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Strategic control of helminth parasites in goats

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ABSTRACT : In the region of Kanpur at Araul, Makanpur the present work was done to evaluate the effectiveness of various treatments given with different anthelminthics namely. Closantal, Peprazine and Levamisole in case of selected species for their treatments in goats. The treatment was done during the period when the worms infections became in predominant position. Seasonal infections, treatments and effectiveness have been compared. Strategic control as demonstrated by significantly lower egg counts turned out infections and higher body weight gain observed in closantel treated goats comparing with other two groups of goats which received treatments with Peprazin and Levamisol during different days. The result of the present study indicated that closantal treatment has proved suitable for strategic control without chances of reinfections.

KEY WORDS : Control, Helminth, Goats

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INTRODUCTION

Goats are mainly used as a source of meat, milk and wool. The losses of such precious animals are the economic losses of the nation. In India large number of goats die from parasitic diseases every year. Amongest the parasitic diseases, common helminth parasites of goats are of greatest importance in all age groups of animals in rural areas of the country. The main pathogenic effect of the helminthic parasites is characterized by progressive weakness, wool falling and anaemic condition. This form is most common where mortality is low but morbidity may reach high and animals become very weak and emaciated. However, heavy worm load may cause death. Therefore, the control programmes need to be based on the epidemiological knowledge so that the infection could be eradicated (Brunsdon, 1980). Recent studies have shown that faecal egg counts increase from July onwards followed by heavy infection in animals during September to December. This epidemiology suggested that if pasture contamination could be checked by deworming the animals from August through December (Yadav, and Rajpurohit, 2005), the number of larvae available to infected goats during the period would be reduced. Keeping these in view, the present investigation describes the results of a strategic control programme based on two treatments with Closantel and three treatments with Peprazin and Levamisol.

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MATERIAL AND METHODS

To record the prevalence of infections and severity of infections, 80 goats (mixed breeds and irrespective sexs) aged between 0 to one year tamed by the local farmers of Araul, Kanpur were examined. Faecal samples (80) were collected randomly and were examined minutely in the laboratory and processed for eggs and worm recovery. Seasonal prevalence was studied throughout the year dividing into four seasons, spring (Feb. to April), summer (May to July), rainy (Aug. to Oct.) and winter (Nov. to Jan.).

Parasitological techniques :

Parasites recovered from infected organs were identified as per the key of Soulsby (1982). The faecal samples were examined by direct smear sedimentation technique and zinc sulphate floatation technique for the presence of egg as per the standard procedure described by Sastry (2000). Counting of eggs was done by Mc. Master egg counting technique

(Kelly, 1974).

Chemotherapeutic trials :

Among the positive goats, 8 were selected and randomly divided into four group *viz.*, A. B, C and D of two goats each. Closantel @ 10mg/kg body weight and on day 14 and 56, Peprazin @ 10mg/kg b. wt. and Levamisole @ 10mg/kg b. wt. each on day 14,56 and 126 after the turned out of the gots. During the trial period extending over a period of 126 days goat of all the groups were turned out to graze daily for 4 to 6 hours. Faecal samples from each goat were re-examined at the interval of two weeks throughout the trial period till the end of winter. Body weights of these 4 groups were also recorded at 2 weeks interval.

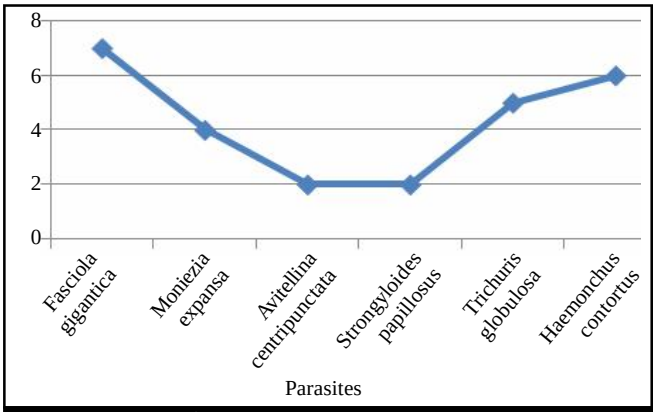

Fig. 1 : Prevalence of helminth parasites in goats

RESULTS AND DISCUSSION

The present study revealed that out of total 80 examined goats (mixed breeds and irrespective sexs), only 26 goats were found infected with six species of helminthes parasites *viz.*, *Fasciola gigantica*, *Moniezia expansa*, *Avitellina centripunctata*, *Strongyloides papillosus*, *Trichuris globulosa* and *Haemonchus contortus* showing symptoms of weakness, rough body coat, hair falling and diarrhea etc. Among the infected goats, 11 (42.30%) goats were noticed positive for multiple helminthic infections. The seasonal study indicated that the presence of helminth infection range was 32.5 per cent with prevalence of above six species of pathogens in Araul Makanpur area of Kanpur (Fig. 1).

Fig. 1 shows that *Fasciola gigantica* was found to be dominant parasite in goats. The prevalence of *Avitellina centripunctata* and *Strogyloides papillosus* was observed to be identical and *Moniezia expensa* was followed by *Trichuris globulosa*. These finding corroborate with the observation of Sharm (1991) who encountered similar helminth species. Variation have been observed in the prevalence of helminth infection in four seasons, the peak incidence of infestation in present study was observed during the rainy seasons (80%) with hyper acute form. Moderates percentage of infections was observed in spring (20%) with chronic form and low percentage (15%) during winter and summer seasons with mild form (Table 1). This can be attributed to the fact that in rainy season (August to October), the atmosphere is conductive for increased pasture contamination and development of infective larvae and also increased infestation of parasites due to higher temperature and humidity which provide favourable condition

Table 1 : Seasonal infection of helminth parasites in goats

Seasons	GE	GI	%	Worms counts	Mean worms	Mild (1-100)	Chronic (100-1000)	Acute (1000-10000)	Hyperacute (10000-50000)
Rainy (Aug.-Oct.)	20	16	80	25000	1563	15.38 (4)	15.38 (4)	11.53 (3)	19.23 (5)
Winter (Nov.-Jan.)	20	3	15	615	205	7.69 (2)	3.84 (1)	Nil	Nil
Spring (Feb.-Apr.)	20	4	20	700	175	11.53 (3)	3.84 (1)	Nil	Nil
Summer (May-July)	20	3	15	600	200	11.53 (3)	Nil	Nil	Nil
Total 12 months	20	26	32.5	26915	2143	46.15 (12)	23.07 (6)	11.53 (3)	19.23 (5)

GE = Goat examined = 80
GI = Goat Infected = 26 (32.5%)

Table 2 : Mean eggs per gram of faeces of goats infected with helminthes parasites

Group	Treatment mg/kg orally	No. of goat treated	EPG per gram of faeces								
			14	28	42	56	70	84	98	112	126
A	Closantel @ 10mg/kg.	2	428±48↓	0	0	14±02↓	0	0	0	0	0
B	Peprazine @ 10mg/kg.	2	412±09↓	120±28	148±40	248±84↓	46±98	96±04	148±98↓	0	0
C	Levamisole @ 10mg/kg.	2	402±48↓	198±56	208±42	302±16↓	120±36	148±28	198±49↓	10±02	02±00
D	Untreated control	2	312±26	410±98	401±70	498±68	502±00	598±84	626±98	801±90	942±02

for propagation of parasites resulting higher parasitic burden among the goats. In addition, agroclimatic condition like overstocking of the animals, grazing together provide an ideal condition for the transmission of the parasites to build up clinical infestation of the animals. But in winter and summer the temperature being cool and hot resist the infection and increasing the number of worms. According to Laha *et al*. (2001) the condition of hypr-acute, acute, chronic and mild forzms of pathogens depend upon the number of parasites present in affected animals. They have also discussed that the number of worms present below 100, above 100-1000, above 1,000-10,000 and above 10,000-50,000 produce mild, chronic, acute and hyper-acute form of disease, respectively.

On the basis of the said scale and mean worms count, out of 26 infected goats, 19.23 per cent were found suffering from hyper-acute form, 11.53 per cent from acute form, 23.07 per cent from chronic form and 46.15 per cent from mild form of infections (Table 1).

The level of infection as measured by faecal egg counts, for the treated goats were indicative of pasture infection (Table 2). The egg per gram of faeces in control group D was lowest after first treatment and it peaked in October to November. However, treatment with Closantel on day 14 caused 100 per cent reduction in EPG of faeces on day 42 and 56 and thereafter the egg counts lowest 14+02 significantly. A second dose of Closantel on day 56 further reduced the egg of zero and increased body weight thereafter till the end of the study. This is in closed agreement with that observed by Yadav and Rajpurohit (2005) who reported two doses of Closantel was better control for the parasites of helminthes. However, treatment with Peprazine on day 14 and 56 did not reduce the EPG and when third dose was administreted on day 98, the EPG reduced to zero. However, treatment with Peprazine and Levamisole on day 14, the EPG reduced to 120±28 and 198±56, respectively, after which it increased up to 248±84 and 302±16 and even after administration of 2nd dose on day 56 there was no 100 per cent reduction in EPG counts. The third dose of Peprazine and Levamisole on day 98 reduced the EPG to zero and negligible numbers thereafter till the end of the experiment. The results indicate that the EPG in goats of Closantel treated group were significantly zero after one or two dose. But the EPG in goats of Peprazine and Leavamisole treated group did not reduce evenafter administration of second dose. The 100 per cent reduction was found after administration of 3rd dose. It seems from the above findings that the EPG in goats of treated group were earlier resistant to the infection of helminth and increased higher body weight than the Peprazine and Levamisole treated groups. It is in closed agreement with Hall *et al*. (1980) and Yadav *et al*. (1993 and 1996).

Keeping in view, an anthlmintic measure for helminth parasites can be undertaken to reduce the intensity of the parasitic infection. The present study is still essential to alarm the veterinarians and poor farmers who tame the goats for timely treatment and necessary preventive measures to protect the animals and reduce the risk of infection.

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LITERATURE CITED

Brunsdon, R.V. (1980). Principles of helminth control. *Vet. Parasital*., **6** : 185-215.

Hall, C.A., Graham, M.J. and McDonell, P.A. (1980). Anthelminic activity of closantel against benzimidazole resistant strains of *Hamonchus contortus* and *Trichostrongylus colubriformis* in sheep. *Australian Vet.,* **56** : 461-462.

Kelly, W.R. (1974). In: *Vet. Clinical diagnosis*. Bailliere Tindall Co. London, U.K. pp. 200-201.

Laha, R., Ramakrishna, C., Bhattacharya, D. and Sikndar, A. (2001). Seasonal incidence of *Haemonchus contortus* infection in goats : A postmortem study. *Indian J. Anim. Sci.,* **71**(4) : 345-346.

Sastry, G.A. (2000). Clinical parasitology. In : *Veteriary clinical pathology*, pp. 79.80, Tirupati, A.P. (INDIA).

Sharma, R.K. (1991). Helminth parasites of some domestic animals in Bermo Coalfield area. *Indian J. Helminthology*, **43**(2) : 100-103.

Soulsby, E.J.L. (1982) In : *Helminths, arthropods and protozoa of domesticated animals* (7th Ed.) ELBS Bailliere, Tindall, LONDON (UNITED KINGDOM).

Yadav, C.L., Uppal, R.P. and Kalra, S. (1993). An outbreak of haemonchosis assosicated with anthelminitic resistance in sheep. *Internat. J. Parasitol*., **23** (3) : 411-413.

Yadav, C.L., Uppal, R.P. and Kalra, S. (1996). Production advantages of an effective anthelmintic treatment on a sheep farm. *Indian Vet. J*., **73** : 45-59.

Yadav, C.L. and Rajpurohit, B.S. (2005). Strategic control of sheep nematodes in north-west India. *Indian Vet. Med. J.,* **29** : 147-150.

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