



*STUDIES ON POPULATION DYNAMICS OF CESTODE AVITELLINA SP. FROM  
OVIS BHARAL AT BULDHANA DISTRICT M.S. INDIA*



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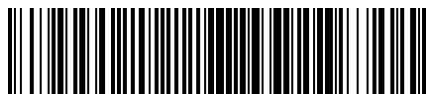
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**ABSTRACT :**

*Present study deals with the occurrence and seasonal dynamics of cestode, Avitellina sp. from the intestine of Ovis bharal, at different collection sites of Buldhana district (M.S.) India during July 2022 to June 2024. The high incidence of infection of Avitellina, sp. was recorded in Summer season (50.90%)*

*followed by Monsoon season (46.34%) and whereas infection was low in winter season (30%) respectively.*

**KEY WORDS:** *Avitellina sp., Cestode, Ovis bharal, Population dynamics.*



## INTRODUCTION

The genus *Avitellina* was established by Gough 1911, and its type species *A. centripunctata* (Rivolta, 1874) in *Ovis aries* in Europe. Helminths are one of the more destructive internal parasites of the vertebrate including man (Strickland, G.T., 2000). The genus *Avitellina* is an important parasitic tapeworm that has many final hosts such as cattle, sheep, goats and other domestic and wild ruminants. It is common parasite of domestic ruminants in Europe, Asia and Africa (Gary R. M., 2002). The presence of *Avitellina* species in ruminant can negatively affect their productivity. Lambs are more susceptible to infection with *Avitellina* causes diarrhea and reduced weight gain. Also it causes gastrointestinal disorders and even death in sheep and goats

Hence, a study was undertaken to find out the incidence of Cestode parasites of domestic sheep *Ovis bharal* of Buldhana District for a period of two year.

It is clear that the precise and accurate examination of the parameters of cestode parasite population. Reports on ecological studies on the helminth parasites of the alimentary tract of the host are available from various countries like U.S.S.R. Bulgaria, France, Rumania, Poland, Austarlia, and Hungery.

The effect of climatic factors on helminths are studied by the workers like Lawrance (1970), Crofton (1971), further Patrick and Esch (1977) Kennedy (1968, 1969) Odum (1971) Whitlock (1972).

Many authors worked considerably on the population dynamics of the cestode parasites from different hosts. Hopkin (1959) Pennyuick (1971), Anderson (1976), Mittal (1980) Susheela (1987) have shown that geographical distribution of cestode parasite is affected by seasonal changes.

Regarding study of seasonal variation, notable contribution is made by Elton C.S. (1927), Fergusson (1943), Cole, (1954), Thomas (1963), Boxshall (1974) Esch (1977), Raghvendra Rao (1978), Rajeshwar Rao (1981). Due to above contribution, during last few years moderate work



was done in India. On the population dynamics of the helminth parasites in vertebrates R.P. Mittal (1980) made valuable contribution in this field (In Homiotherms, Rats and Mice) in relation to incidence and intensity of nematode parasites. Regarding the Poikilotherm vertebrates. Similar contribution were made by Raghvendra Rao (1978) on snakes, Rama Reddy (1980) on garden lizards and Rajeshwar Rao (1981) on amphibians.

The information available in India about the effect seasonal variation on the incidence of infection by helminth parasites are very major. Since no attempt has been made to study the nature of helminth population in vertebrates.

The present investigation deals with the study of population of Cestode parasites of *bharal Ovis* of Buldhana District M.S. India.

## **MATERIALS AND METHODS**

Present investigation deals with the occurrence and populationl dynamics of Cestode from the intestine of *Ovis bharal*, at different collection sites of Buldhana district (M.S.) India during July 2022 to June 2024. In the present study 217 intestine of *Ovis bharal* were examined for Cestode infection. Out of 217 intestine of sheep, 80 (50.90%) were positive with Cestode infection. Collected Cestodes were preserved in hot 4% formalin, stained with Borax carmine, dehydrated in asending grades of alcohol, cleared in xylene, mounted in D.P.X. These Cestodes were identified by standard methods. On taxonomic observations the Cestodes are identified as *Avitellina sp.*. Obtained data were recorded; processed for study of seasonal variation.

**Population dynamics of cestode parasites were determined by the following formulae.**

1. **Incidence of infection:** - It is the percentage of host infected by particular species of cestode parasites. Observation are recorded annually and calculated by the following formula.

$$\text{Incidence of infection} = \frac{\text{Infected hosts}}{\text{Total hosts examined}} \times 100$$



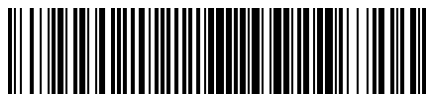
## RESULTS AND DISCUSSION

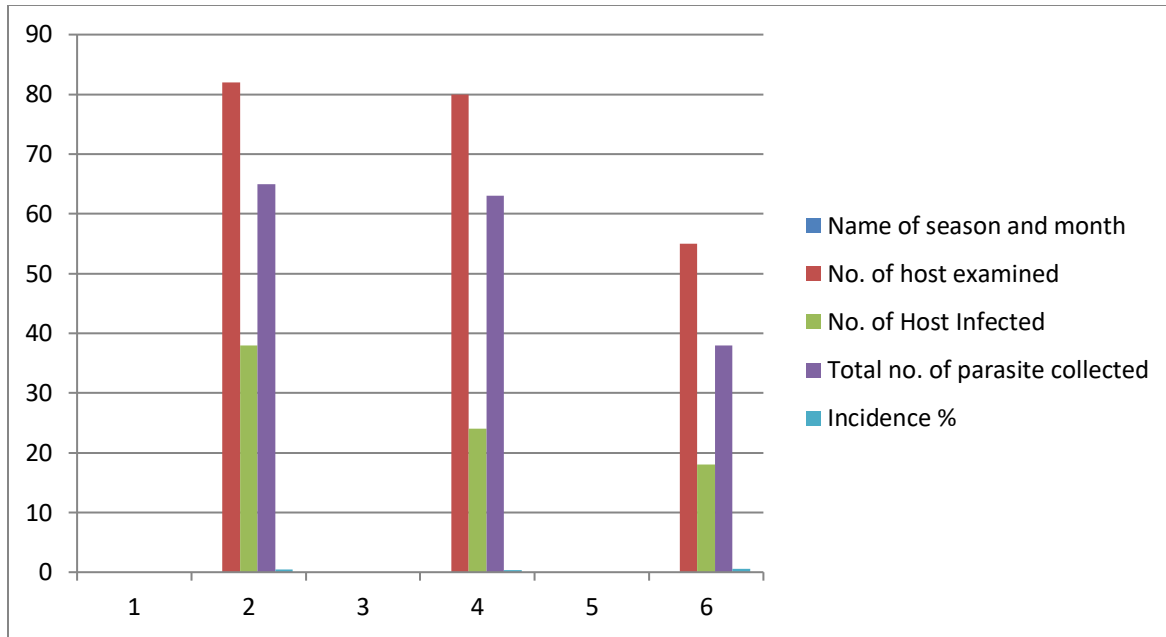
A study was carried out to know the Seasonal incidence of gastrointestinal Cestodes in domestic sheep *Ovis bharal* from different collection sites of buldhana District for a period of two year. Results of present studies on incidence of infection of cestode, *Avitellina sp.* from *Ovis bharal* are presented in Table No. 01 & Graph 1. The high incidence of infection of *Avitellina, sp.* was recorded in Summer season (50.90%) followed by Monsoon season (46.34%) and whereas infection was low in winter season (30%) respectively. According to Kennedy C.R. (1976) in his report stated that temperature; humidity, rainfall, feeding habits of host, availability of infective host and parasite maturation are responsible for influencing the parasitic infections.

**Table no. 1: population dynamics of *Avitellina sp.*, from *Ovis bharal* during July 2022 to June 2024 from different sites of Buldhana District M. S. India**

Name of season and month	No. of host examined	No. of Host Infected	Total no. of parasite collected	Incidence %
Mansoon (June to September 2022 to 2024)	82	38	65	46.34%
Winter (October to January 2022 to 2024)	80	24	63	30%
Summer (February to May 2022 to 2024)	55	18	38	50.90%
Total	217	80	166	36.86%

**Graph 1:- population dynamics of *Avitellina sp.*, from *Ovis bharal* during July 2022 to June 2024 from different sites of Buldhana District M. S. India**





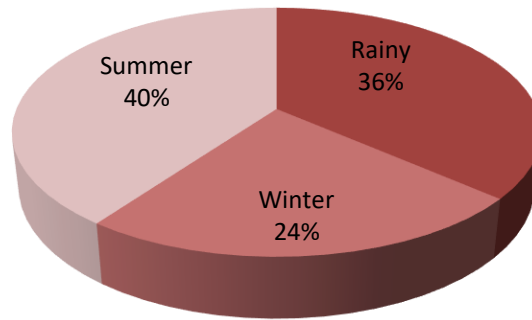
**Table No.2:- Influence of season on Avitellina sp., from Ovis bharal during July 2022 to June 2024 from different sites of Buldhana District M. S. India**

Seasons	Prevalence % (July 2022- June 2024)
Rainy	46.34%
Winter	30%
Summer	50.90%

**Graph No.2:- Influence of season on Avitellina sp., from Ovis bharal during July 2022 to June 2024 from different sites of Buldhana District M. S. India**



### Prevalence % (July 2022- June 2024)



Present investigation are in agreement with Bhure et.al.,2017 reported prevalence of Cestode *Avitellina* sp. Has high in Monsoon season (77.50 %) followed by winter season (62.85%) whereas infection was low in summer season (32.50%). The seasonal occurrence of parasitic infection in goat depicted higher infection of helminthes in rainy season followed by winter than in summer. This is in accordance with findings of other researchers (Yadav, et al., 2006). Varadharajan and Vijayalakshmi, 2015 reported overall infection percentage was higher in rainy season (68.36%) followed by winter (60.84%) than in summer (55.30%).

The analysis of data showed that the prevalence of cestode parasites variable according to season. *Avittelina* sp. recorded the high incidence of infection of *Avitellina*, sp. was recorded in Summer season (50.90%) followed by Monsoon season (46.34%) and whereas infection was low in winter season (30%) respectively. due to environmental factors and feeding habitat influence the seasonality of parasitic infection either directly or indirectly. This study on prevalence of gastrointestinal parasites in sheep *Ovis bharal* facilitates to device new ways and methodologies to follow the appropriate chemo-immunoprophylactic strategies as one of the control measures.

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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