Journal of the Andaman Science Association Vol. 22(1):56-58 (2017)
ISSN 0970-4183, Printed in India

Prevalence of gastrointestinal parasites of Indigenous goats in Andaman Islands

Sophia Inbaraj*[1], Jai Sunder[1], Sujatha T[1], Kundu A[1], Baljit Kaur[2], Kundu M.S[1], Munniswamy K[1], and Swapna T.P.[1]

[1] *ICAR-Central Island Agricultural Research Institute, Port Blair, Andaman and Nicobar Islands -744101, India.*
[2]*Department of Animal Husbandry and Veterinary Services, Andaman and Nicobar Islands – 744101, India.*
**E-mail : sophiinbaraj@gmail.com*

Abstract

The present study was conducted in different villages, namely Baednabad, Macapahad, Kamaraj Nagar, Rangachang of South Andaman during 2015-16 to understand the prevalence of gastrointestinal parasites affecting Indigenous goats of the Islands. Samples collected from above villages on 80 local Andamani goats aged 6 months or above were analyzed using traditional sedimentation and floatation techniques. The present study revealed the overall percentage of positive reaction as 72.5 and mixed infections as 32.5. Further, it was also observed that the infection of parasites belonging to strongyloides, strongyles and coccidian as percentage of 62.5, 18.75 and 35.0, respectively. Average haemoglobin content was observed as 8.85±0.242g/dL, which was within the normal range.

Keywords: Gastrointestinal parasites, goats, islands, climate

Introduction

Andaman and Nicobar Islands lies in the hot humid or per humid Island eco-region with moisture index above 100 containing red loamy and sandy soil. These Islands are home to various animal indigenous germplasms like Andamani goats, Teressa goats, Barren Island goats, Andamani pig, Nicobari pig and Nicobari fowl. Though, this Island is free from major diseases affecting livestock (haemorrhagic septicaemia, anthrax, black quarter etc.), parasitic diseases are often observed due to the prevailing climatic conditions of Islands such as tolerable heat, high relative humidity and frequent rainfall incidences. Previous studies were mainly conducted in cattle and buffaloes of the islands, which revealed the presence of parasites like stephanofilaria, strongyles, strongyloides and amphistomes (Rao and Deorani, 1988; Rai *et al.* 1990). Agrawal *et al.*, (2003) reported the presence of schistosomiasis in goats of the islands. Parasitological examination in livestock and poultry including goats of Andaman Islands revealed the incidence of various parasite species namely Strongyles, strongyloides and Eimerian oocysts in goats (Jeyakumar *et al.*, 2009) and eyeworm, *Oxyspirura mansoni* infection in domestic fowls of Andaman Islands (Jeyakumar *et al.*, 2011). According to livestock census-2012, goats are more prevalent among livestock in Andaman and Nicobar Islands with a population of about 65,000 (Anonymous, 2012). There are about five distinct goat species reported in Andaman and Nicobar Islands, in which, three are native breds [Andaman local goat, feral/semi-feral goat (Barren Island goat), Teressa goat] and two (Malabari goat and its crosses and Boer cross breeds) are introduced for breed upgradation purposes. But, the present scenario on the prevalence of gastrointestinal parasites on these Indigenous goats has not been investigated. Hence the present study was conducted to know the status of gastrointestinal parasites in local Andaman goats.

Materials and methods

A study was conducted from October, 2015 to February, 2016 to understand the prevalence of subclinical gastrointestinal parasitism in goats of South Andaman. The study areas include Baednabad, Macapahad, Kamaraj Nagar, Rangachang villages in South Andaman district. About 80 local Andamani goats aged 6 months or above were included in the present study. The animals were maintained under extensive system of rearing where they depend entirely on grazing. Regular deworming was not done to the animals. Dung samples were collected from healthy local Andamani goats per rectum using lubricated

gloves. The containers were properly sealed and brought to the laboratory for further examination. The samples were examined by traditional centrifugation and floatation techniques (Soulsby, 1980). Simultaneously, about 55 blood samples were also collected to evaluate the anaemic status of the animals studied. The haemoglobin content of the blood samples was estimated using Automatic Hematological analyzer (Prokan Electronics Inc., China).

Result

The present study on prevalence of gastrointestinal parasites in samples collected from goats of different villages of South Andaman revealed the presence of single and mixed parasitic infection (Table 1 and Fig. 1) on basis of their eggs and larva (Fig. 2). Among 80 animals examined, parasitic eggs could be observed in 58 animals, revealing the prevalence of 72.5%. Out of which, strongyloides infection was noticed in 49 samples (61.25%), strongyles in 15 samples (18.75%), Eimeria spp. in 28 samples (35%) and mixed infections in 26 samples (32.5%). The average haemoglobin content was observed as 8.85±0.242g/dL, ranging from 4.2 to 13.5 g dL.

Table 1. Percentage prevalence of gastrointestinal parasites in goats in South Andaman

S.No	Parasites	No. of positive cases,n=80 animals	Percentage
1	Overall positive	58	72.50
2	Mixed infections	26	32.50
3	Eimeria sp.	28	35.00
4	Strongyles sps.	15	18.75
5	Strongyloides sp..	49	61.25

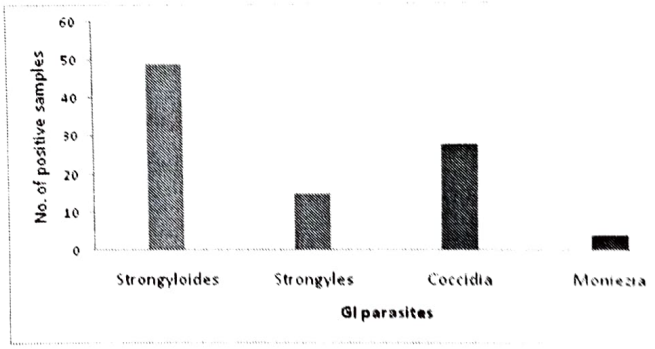

Fig. 1 The prevalence of gastrointestinal parasites on samples collected from Goats of South Andaman

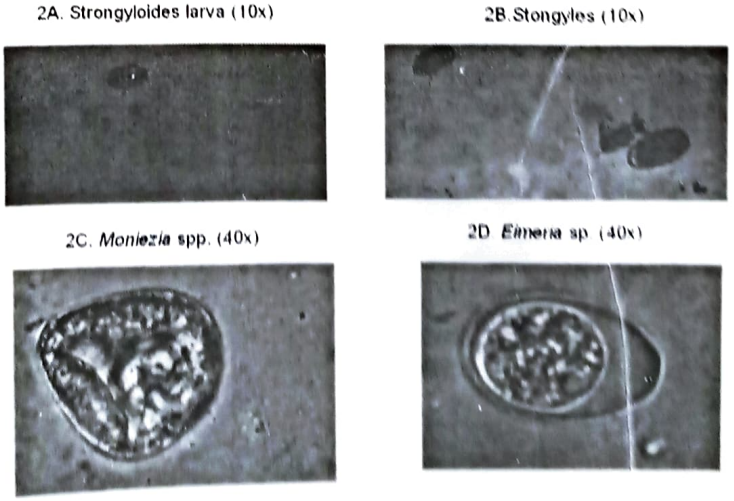

Fig. 2 The different stages of gastrointestinal parasites on samples collected from Goats of South Andaman (2A. Strongyloides larva; 2B. Strongyles eggs; 2C. Eggs of *Moniezia* sp. 2D. Unsporulated oocysts of *Eimeria* sp.

Discussion

Prevalence of gastrointestinal parasites varies depending on the environmental, climatic and managemental factors (Hansen and Perry, 1994). Among 80 cases, 58 cases were reported to be positive depicting an overall prevalence rate of 72.5%. Earlier reports by Jeyakumar *et al.* (2009) revealed the presence of similar parasites but the prevalence percentage was comparatively higher. The reason may be due to the difference in study period which was conducted during peak monsoon (August to September) whereas the present study was conducted during monsoon, post-monsoon (December to January) and dry (February to May) seasons.

The study revealed the predominant presence of gastrointestinal nematodes whereas eggs of *Fasciola* spp. could not be observed during the study. Similar reports were also given by Jeyakumar *et al.* (2009) in farmed goats of Andaman and Nicobar Islands. *Hemonchus* spp and *Trichostrongylus* spp. are the major pathogenic nematodes which are avid blood suckers. Moreover, these strongylid groups of nematodes are involved in parasitic gastroenteritis causing hypoproteinemia, diarrhoea and mortality in susceptible animals. In subclinical stage, mostly the disease is chronic with decreased feed intake, reduced weight gain and anaemia (Kassai, 1999). But in the present study, the haemoglobin content of the blood samples revealed an average of 8.85±0.242g/dL which was within the normal range (8-12g/dl). This may be due to low intensity of infection and also the seasonal influence.

Conclusion

The present study revealed the prevalence of gastrointestinal nematodes viz. stongyloides and strongyles and coccidian species such as *Eimeria* spp. in Indigenous goats. However, in future quantitative, coproculture and molecular studies are required to assess the actual worm burden and the pathogenic species prevalent in the islands for better implementation of control and preventive strategies for gastrointestinal parasitism to ensure sustainable goat production in these Islands.

Acknowledgement

We thank The Director, ICAR-Central Island Agricultural Research Institute, Port Blair for providing necessary facilities to carry out the study. We are also thankful to The Director, Department of Animal Husbandry and Veterinary Services, Andaman and Nicobar Administration for giving permission and staffs of Animal Husbandry Department for helping in sample collection.

References

Agrawal, M.C., Kumar, J. & Ahlawat, S.P.S. (2003). Helminth infections of livestock in Andamans. *Journal of Veterinary Parasitology*. 17: 143-146.

Anonymous. (2012). A report on 19th livestock census 2012 in Andaman and Nicobar Islands. Statistical cell, Directorate of Animal Husbandry and Veterinary Services. Port Blair.

Hansen, J. & Perry, B. (1994). The epidemiology, diagnosis and control of helminth parasites of ruminants. International Laboratory for Research on Animal Diseases. 171p.

Jeyakumar, S., Kumar, G.B., Roy, K., Sunder, J. & Kundu, A. (2009). Incidence of parasitic infection in livestock and poultry in Andaman. *Indian Veterinary Journal* 86: 1178-1179.

Jeyakumar, S., Srivastava, R.C., Roy, K., Arun Kumar, S., Sarmah, P.C., Kundu, A., Damodaran, T., Ravishankar, N., Balakrishnan, M., Zamir Ahmed, S.K., Swapna, T.P. & Zachariah George. (2011). Prevalence of eyeworm *Oxyspirura mansoni* infection of domestic fowl in Andaman Islands. *Journal of Veterinary Parasitology* 25(2): 171-172.

Kassai, T. (1999). Veterinary Helminthology. Butterworth Heinemann. Oxford.

Soulsby, E. J. L. (1980). Helminths, Arthropods and Protozoa of domesticated animals. 7th Ed. Balliere Tindall. London.

Rai, R. B., Pal, R. N. & Saha, P. (1990). Prevalence and strategy to control *stephanofilariasis* in cattle of Andamans. *Journal of the Andaman Science Association* 6 (1): 32-34.

Rao, J. R. & Deorani, V. P. S. (1988). Incidence of common *helminthiasis* among cattle and buffaloes in South Andamans. *Journal of the Andaman Science Association* 4(2): 143-144