COMPARATIVE STUDY OF PREVALANCE OF GASTROINTESTINAL ENDOPARASITES IN INSTITUTIONAL HERDS OF NILI RAVI BUFFALO

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ABSTRACT: Gastrointestinal endoparasites have a great impact on livestock production. Current research is conducted to realize the proper prevalence of gastrointestinal parasitical incursion in three institutional buffalo herds in the Punjab Province. A total of 758 fecal samples were examined in farm and health laboratory, Buffalo Research Institute for a time duration of one year (July 2017 to June 2018) from three institutional herds. The fecal samples collected from Livestock experiment station Bhunikey, Chak katora and Haroonabad were 227,208 and 323 respectively. Out of which 311 (41.02 %) were found positive and different for parasites during the current duration of study. The pervasiveness of different parasites including trematodes, nematodes, and diverse infestation in buffaloes at Livestock Experiment Station Bhunikey was 25.50% (58/227), 14.90%(34/227), and 4.80%(11/227) , while at Livestock Experiment Station Chak Katora it was 19.81%(64/323), 17.64%(57/323) and 3.7%(12/323) percent respectively. Livestock Experiment Station Haroonabad showed the prevalence of trematodes, nematodes and mixed infections as 24.51 %(51/208), 6.70 %(14/208) and 4.80 %(10/208). Maximum prevalence was observed from November to February (trematodes 24.01%, nematodes 13.81% and mixed infestation 3.4%) while minimum parasitism was observed from July to October (trematodes 20%, nematodes 3.5% and mixed infestation 1.2%). The study that is conducted has varied results revealed that the occurrence of different gastrointestinal parasites in buffaloes is quite severe causing economical losses by reducing milk production. By keeping focus on this factor, a proper planned and strategic way of treatment and control program may be designed to cover and control gastrointestinal parasitic contagions in buffaloes.

Keywords: Endoparasites, Nematodes, Trematodes, Nili-Ravi buffalo.

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INTRODUCTION

In Pakistan there is a population index of 38.8 million of buffaloes, which has a vital role in keeping the national interest of the country and contributing the major source of meat and milk in countryside. Total estimated production of milk produced in Pakistan (57890 tons), among of which 35136 tons come from buffalo's side (Economic survey of Pakistan 2017-2018). In this era there are many keen factors which affect and devalue the production of buffaloes. Diseases among them all caused by the large number of different microscopic organisms including viruses, fungi, bacteria and parasites has of great importance as they bring a great economic crisis and losses in terms of mortality and decline in milk productivity rate (Bilal et al 2009). The main concern related to Animal productivity and welfare are greatly affected by endoparasite infestation (Jain et al.2010).The GIT (gastrointestinal track) of buffaloes have a very wide range of parasites species that are more commonly helminthes, having a main role in causes of parasitism. The adverse effect of these parasites not only affects the health status of the buffaloes but also brings a huge losses wave in economic crisis to the livestock sector. Pakistan has also facing the widespread parasitic infestation In and it brings a cost deviation of about 26.5 million rupees per year to the livestock sector (Bilal et al.2009).in different studies it is estimated that the role from the parasitic diseases are causing more threating conditions as compared to all the visible outburst of the diseases. Concealed infestations that are caused by parasites badly affected the entire herd and change in the different factors related to the animals including milk rate decline, productivity rate decline, milk quality and making body immunity weaken to stay firm against the infestation of other microorganisms most commonly viral diseases and bacteria because of high load in body damage and sheer stress. The herd that is affected by the parasitic

infestations or endoparasites (worms) has a variety of symptoms which affects the heath of herd such as presence and detection of worm in animal dung, diarrheal symptoms and most commonly in appetite and potbelly (Nabukenya et al.2014). Decrease in production, treatment and prophylaxis cost, and death of the severely infected animals are very common parameters caused by these parasites which affect and make an economy losses (Miller at al.2005). The loses related to economy may be understandable like demise, degenerative censure of body for the consumption as human food and loses that are concealed including the retardation in body weight gain live, poor adaptation in feed intake and lactation losses as reduction in milk quantity and quality etc. Health and production of the buffaloes are constantly affected by the infestation of endoparasites. The basic cause in loering of resistance in buffaloes and predisposes them to secondary infestations are most commonly caused by the Nematode infestations (Bilal et al 2009). However in countries fall in the tropical region have faced more severe conditions in animals due to availability of favorable conditions of environment for transmission of helminthes (Wadhwa et al. 2011). The study conducted revealed that taxonomy and incidence of these parasites by the conduction of complete and proper research can reduce the work load and make an effective control. To study and evaluate all the above given objectives, the current study was designed to determine the gastrointestinal parasitic infestation prevalence in three different institutional Nili Ravi Buffalo herds maintained at Livestock Experiment Station Bhunikey, Livestock Experiment Station Haroonabad and Livestock Experiment Station Chak Katora in the Punjab Province.

MATERIALS AND METHODS

The duration of the study was one year (July 2017 to June 2018). Total number of 758 samples of fecal (5gm sample each) were collected from the buffalo separately in polythene bags self-sealed, stored at 10ºC and brought at Farm and Health Division laboratory, Buffalo Research Institute, District Pattoki(Punjab Pakistan). The samples were analyzed by using Salt Floatation Method. It is a qualitative test for the detection of nematodes and trematodes eggs in the feaces (Kakar et al.2008).

Statistical Data Analysis: Study data was statistically analyzed by applying chi square in SPSS (Bilal et al.2009).

RESULTS

Out of 758 fecal samples, 311 were found to be positive for endoparasites.105, 173 and 33 were found positive for nematodes, trematodes and varied infections correspondingly. The overall prevalence rate of endoparasitic infestation was 41.02%. Maximum prevalence was observed in winter season from November to February (41.53%) while minimum parasitism was observed in summer season from July to October (38.84%). Herd wise prevalence in Nili Ravi buffalo is depicted in table 1.

The herd wise prevalence of nematodes, trematodes and mixed infestations is shown in Table-2.

Table 1: Pervasiveness of endoparasites in Nili-Ravi buffalo herds.

Name of Buffalo Herd	Total No. of Samples Tested	No. of samples Positive	% Prevalence
Livestock Experiment Station Bhunikey	227	103	45.37
Livestock Experiment Station Chak Katora	323	133	41.17
Livestock Experiment Station Haroonabad	208	75	21.63
Total	**758**	**311**	**41.02**

Table-2: Herd wise prevalence of Trematodes, Nematodes, and Mixed infestations.

Name of Buffalo Herd	Trematodes	Nematodes	Mixed Infestations
Livestock Experiment Station Bhunikey	25.5%	14.9%	4.8%
Livestock Experiment Station Chak Katora	19.81%	17.64%	3.7%
Livestock Experiment Station Haroonabad	24.51%	6.7%	4.8%

DISCUSSION

In studying prevalence of gastrointestinal endoparasites, the current study reveals that in line with those by Sreedhar et al. (2009) who determine the prevalence of GIT gastrointestinal parasites as 42.0%.Muraleedharan et al. (2005), Singh et al. (2012), Rahman et al. (2012) also reported the prevalence of endoparasites as 40.20%, 39.8% and 40.84% respectively which are close to the finding of present study. Githigia et al. (2005) reported higher prevalence in wet season than dry season. In the current determination the large pervasiveness rate was found in winter season which is 41.53% followed by summer with 38.84% endoparasitic

prevalance which is not in line with the study of Wadhwa et al.(2011) ho has determined 73.9 % in winter followed by 52.8 % in summer. Seasonal occurrence and prevalence rate of parasitic infections reported by Sreedhar et al.(2009), Muraleedharan et al.(2005), Singh et al.(2012) and Rahman et al. (2012)are that the parasitic infestations are high in moosoon and low in winter which are not in line with the current study which shows high prevalence in winter followed by summer and moon soon.

Conclusion: It is concluded from the present study that prevalence rate of gastrointestinal endoparasites is alarming. For successive Livestock farming need of proper management for endoparasities is extremely important. None of the single measures will give long term solutions.

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