

Seasonal variation of intestinal Tapeworms in *Gallus gallus domesticus* at Ahmednagar region

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Abstract

The present paper deals with the seasonal variation of tapeworms in *Gallus gallus domesticus* at Ahmednagar region, high prevalence of *Raillietina* parasite are occurred in winter season followed by summer season and low in rainy season. This type of results indicates that environment factors and feeding habitats are influencing that seasonality of parasitic infection either directly or indirectly.

Keywords: Seasonal variation, tapeworms, *Gallus gallus domesticus* and Ahmednagar region.

INTRODUCTION

Parasite can have wide range of impact on the ecology of their hosts, in the form of health, behaviour, sexual selection and regulation of the host populations. This makes it interesting to examine the ecological factors determine parasite loads, potential factors determining the transmission of parasites include environmental conditions that affect the variability behaviour of parasite feeding movement and detection patterns of the host. Gastrointestinal parasite infections are world-wide problem for both small and large scale farmers, but their impact is greater in the availability of a wide in India due to range of agro-ecological factors suitable for diversified hosts and parasite species. Economic losses are caused by gastrointestinal parasites in a variety of ways, they cause losses through lowered fertility, reduced work capacity, a reduction in food intake and lower weight gains, treatment cost and mortality in heavily parasitized animals. The quantitative analysis of helminth and structural grouping was studied during three annual cycles i.e. June-2007 to June-2010. It revealed that the cestode population was potentially dynamic with more or less durability, regularity and cyclic periodicity in the hosts under investigation.

MATERIAL AND METHOD

Cestode parasites were collected from the intestine of *Gallus domesticus* at Ahmednagar district, M.S. India in the period of July 2007 to June 2009. These cestodes preserved in hot 4% formalin and stained with Harris haematoxylin and Borax carmine, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and drawings are made with the aid of camera lucida.

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To find the prevalence of infection the calculations were made with the help of following formula.

$$\text{Prevalence of infection} = \frac{\text{no. of infected host}}{\text{Total hosts examined}} \times 100$$

RESULT AND DISCUSSION

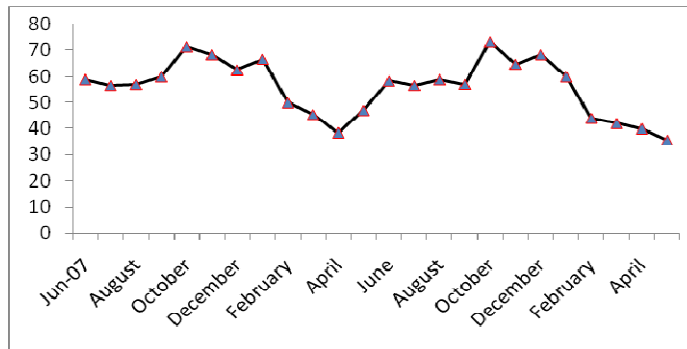
The analysis of data showed that the occurrence of cestode parasites variable according to season. *Raillietina* (*Raillietina*) *Tetragona* *Molin* shows high prevalence in the month of October, of two annual cycles (67.94 and 52.22 respectively) followed by the month of June, July, August and September of two annual cycles i.e. rainy season (52.00 and 57.35 respectively.) Whereas low prevalence in the month of February, March, April and May of two annual cycles i.e. Summer season (45.09 and 41.02% respectively) (Table-2)

The present investigation indicates that the maximum prevalence of *Raillietina* parasite of *Gallus domesticus* are occurred in winter season followed by rainy whereas minimum prevalence occurred in summer season (Graph No.-1)

According to Kennedy (1971, 1975 and 1977 [9] and Rodhe (1993) the temperature humidity, rainfall and feeding habitat of host, availability of infective host and parasite maturation. Such factors are responsible for influencing of parasitic infection. Experimental study of Kennedy (1977) [9] have shown that the cestode parasites of fishes and birds survived for longer period at low temperature. Hence he explained the temperature is major controlling factor of seasonal variation. Feeding activity of the host also be one of the reason for the seasonal fluctuation of infection according to Pennyuick (1971 a, b) [13]. In the present study the higher infection of *Raillietina* to *Gallus gallus domesticus* in high temperature months. There is host specificity because; the morphological, physiological and ecological factors affect the host specificity. These factors play an important role for controlling the parasite to a particular host species in particular season.

Table 1. Prevalence of *Raillietina*-(*Raillietina*) *Tetragona Molin* from intestine of *Gallus* during June-2007 to May-2009

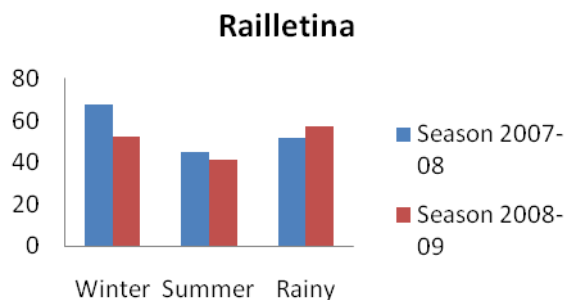
Month	No. of host examines	No. of host infected	No. of Parasite collected	Prevalence%	Locality
June	17	10	12	58.82	Sangamner
July	25	14	09	56.66	Akola
August	14	08	10	57.04	Loni
September	15	09	12	60.00	Shriampur
October	21	15	20	71.42	Kopargaon
November	19	12	15	68.42	Shevgoan
December	08	05	06	62.50	Shrigonda
January	30	20	25	66.66	Parner
February	10	05	08	50.00	Sangamner
March	11	05	07	45.45	Ahemadnagar
April	13	05	07	38.46	Nevasa
May	17	08	12	47.05	Jamkhed
June	12	07	09	58.33	Rahata
July	25	14	20	56.66	Pathardi
August	17	10	06	58.82	Akole
September	14	08	08	57.1	Sandamner
October	15	11	14	73.33	Ahemadnagar
November	17	11	20	64.70	Rajapur
December	19	13	12	68.42	Shrirampur
January	20	12	15	60.00	Kopargaon
February	09	04	08	44.00	Pathardi
March	07	03	07	42.00	Shrigonda
April	10	04	06	40.00	Ahemadnagar
May	14	05	06	35.71	Sangamner



Graph. Showing prevalence of *Raillietina*-(*Raillietina*) *Tetragona Molin* from intestine of *Gallus gallus domesticus* during June-2007 to May-2009

Table 2. Influence of season on parasitic infection during Aug 2007 to July 2009

Genera	Season	Prevalence	
		2007-08	2008-09
<i>Raillietina</i>	Winter	67.94	52.22
	Summer	45.09	41.02
	Rainy	52.00	57.35



CONCLUSION

After the analysis of data, the present study can be concluded that high prevalence of *Raillietina* parasite are occurred in winter season followed by summer season and low in rainy season (Gaph-1) This type of results indicates that environment factors and feeding habitats are influencing that seasonality of parasitic infection either directly or indirectly.

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REFERENCES

- [1] Anderson, R. M. 1976. Seasonal variation in the population dynamics of *Cryptophyllaeus laticeps*. *Parasitology*, 72:281-305.
- [2] Bardoloi, 1991. Incidence of Intestinal helminth infection of Deer in captivity *Zoo's Print J.*, 6 (11): 17.
- [3] Dakshinkar *et.al.*, 1983. Occurrence of *Trichuris* sp. in deer (*Axis axis*) *Veterinarian*, 7(11): 9
- [4] Dogiel, V.A. 1958. Parasitology of fishes, Leningrad University press, Oliver and Boyd, Edinberg and London.
- [5] Esch G.W. 1977. Regulation of parasitic population. Academic Press, INC. New York.
- [6] Hopkins, C. A. 1959. Seasonal variation in the incidence and development of the cestode *Proteocephalus filicolis* (Rud.1810) in *Gasteosteus aculeatus* L. 1766. *Parasitol.*, 49:529-542.
- [7] Kennedy, C.R. 1968. Population biology of the cestode *Caryophyllaeus laticeps* (Pallas, 1781) in duce, *Leuciscus L.*, of the river. *Avon. J. Parasitol*, 54, pp. 538-543.
- [8] Kennedy, C.R. 1977. The effect of temperature on the establishment and survival of the of the cestode *Caryophyllaeus laticeps* in orfe, *Leuciscus idus*. *Parasitol.*, 63: pp. 59-66.
- [9] Lawrence, J. L. 1970. Effect of season, host age and sex on endohelminths of *Castostomus commersoni*. *J. Parasitol.* 56: 567-571.
- [10] Over, H.J., Jansen J. And Von Olm, P.W. 1992. Distribution and impact of helminth diseases of livestock in developing countries. FAO animal production and health paper 96. FAO of United Nation Rome, Italy, pp.221.
- [11] Patrick and Esch G.W. 1977. Seasonal incidence in the painted turtle, *Chrysemys picta*. *J. Parasitology*, 53, pp. 818-821.
- [12] Pennyuick 1971: Seasonal variation in the parasitic population of three spined stickleback. *Gasteosteus aculeatus* L. *Parasit.*, 63: 373-388.
- [13] Ram Reddy, G.B. 1980. Studies on the population dynamics of helminth parasites of certain lizards of Hyderabad Ph.D. thesis Osmania University, Hyderabad, India.