deals with the preliminary survey of three avian cestode parasites viz. *Cotugnia dignopora, Cotugnia diamarae* and *Raillietina domestica* collected from the intestine of a *Gallus gallus domesticus* at different collection sites of Nanded district (M.S.) India during February, 2012 to January, 2013. The high prevalence of all cestode parasites occur in summer season followed by winter season whereas lower infections in monsoon season.

Keywords: Cotugnia dignopora, Cotugnia diamarae, Gallus gallus domesticus, Prevalence, Raillietina domestica

Introduction

Poultry industry is regarded as main part of animal resources all over the world. Poultry rearing is characterized by high feed conversion ratio, short rearing period and acceptance from all religions. In Maharashtra poultry production is an important field in Agriculture. The threat of economic problems due to cestode parasitism is always present when chickens are raised. Parasitic cestodes which inhabits intestinal tract of chicken cause economic loss in the form retarded growth. The chickens infected with tapeworms shows retarded growth, decreased production of eggs, reduced weight gain, significant hemoglobin depression Nadakal. 1981). (Naver and Population investigation is necessary to provide data for the prediction of integrated methods to achieve the regulation of numbers of harmful parasites, because it has been stated that a single method of control or coordinated activities is of little value, since they ameliorate the infection (Kennedy, 1975, 1978). Parasites can have a wide range of impact on the ecology of their hosts, in terms of health. Many studies on fish parasites changes to taxonomy and Pathology and few deal with the ecological approach. Notable contribution is made by Dobson, (1995 & 1965); Dogiel et al., (1954); Johnson, (1964); Anderson, (1976,1978a 1978b,1982); Kenddey, (1968); Moller et al., (1995) Poulin,

(1995), Rao and Ramakrishna (1983), Rudolphi (1810). Less work has been done on cestodes parasites of chicken in Nanded India. Results of present study, therefore, are expected to be helpful for future research on cestode parasites of domestic fowl in this area. Keeping in view, the importance of these parasites in chickens the present study was designed to evaluate the prevalence of cestode parasites of domestic fowl Gallus gallus domesticus, which includes application of statistical methods understand and to the distribution of three avian cestodes i.e. Cotugnia dignopora, Cotugnia diamarae and Raillietina (R.) domestica collected during annual cycle February, 2012 to January, 2013.

Material and Methods

Study area- The study was conducted in different collection sites of Nanded district. Nanded is situated in the south eastern part of Maharashtra state. The Nanded district lies between 18.15 to 19.55 North latitudes and 97.07 to 98.15 East longitude. It covers an area of 10,528 sq. km. In the present study, a survey on cestodes was conducted on 74 intestines of chickens, examined for cestode parasites during the period of February, 2012 to January, 2013 from different localities of Nanded District, Maharashtra State India.

Author's Address Research and Post Graduate Department of Zoology, Yeshwant Mahavidyalaya, Nanded Email: snanware@rediffmail.com The intestines of freshly slaughtered chickens were brought to the laboratory and examined for cestode infection. Cestode parasites were collected, preserved in hot 4% formalin, washed with saline and water, dehydrated in various alcoholic grades, stained with Harris haematoxylin and Borax carmine, cleared in xylene, mounted in D.P.X. and collected parasites were prepared for identification by standard methods (Schmidt, 1934; Yamaguti, 1959; Wardle, , Mcleod and Radinovsky 1974; Khalil and Bray, 1994 and Hiware et al. 2003). On taxonomic observations the cestodes are identified as Cotugnia dignopora, Cotugnia diamarae and Raillietina (R.) domestica. Obtained data were recorded; processed for the study of seasonal variation.

Results and Discussion

The results of present studies on prevalence of cestode parasites are presented in Table No. 01, 02 & 03. Three species of cestode parasites were recorded Cotugnia dignopora, as Cotugnia diamarae and Raillietina (R.) domestica. It was found that, the high incidence of infection of all these species Cotugnia dignopora, Cotugnia diamarae and Raillietina (R.) domestica were recorded in summer season (75%, 67.85 % & 71.42% respectively) followed by winter season (60%, 52 % & 48% respectively) whereas low infections in monsoon season (38.09%, 33.33% & 38.09% respectively).



Table 1-Prevalence of Cotugnia dignopora from Gallus gallus domesticus					
Seasons	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %	
Summer, (Feb.,2012-May,2012)	28	21	31	75.00	
Monsoon (June, 2012 – Sept., 2012)	21	08	10	38.09	
Winter (Oct.,2012- Jan., 2013)	25	15	19	60.00	

	Cable 1-Prevalence	of <i>Cotugnia</i>	ı dignopora	from G	allus gallus	domesticus
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Table 2-Prevalence	e of <i>Cotugnia</i>	diamarae from	Gallus gall	lus domesticus

Seasons	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %
Summer, (Feb.,2012-May,2012)	28	19	23	67.85
Monsoon (June, 2012 – Sept., 2012)	21	07	10	33.33
Winter (Oct.,2012- Jan., 2013)	25	13	16	52.00



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Seasons	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %
Summer, (Feb.,2012-May,2012)	28	20	25	71.42
Monsoon (June, 2012 – Sept., 2012)	21	08	11	38.09
Winter (Oct.,2012- Jan., 2013)	25	12	14	48.00

Table 3-Prevalence of Rallietina (R.) domestica from Gallus gallus domesticus



The results of present study are in agreement with winter and minimum in rainy season. Bhure et those conducted by Bhure et al., (2010) observed high incidence, intensity, density and index of infection of Silurotaenia raoii in summer season followed by winter season whereas lower infections in monsoon season. Bhure et. al., (2010) studied A survey of the population ecology of Rhabdochona Ralliet, 1916 (Nematoda-Rhabdochonidae) from Labeo rohita (Ham. and Buch.) his results indicate that the high incidence of infection (51.78%), intensity of infection (1.18%) and density of infection (0.613%) of Rhabdocona sp. occur in summer season followed by winter season and rainy season. Shaikh et al., 2010 studied high prevalence of *Moniezia* (Blanchard, 1891) (Cestoda) in Capra hircus were recorded in summer season. Bhure et. al., (2011) observed high incidence, intensity, density and index of infection of Silurotaenia raoii in summer season followed by winter season whereas lower infections in monsoon season. Jadhav and Bhure, (2007) explained the development of parasites should be require high temperature, low rainfall and sufficient moisture. Hence the high prevalence occurs in summer followed by other seasons. Kasar et al., (2012) reported high prevalence of Valipora singhii from Columba livia in summer season followed by

al.,(2013) studied diversity and prevalence of cestode parasites of avian host. His results indicated high prevalence were recorded during summer seasons followed by winter seasons where as low prevalence were reported during Monsoon Seasons of Nanded districts. According to Kennedy (1968, 1970, 1974 and 1976) the temp, humidity and rainfall, feeding habits of host, availability of infective host and parasite maturation. Such factors are responsible for influencing the parasitic infections. Rodhe, 1993 explained the temperature controls parasitization and infections are more in warm seas than in cold ones. Feeding activity of the host is one of the reasons for seasonal fluctuation of infections. According to Pennuyuick (1971 a, 73 b) the fishes and other animals were infected with large number of parasites in late winter to end of summer months, because the environmental conditions are favourable in above noted months.By data analysis, the present study reveals that the high incidence of infections of all these species were recorded in summer seasons (Feb., 2012-May, 2012) followed bv winter (Oct.,2012- Jan., 2013) where as low in monsoon season(June, 2012 - Sept., 2012). The results clearly indicated that environmental factors and feeding



infection either directly or indirectly.

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