

Seasonal variation of intestinal *Trichuris sp.* in sheep and goats from Maharashtra State

Nitin Padwal¹, Atul Humbe², Swati Jadhav³ and S. N. Borde³

¹Department of Zoology, S.P. Mahavidyalaya Bhoom Dist- Osmanabad, India

²Department of Zoology, S.G.R.G. Shinde Mahavidyalaya Paranda Osmanabad, India

³Department of Zoology, Dr. B.A.M. University Aurangabad (M.S.), India

Abstract

The present paper deals with the seasonal variation of *Trichuris sp.* of sheep and goats. The high prevalence of *Trichuris sp.* are recorded in the month of December 2008 and November 2009 i.e. 82.8% and 85.0% respectively followed by in the month of March 2009 and February 2010 i.e. 60% and 70% respectively where as low prevalence are recorded in the month of August 2008 and July 2009 i.e. 50% and 31.5% respectively.

Keywords: Seasonal variation, *Trichuris Sp.* Sheep and goats, Maharashtra State.

INTRODUCTION

Parasitology is one of the vast and highly advanced branch of Zoology. Parasitism is undoubtedly an ecological relationship between two different populations. Noble and Noble, 1976 stated that parasitism is an association of two organisms of different species, in which one is benefited and other harmed. The organism, which is benefited, is the parasite and that which suffers, is the host. Parasites are not different from any other form of life except for its unique nature of dependence on another free living host for its existence. The remarkable feature of parasite ecology is the close association with negative impact an individual maintains with another living organism with the result the host in many ways act as the environment for the parasite as stated by parasitologists Noble and Noble, 1976.

Helminths are members of complex biota, an understanding of population structure and behavior has resulted in the emergence of population dynamics and community structure as major branches of animal Helminthology. Helminths are common parasites of fishes. Usually they are present in large numbers and have high species diversity. Helminthic infections are a worldwide problem for both small and large scale farmers but their impact is greater and the availability of wide in India due to range of agro-ecological factors suitable for diversified hosts and parasite species. Economical 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 heavy parasitized animals. The host-parasites relationships in case of Nematode parasites result into large scale damage at the site of attachment consequently economical loss.

MATERIALS AND METHODS

The present study carried out to collect the Nematode parasites from the intestine of Sheep and goats. The Sheep and goats intestines brought to the laboratory and each intestine was carefully observed and the Nematode parasites were collected. Then the nematodes are preserved in hot 10% glycerol, cleared in lacto phenol, mounted in glycerin jelly.

RESULTS AND DISCUSSION

The genus *Trichuria* was established by Roederer in 1761 with the type species as *T. trichura* Linnaeus, 1771. The high prevalence of *Trichuris sp.* are recorded in the same annual cycles i.e. in the month of December 2008 and November 2009 i.e. (82.8% and 85.0% respectively) followed by in the month of March 2009 and February 2010 i.e.(60% and 70% respectively) where as low prevalence are recorded in the month of August 2008 and July 2009 i.e. (50% and 31.5% respectively) The incidence of parasitic infection occurs during winter season because of the suitable climatic conditions and the availability of food i.e. pastures during their development. The prevalence of this *Trichuris sp.* varies considerably depending on local environmental conditions such as humidity, temperature, rainfall, vegetation and management practices. Climatic conditions are responsible for the distribution and prevalence of the disease. It is well recognized that in resource poor regions of the world helminth infections of sheep and goats are major factors responsible for economic losses through reduction in productivity and increased mortality Over *et al.*, [11]. The effects of climatic factors on helminthes have elaborately studied by Kennedy [8, 9], Lawrence [10], Crofton and Esch [6]. The considerable work on population dynamics were carried out by many authors, such as Esch G.W. [6], Ram Reddy [14]. The season, host, age and sex affect the distribution of endohelminths from *Catostomus commersoni* Lawrence [10]. 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.

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*Corresponding Author

Dr. Atul Humbe
Assistant Professor & Head, Dept. of Zoology, S. G. R. G. S. Mahavidyalaya
Paranda, Dist. Osmanabad, (M.S.) India.

Tel: +91-9404677028; Fax: +91-9404677028
Email: atul.s.humbe@gmail.com

Table I. Population dynamics of *Trichuris sp.* from Sheep and goats during June, 2008-May, 2010

Name of Month	No. of the host Examined	No. of the host Infected	Total No. parasites collected	Incidence %	Locality
June, 08	20	12	15	60	Aurangabad
July, 08	19	10	14	52.6	Aurangabad, Beed, Ahmednagar
Aug., 08	22	11	25	50	Osmanabad, Solapur
Sept., 08	25	15	22	60	Beed, Jalna
Oct., 08	30	20	29	66.6	Aurangabd, Nanded
Nov., 08	32	25	37	78.1	Solapur, Osmanabad
Dec., 08	35	29	45	82.8	Aurangabad, Beed
Jan., 09	28	19	38	67.8	Nanded, Jalna, Buldhana
Feb., 09	20	10	21	50	Beed, Osmanabad, Latur
Mar., 09	25	15	30	60	Ahmednagar, Nanded, Buldhana,
Apr., 09	30	13	28	43.3	Aurangabad, Beed, Osmanabad
May, 09	18	10	17	55.5	Jalna, Parbhani, Nanded ,
June, 09	15	07	18	46.6	Beed, Osmanabad, Amravati
July, 09	19	06	10	31.5	Satara, Pune, Kolhapur
Aug., 09	20	11	14	55	Nashik, Pune, Amravati
Sept., 09	22	14	30	63.3	Jalgoan, Jalna, Buldhana
Oct., 09	24	20	34	83.3	Beed, Solapur, Latur
Nov., 09	20	17	39	85	Aurangabad, Nanded, Buldhana
Dec., 09	18	14	31	77.7	Ahmednagar, Pune, Nashik
Jan., 10	30	15	18	50	Jalgoan, Jalna, Buldhana
Feb., 10	20	14	30	70	Parbhani, Nanded, Buldhana
Mar., 10	22	12	15	54.44	Aurangabad, Pune
Apr., 10	25	14	18	56	Satara, Sangli
May, 10	18	10	22	55.5	Satara, Sangli , Pune
Total	557	343	600	61.5	Maharashtra

CONCLUSION

After the analysis of data, the present study can be concluded that high population of *Trichuris Sp.* are occurred in winter season followed by summer season and low rainy season. This type of results indicates that environmental 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] Georgi JR, Whitlock RH, Flinton JH. (1972) Fatal *Trichuris discolor* infection in a Holstein-Freisian heifer. *Cornell Vet.*;62:58-60. [[PubMed](#)]
- [6] Esch G.W. 1977. Regulation of parasitic population. *Academic Press, INC. New York.*
- [7] Hopkins, C. A. 1959. Seasonal variation in the incidence and development of the cestode *Proteocephalus fillicolis* (Rud.1810) in *Gasteosteus aculeatus* L. 1766. *Parasitol.*, 49:529-542.
- [8] Kennedy, C.R. 1968. Population biology of the cestode *Caryophyllaeus laticeps* (Pallas, 1781) in dace, *Leuciscus L.*, of the river. *Avon. J. Parasitol*, 54, pp. 538-543.
- [9] Kennedy, C.R. 197. 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.
- [10] Lawrence, J. L. 1970. Effect of season, host age and sex on endohelminths of *Castostomus commersoni*. *J. Parasitol.* 56: 567-571.
- [11] 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.
- [12] Patrick and Esch G.W. 1977. Seasonal incidence in the painted turtle, *Chrysenys picta*. *J. Parasitology*, 53, pp. 818-821.
- [13] Pennyuck 1971: Seasonal variation in the parasitic population of three spined stickleback. *Gasteosteus aculeatus* L. *Parasit.*, 63: 373-388.
- [14] 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.*
- [15] Susheela G. 1987. Study on population dynamics of helminth parasites of rats from Hyderabad and its surroundings. *Ph.D. Thesis, Osmania University, Hyderabad, India.*