

PREVALENCE OF ENDO (TREMATODES) AND ECTO-PARASITES IN COWS AND BUFFALOES OF QUETTA, PAKISTAN

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ABSTRACT

Prevalence of endo and ecto-parasites in cows and buffaloes were investigated in Quetta city, Pakistan. A total of 396 livers and gall bladders of cows and 340 of buffaloes were selected randomly. Overall prevalence of liver parasites in cows and buffaloes was 45.70 and 37.05%, respectively. The species found in livers of cows were: *Fasciola hepatica* (16.16%), *Fasciola gigantica* (12.37%), *Paramphistomum explanatum* (7.82%) and mixed infections (9.34%). The corresponding values for buffaloes were 11.47, 13.52, 5.58 and 6.47%. For ecto-parasites, out of 404 cows and 386 buffaloes examined, 28.96 and 25.64% respectively gave positive results for ecto-parasites. The prevalence of ticks, lice, mites and mixed infection was found to be 10.14, 7.17, 5.19 and 6.43%, respectively in cows and 6.99, 9.84, 4.92 and 3.88% respectively in buffaloes. It was concluded that the prevalence of endo and ecto-parasites in cows was higher than in buffaloes due to differences in feeding habits and hygienic habitats of the two species.

Key words: Buffalo, cow, ecto-parasites, endo-parasites, prevalence.

INTRODUCTION

Cows and buffaloes are not only main source of animal proteins but their products such as bones, skins and goods made from their fetch are of great importance for the man. Watery diarrhea, weakness, weight loss, decrease in milk production, reduced product quality, mortality and other secondary infections are caused by trematode parasites (Gupta *et al.*, 1978; Solusby, 1982). Helminth parasites are potential health hazard to livestock population and produce enormous economic losses.

Fascioliasis is distributed throughout the world (Blood *et al.*, 1990). It is caused by the flukes like *Fasciola hepatica* and *F. gigantica*. Ecto-parasites are also the main problem of livestock throughout the world. The present study was conducted to assess the prevalence of endo-parasites (particularly trematodes) and ecto-parasites in cows and buffaloes in Quetta city, Pakistan.

MATERIALS AND METHODS

A survey was conducted during November 2005 to April 2006 to screen the prevalence of endo and ecto parasites of cows and buffaloes in Quetta city, Pakistan. Butcher shops were visited to collect livers and gall bladders. A total of 396 livers of cows and 340 of buffaloes were randomly selected. The organs were brought to the Research Laboratory, Department of Zoology, University of Balochistan, Quetta, Pakistan. The gall bladders were cut opened to collect the parasites. Similarly, the livers were cut into slices and

were put into the saline water for 24 hours. The saline water was then passed through wire mesh and the trematode parasites, if present, were collected with the help of fine brush. Finally, they were preserved in 70% ethyl alcohol. The worms were stained in borax carmine, dehydrated in increasing concentrations of ethyl alcohol, cleaned with xylol and mounted on glass slides, following the techniques described by Solusby (1982). The trematodes were identified according to the keys erected by Solusby (1982) and Urquhart *et al.* (1987).

For the collection of ecto-parasites, main farm houses were visited twice a week. A total of 404 cows and 386 buffaloes were randomly observed for the collection of ecto-parasites. The ticks, lice and mites were collected from skin and various other organs including ears, legs, belly and underarms. Ectoparasitic infestation was divided into two groups i.e. heavy infestation when more than 25% of animal skin was infected with ecto-parasites and moderate infestation when less than 25% skin was infected (Azam *et al.*, 2002). The parasites were collected, preserved in 70% ethyl alcohol with few drops of glycerin and slides were prepared following the method described by Solusby (1982). The data were analyzed by Chi-square method.

RESULTS AND DISCUSSION

Endo parasites

The overall infestation of liver trematodes was recorded to be 45.70% (181/396) in cows and 37.05% (126/340) in buffaloes (Table 1). The prevalence was significantly higher ($P < 0.05$) in cows than in buffaloes.

Table 1: Prevalence of various liver parasites in cows (n= 396) and buffaloes (n=340)

Endo-parasites	Number of livers infected in cows	Infection percentage in cows	Number of livers infected in buffaloes	Infection percentage in buffaloes
<i>F. hepatica</i>	64	16.16	39	11.47
<i>F. gigantica</i>	49	12.37	46	13.52
<i>P. explanatum</i>	31	7.82	19	5.58
Mixed	37	9.34	22	6.47
Total	181	45.70	126	37.05

In cows, the prevalence of *F. hepatica* was highest (16.16%), followed by *F. gigantica* (12.37%) and *P. explanatum* (7.82%). In buffaloes, highest prevalence was of *F. gigantica* (13.52%), followed by *F. hepatica* (11.47%) and the lowest prevalence was of *P. explanatum* (5.58%). Bilquees and Alam (1988) reported only 8.50% incidence of fascioliasis in buffaloes and 6.95% in cows from Karachi, Pakistan. Similarly, Sabri *et al.* (1981) observed prevalence of fascioliasis as 9.40% in buffaloes and 8.00% in cattle and Islam *et al.* (1992) reported 46.6% *F. gigantica* from water buffaloes in Bangladesh. The difference in prevalence among various studies might be due to variation in geo-climatic conditions of these areas of study.

In the present study, the prevalence of *Paramphistomum explanatum* was found to be low both in cows (7.82%) and buffaloes (5.58%). Islam *et al.* (1992) reported 48.3% infestation rate of *Paramphistomum* species in water buffaloes in Bangladesh. This fluke was usually recovered from rumen, reticulum, duodenum, abomasum, small intestine, caecum, colon and large intestine. Paramphistomiasis is geographically widespread. Infestation of paramphistomiasis varies from 0.70 to 88.89% from place to place (Georgiev *et al.*, 1980; Gupta *et al.*, 1985; Michalski *et al.*, 1990).

In the present study, the prevalence of endo-parasites was found to be higher in cows (45.70%) compared to buffaloes (37.05%). Higher prevalence in cows compared to buffaloes might be due to differences in feeding habits and hygienic habitats of the two species.

Ecto parasites

Among 404 cows, 28.96% were found to be harboring ecto-parasites, whereas 25.64% buffaloes

gave a positive result (Table 2). Only 7.69% of positive cows were heavily infected, while the remaining 92.31% had moderate infestation. Among positive buffaloes, 14.14% were heavily infected and the remaining 85.86% had moderate infestation. Ecto-parasites observed in the present study were ticks, lice and mites (Table 2). The prevalence of ecto-parasites was higher in cows (28.96%) compared to buffaloes (25.64) which might be due to their debiting habits.

In cows, tick infestation was 10.14% and it was only 6.99% in buffaloes. Siddiqui and Jan (1986) reported the prevalence of ticks in buffaloes as 5.26, 26.67, 10.00, 40.00 and 53.33% in Dir, Bannu, Chitral, Swat and Mardan districts, respectively. In Hangu district of NWFP, 80% of cattle population was infected with ticks (Zaman, 1997). According to Azam *et al.* (2002), low tick infestation (5.08%) was found in buffalo calves in spring season.

In the present survey, lice infestation was 7.17 and 9.84% in cows and buffaloes, respectively. Azam *et al.* (2002) reported high lice infestation (34.75%) on buffalo calves. Hussain *et al.* (2006) reported 24% prevalence of lice on cattle and 18% on buffaloes. Manan *et al.* (2007) reported 20.4% infestation of lice on cattle and 11.3% on buffaloes in Peshawar, Pakistan.

The prevalence of mites in this survey was found to be 5.19 and 4.92% in cows and buffaloes, respectively. Rizwan *et al.* (1995) reported 7.0% incidence of mites in calves from Faisalabad. Azam *et al.* (2002) also reported low mite infestation (11.86%) in buffalo calves.

The infestation rate of ticks (10.14%) in cows was higher compared to lice (7.17%) and mites (5.19%). In buffaloes, prevalence of lice (9.84%) was the highest, followed by ticks (6.99%) and mites (4.92%). In buffaloes, higher prevalence of lice and lower prevalence of ticks might be due to its aquatic habits.

Table 2: Prevalence of ecto- parasites in cows (n= 404) and buffaloes (n=386)

Ecto-parasite	Number of cows infected	Infection percentage in cows	Number of buffaloes infected	Infection percentage in buffaloes
Ticks	41	10.14	27	6.99
Lice	29	7.17	38	9.84
Mites	21	5.19	19	4.92
Mixed	26	6.43	15	3.88
Total	117	28.96	99	25.64

In the light of above discussion, it is suggested that proper de-worming programme is necessary to reduce the prevalence of internal parasites of cows and buffaloes. The animals should be closely watched for ecto-parasites and suitable insecticides should be used periodically.

REFERENCES

- Azam, M., M. M. Siddiqui and G. Habib, 2002. Prevalence of parasitic infection in buffalo calves in Khadagzai, District Dir. Pakistan Vet. J., 22: 87-90.
- Bilqees, F. M. and M. A. Alam, 1988. Fascioliasis in livestock in Karachi. Proc. Parasitol., 5: 15-39.
- Blood, D. C., O. M. Radotits, T. M. Arundle and C. C. Gay, 1990. Textbook of Veterinary Medicine. 7th Ed., Bailliere Tindal, London, UK.
- Gupta, P. P., B. Singh, P. C. Mandal, B. S. Gill and G. S. Grewal, 1978. A postmortem study of mortality pattern in adult buffaloes in Punjab. Indian J. Anim. Sci., 48: 669.
- Georgiev, B., I. Denev and I. Vasilev, 1980. The prevalence of paramphistomiasis in ruminants in Bulgaria. Khelmintologiya, 9: 18-25.
- Gupta, R. P., S. S. Chaudhri, N. S. Ruprah and C. H. Yadav, 1985. Epizootiology of paramphistomiasis in Haryana state. Indian J. Anim. Sci., 55: 14-19.
- Hussain, M. A., M. N. Khan, Z. Iqbal, N. S. Sajid and M. Arshad, 2006. Bovine pediculosis: prevalence and chemotherapeutic control in Pakistan. Livestock Res. Rural Develop., 18: 1-14.
- Islam, F. M. S., M. H. Rahman and S. M. Z. H. Chowdhury, 1992. Prevalence of parasites of water buffaloes in Bangladesh. Asian Austr. J. Anim. Sci., 5: 601-604.
- Manan, A., Z. Khan., B. Ahmed and Abdullah, 2007. Prevalence and identification of ixodid tick genera in frontier region, Peshawar. J. Agri. Biol. Sci., 2: 21-25.
- Michalski, M. M., K. Gaca-Logodzinska and E. Brzeka, 1990. Prevalence of *paramphistomum* spp. infestation in cattle from Olsztyn region in 1980-1987. Acta Acad. Agri. Tech. Olstenensis, 19: 57-66.
- Rizwan, M. A., A. Qadoos, M. N. Khan, C. S. Hayat and Z. Iqbal, 1995. Studies on the prevalence and taxonomy of mites of cattle in Faisalabad. Pakistan Vet. J., 15: 89-90.
- Sabri, M. A., M. Z. Khan, H. A. Chowdhury and H. A. Samad, 1981. Studies on the incidence and taxonomy of *Fasciola* species in buffaloes and cattle. J. Anim. Sci. Pakistan, 3: 49-54.
- Siddiqui, M. N. and A. H. Jan, 1986. Ixodid ticks (Ixodidae) of NWFP (Pakistan). Pakistan Vet. J., 6: 124-127.
- Solusby, E. J. L., 1982. Helminths, Arthropods and Protozoa of Domesticated Animals. 7th Ed., Bailliere Tindall, London, UK.
- Urquhart, G. M., J. Armour, J. L. Duncan, A. M. Dunn and F. W. Jennings, 1987. Veterinary Parasitology. 1st Ed., Longman Scientific and Technical, Longman Group, London, UK.
- Zaman, A. K., 1997. Prevalence and chemotherapy of ticks among cattle in various refugee camps at Hangu area. MSc. Thesis, NWFP, Agri. Univ., Peshawar, Pakistan.