INCIDENCE OF COCCIDIOSIS AND CONCURRENT PARASITIC INFECTIONS DURING SUMMER IN RUMINANTS

Received - 13.09.10
Accepted - 08.06.11

Parasitic diseases account for major economic losses in animal husbandry sector throughout the world. This has been attributed to the deleterious effect of cryptic parasitism apart from direct harm resulting in high mortality, particularly with regard to protozoan infections. Tropical climate is much favourable for the maintenance and propagation of parasites. Hence it is always possible that the farm animals carry a parasitic load, though not to the extent of causing mortality. It is important that the nature and extent of parasitism and their prevalence in each geographical area is known since this information will help a lot while devising control strategies.

No detailed information is available about the enteric parasitic infection of protozoan origin among ruminants in the Puducherry region. Hence an attempt was made to study the incidence of coccidiosis and other concurrent enteric parasitic infections in ruminants during summer months (March to June 2009) when the parasitic load was expected to be low.

A total of 60 fresh dung samples were collected from 36 cattle, 18 goats and 6 sheep stationed at ten locations like the municipal slaughter house, P.V.Nagar, Thilaspet, RAGACOVAS Teaching hospital and farm, Gobalan kadai, Auroville farm, S.V. farm, Fraternity centre and Muthirapalayam. These locations lie in the Puducherry region of the Union Territory of Puducherry. Collections were made in the afternoon and evening. Collected samples were immediately transferred to plastic containers or polythene covers, brought to the laboratory and processed.

All samples were initially subjected to direct smear examination. This was followed by floatation using saturated sodium chloride solution in order to concentrate nematode and cestode eggs and oocysts of coccidia (Sloss *et.al.*,1994). Thin faecal smears of 2-3 cm in diameter were prepared separately from each sample. The mucoid part of the faeces, if any, was preferred for this purpose. They were screened for the presence of oocysts of *Cryptosporidium* sp. using a modified Ziehl – Neelsen staining method (Kumar *et.al.*, 2004). The cold type of approach perfected in the Department of Parasitology, Rajiv Gandhi College of Veterinary & Animal Sciences (RAGACOVAS protocol) was employed. For this purpose thin smears prepared at one half of the slide were air-dried and fixed by passing over a flame. After cooling to ambient temperature, they were immersed in carbol fuchsin – ZN strong (HIMEDIA) kept in a Coplin jar and allowed to stain for 3 minutes. The smears were taken out and washed in running tap water. They were then decolourized by immersing in 5 % sulphuric acid in a Coplin jar for one minute. The smears were then taken out, washed continuously to remove traces of acid and counterstained with 1% Methylene blue in a similar fashion with a staining time of 2 minutes. They were washed and allowed to dry by draining. Screening for oocysts was done under high dry (40x) objective of Olympus – Campus microscope. A minimum of 250 fields were examined before giving a negative verdict. Confirmation of the oocyst was done with 100x objective.

Those samples which were found to be positive for oocysts of *Eimeria* were further processed for sporulation using 2.5% potassium dichromate solution. They were monitored at 24 hr interval for sporulation with subsequent recording of the data. Identification was done based on various parameters (Mandal, 1987; Bhatia,2000).

Results (Table 1) indicate that infection with eimeriid coccidia is common in cattle, sheep and goats in the region. Though the study was carried out in peak summer

Table 1. Results of examination of dung samples of ruminants

Host	Samples Tested	*Eimeria* positive	Species of *Eimeria* present	Positive for concurrent parasitism	Concurrent parasites
Cattle	36	16	*Eimeria bovis*, *E. auburnensis*, *E. zuernii*, *E. brasiliensis*, *E. ellipsoidalis*, *E. bukidnonensis*	15	Strongyles, amphistomes, *Strongyloides* sp., *Moniezia* sp., *Trichuris sp.*, *Cryptosporidium* spp. *Cyclospora* sp.
Goats	18	18	*Eimeria ninakohlyakimovae*, *E. alijevi*, *E. christenseni*, *E. hirci*, *E. kocharii*, *E. caprina*, *E. arloingi*, *E. apsheronica*	18	Amphistomes, strongyles, *Strongyloides* sp., *Trichuris sp.*, *Capillaria* sp.
Sheep	6	6	*Eimeria ovina*, *E. ovinoidalis*, *E .intricata*, *E. parva*, *E. faurei* *E. crandallis*, *E. ahsata*	6	Strongyles, *Strongyloides* sp., *Trichuris sp.*, *Moniezia* sp.

different species of *Eimeria* and other parasites were observed. The severity of infection was low on account of the high temperature which also resulted in deleterious effects on the morphology of sporulating oocysts. This seems to be the first record of the different eimerian fauna of ruminants in the region.

Summary

A preliminary attempt was made to study the occurrence of eimerid coccidian infections in ruminants in certain locations of the Puducherry region of the Union Territory of Puducherry during the summer months of 2009. Six species of *Eimeria* were found to infect cattle. Goats were infected with eight species of *Eimeria* while sheep had seven species infecting them. Almost all the affected animals had concurrent parasitic infections as well.

Acknowledgment

The authors wish to thank the Dean, Rajiv Gandhi College of Veterinary and Animal sciences for the facilities provided. Help rendered by the heads of departments of Parasitology and LPM are gratefully acknow ledged.

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