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Short Communication

PREVALENCE OF HAEMOPROTOZOAN INFECTIONS DURING SPETEMBER TO DECEMBER 2017 IN BOVINES OF TELANGANA STATE OF INDIA

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SUMMARY

In a retrospective observational descriptive study, 1264 blood samples (572 cattle and 692 buffaloes) collected from bovines of Telangana state during September to December 2017 under mobile veterinary clinics of GVKEMRI, PAS Project-1962 were examined by Giemsa staining to record the prevalence of haemoprotozoan infections. The results of the present study revealed an overall prevalence of 7.43 per cent (94/1264). Out of 572 cattle blood samples, 67 (11.71%) were found positive for haemoprotozoan infections including 26 (38.80%) for *Theileria* spp, 24 (35.82%) for *Babesia* spp and 17 (25.37%) for *Trypanosoma* spp, whereas, out of 692 buffalo blood samples, 27(3.90%) were found positive; 17 (62.96 %) for *Trypanosoma* spp, 08 (29.62 %) for *Babesia* spp and 02 (7.40 %) for *Theileria* spp. The findings revealed that among bovines, the highest prevalence was for *Trypanosoma* spp followed by *Theileria* and *Babesia* spp.

Key words: *Babesia*, Giemsa, Haemoprotozoan, Telangana, *Theileria, Trypanosoma*

There are a total of 9.5 million bovines (including cattle and buffalo) in 31 districts of Telangana state (Livestock Census, 2015). GVK, EMRI is a non-profitable organization providing emergency response and health care services to the animals in Public private partnership (PPP) mode saving numerous lives in term of its dial 1962 serviceintroducing Mobile Veterinary Services with basic laboratory facilities like blood, milk and fecal examination.

Haemoprotozoan infections especially babesiosis, theileriosis and trypanosomiasis are considered as the major impediments to the health and productive performance of bovines, cause anemia by inducing erythrophagocytosis (Rajput *et al.,* 2005). These diseases cause substantial losses to the livestock industry throughout the world (Ananda *et al.,* 2009) because of mortality, decreased productivity, lowered working efficiency (Uilenberg, 1995) and increased cost for control measures (Makala *et al.,* 2003).

In India, an annual loss of 800 million US dollars due to tropical theileriosis alone has been reported by Devendra (1995). The prevalence of haemoprotozoan infection has been reported in animals from different parts of India (Vahora *et al.,* 2012; Arunkumar and Nagarajan 2013; Kohli *et al.,* 2014). However, true status of haemoprotozoan infections has not yet been explored in bovines in and around Telangana state. Hence, an attempt was made to investigate the prevalence of haemoprotozoan infections in cattle and buffaloes of Telangana state.

The present study was conducted at 99 Mobile veterinary clinic (MVC) working under PAS project which is run by Telangana state government and GVK, EMRI under PPP mode. Each MVC has team of 4 members consisting of doctor, paravet, captain and attendant, and is connected to emergency response center (ERC) which has team of veterinarian and emergency response officers (ERO).

Fig. 1: Swollen lymph node

The animals with signs of fever, anorexia, loss of weight, no response to the treatment and other signs *viz.* anaemia, enlargement of lymph nodes (Fig. 1), haemoglobinuria, circling movements, respiratory distress, grinding of teeth, sudden drop in milk yield and abortion were screened for haemoprotozoan infections for a period of 4 month during September to December 2017 from 31 districts of Telangana state. A total of 1264 bovine blood samples (572 cattle and 692 buffaloes) were collected and investigated for the present study.

A drop of blood from each animal was collected aseptically from ear vein.Thin blood smears were prepared and immediately brought to the MVC van for the detection of haemoprotozoan parasites by Giemsa stain and wet blood smear for Trypanosomes. The field results were recorded in given Lenovo laptop having specially

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Table 1
Species wise prevalence of different haemoprotozoan infections in Telangana state

Species / Haemoprotozoa	Cattle (%) (n=572)	Buffalo (%) (n=692)	Grand Total (%) (n=1264)
Babesia	24 (4.19)	08 (1.15)	32 (2.53)
Theileria	26 (4.54)	02 (0.28)	28 (2.22)
Trypanosoma	17 (2.97)	17 (2.45)	34 (2.69)
Total	67 (11.71)	27 (3.90)	94 (7.43)

Table 2
Rectal temperature of aniamals positive for haemoprotozoan

Sr. No.	Temp. range	No. of animals positive	Percent positive
1	101 -103	26	27.65
2	>103	68	43.61
Total		94	100

Table 3
Status of conjunctival mucus membrane in aniamals positive for haemoprotozoan infections

Sr. No.	Mucus membrane Colour	No. positive (%)
1	Normal	05 (5.31)
2	Pale	45 (47.87)
3	Slight pale	26 (27.65)
4	Congested	12 (12.76)
5	Icteric	06 (6.38)
	Total	94

designed software enabling the records to be directly accessed by a server located in service call center.

In the present study, out of 1264 blood smears examined, 94 were found positive (67 cattle and 27 buffalo) (Table 1) for haemoprotozoa, indicating an overall prevalence of 7.43 percent in the Telangana State. The results are in accordance with the findings of Bhatnagar *et al.* (2015) who reported an prevalence of 9 per cent in cattle of Southern Rajasthan. Out of 67 positive cases of cattle, 26 (4.54%) were positive for *Theileria annulata*, 24 (4.19%) for *Babesia bigemina* and 17 (2.97%) for *Trypanosoma evansi* (Table 2). Results of the present study are as per the findings of Ananda *et al.* (2009) who reported highest prevalence of *T. annulata* followed by *Babesia* in crossbred cattle from Bangalore region of Karnataka. Theileriosis is a fatal parasitic disease and its prevalence has been recorded as 21.1 per cent in Tamil Nadu (Anandan *et al.,* 1989), 16 per cent in Northern Kerala (Nair *et al.,* 2010), 17.7 per cent in Karnataka (Muraleedharan *et al.,* 1994), 45.4 per cent in Dehradun (Uttarakhand) (Kohli *et al.,* 2014) and 4.86 per cent in Punjab (Mahajan *et al.,* 2013).

Among 27 positive cases of buffalo, 17 (2.45%) showed *T. evansi,* 08 (1.15%) *B. bigemina* and 02 (0.28%) *T.annulata* (Table 1).The findings of the present study for prevalence in buffalo population is in close agreement with the reports of BhaskaraRao and Hafeez (2005) and Laha *et al* (1989) with a prevalence of 7.28 and 2.69 per cent, respectively, while Krishnappa *et al.* (2002) recorded slightly higher prevalence of 12.9 per cent in Karnataka. In contarary to the present findings, Roy *et al.* (2004) recorded a high prevalence (22.03%) of trypanosomiasis in Chattisgarh. Prevalence varies with the vector, availability of host and/or climatic conditions (Rajeshkumar e*t al.*, 2010).

To record clinical signs, the cases were minutely observed and divided in groups to co-relate rectal temperature and color of conjunctival mucus membrane. During the study, in 68 cases the rectal temperature was more than 103°F whereas in 26 (27.65%) cases it was in range of 101-103°F (Table 2). Among 94 positive cases of haemoparasite, 45 (47.87%) animals showed pale conjunctival mucus membrane, 26 (27.65%) slight pale, 12 (12.76%) congested, 06 (6.38%) icteric and remaining 05 (5.31) showed normal conjunctiva (Table 3). More or less similar clinical signs were also reported by Radostits *et al.* (2010) in affected cattle and buffaloes.

Bovines exhibiting fever, enlargement of superficial lymph nodes, pale mucous membranes and other symptoms and/or not responding to any sympotomatic and antibiotic treatment should be suspected and screened for haemoprotozoan infection.

REFERNECES

Ananda, K.J., Placid, E. and Puttalakshmamma, G.C. (2009). Prevalence of hemoprotozoan diseases in crossbred cattle in Bangalore North. *Vet. World*. **12:** 15-16.

Anandan, R., LalithaJohn, M., Ganesamurthy, M. and Lalitha, C.M. (1989). National seminar at department of animal disease investigation and control from 20.9.89 to 21.9.89 at Madras Veterinary College, Madras.

Arunkumar, S. and Nagarajan, K. (2013). A study on prevalence status of infection among cattle population of Kancheepuram and in and around Chennai district of Tamil Nadu. *Int. J. Food Agri. Vet. Sci.* **3:** 155-157.

BhaskaraRao, T. and Hafeez, M. (2005). Prevalence of Trypanosomiasis in buffaloes in East Godavari district of Andhra Pradesh. *Indian Vet. J.* **82:** 896-897.

Bhatnagar, C.S., Bhardawaj, B., Sharma, D.K. and Meena, S.K. (2015). Incidence of Haemoprotozoan diseases in cattle in Southern Rajasthan, India. *Int. J. Curr. Microbiol. App. Sci.* **4:** 509-514.

Devendra, C. (1995). Global agenda for livestock research: Proceedings of a consultation at ILRI, Nairobi, Kenya. pp. 4148.

Kohli, S., Atheya, U.K. and Thapliyal, A. (2014). Prevalence of Theileriosis in cross-bred cattle: its detection through blood smear examination and polymerase chain reaction in Dehradun district, Uttarakhand, India. *Vet. World.* **7(3)**: 168-171.

Krishnappa, T., Muralidhara, A., Sastry, KNV., Renuprasad, C. and Krishnappa, G. (2002). Prevalence of trypanosomiasis in domestic animals in Karnataka. *Indian Vet. J.* **79:** 183-184.

Kumar R., Singh, R.K. and Singh, J.B. (2010). Trypanosomiasis and its clinical management in buffaloes. *Intas Polivet*. **11:** 26-27.

Laha, R., Prasad, K.D. and Saral, B.N. (1989). Incidence of *Trypanosoma evansi* infection in cattle, buffaloes and goats in and around Ranchi, Bihar. *J. Res. Birsa Agri. Univ.* **1:** 111-112.

Mahajan, V., Gupta, M.P., Bal, M.S., Kumar, H., Mittal, D., Filia, G., Sharma, S., Banga, H.S., Kaur, K., Singla, D., Verma, S., Ashuma and Sandhu, K.S. (2013). Outbreaks of Theileriosis in cattle in Punjab. *Indian Vet. J.* **90:** 77-78.

Makala, L.H., Mangani,P., Fujisaki, K. and Nagasawa, H. (2003). The current status of major tick borne diseases in Zambia. *Vet. Res.* **34:** 27-45.

Muraleedharan, K., Ziauddin, K.S., Hussain, P.M., Seshadri, S.J., MallikaArjun, G.B. and Puttabyatappa, B. (1994). Observations on theilerial infection of cattle in project area of Mysore cooperative milk producer's union, Karnataka state. Cheiron. **23**(3): 130-139.

Nair, A.S., Ravindran, R., Lakshmanan, B., Kumar, S.S., Tresamol, P.V., Saseendranath, M.R., Senthilvel, K., Rao, J.R., Tewari, A.K. and Ghosh, S. (2011). Haemoprotozoan of cattle in Northern Kerala, India., *Trop. Biomed.* **28(1)**: 68-75.

Radostits, O.M., Gay, C.C., Hinchcliff, K.W. and Constable, P.D. (2010). Textbook of veterinary medicine. 10th edn., Saunders, Philadelphia.

Rajput, Z.I., Hu Song-hua, Arijo, A.G., Habib, H. and Khalid, K. (2005). Comparative study of anaplasma parasites in tick carrying buffaloes and cattle. *J. Zhejiang Univ. Sci.* **6B:** 1057-1062.

Roy, S., Tiwari, A., Galdhar, C.N., Upadhyay, S.R., Ratre, H.K., Sahu, S.K., and Maiti, S.K. (2004). Seasonal prevalence of haemoprotozoan diseases in cross- bred cattle and buffaloes. *Indian J. Vet. Med.* **24:** 5-7.

Uilenberg, G. (1995). International collaborative research: significance of tick-borne hemoparasitic diseases to world animal health. *Vet. Parasitol.* **57:** 19-41.

Vahora, S.P., Patel, J.V., Patel, B.B., Patel, S.B. and Umale, R.H. (2012). Seasonal incidence of haemoprotozoal diseases in crossbred cattle and buffalo in Kaira and Anand districts of Gujarat, India. *Vet. World*. **5(4)**: 223-225.