

Preliminary Assessment of Goat Piroplasmosis in Benadir Region, Somalia

Ahmed Abdulkadir Hassan¹, Abdalla Mohamed Ibrahim²,
Rabab Haroon Mohamed², Hussein Haji Aden³

¹Jazeera Quarantine, Mogadishu, Somalia

²College of Veterinary Medicine, University of Bahri, Khartoum, Sudan

³Somali Animal Health Service Project (SAHSP), Mogadishu, Somalia

Email: kadle010@gmail.com

Received July 30, 2013; revised August 30, 2013; accepted September 10, 2013

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ABSTRACT

Haemoparasites are major-constraints on livestock production in tropical and sub-tropical countries. This study was conducted during 2012-2013 to determine the prevalence of blood parasites in goats of small-holders in Benadir region, Somalia and update epidemiological data that had already lost during the civil war in the country. A total of 100 blood samples were collected from goat in Wadajir (47 goat) and Dharkeynley (53 goat) districts, using venipuncture of jugular vein. The samples were examined for the presence of blood parasites using light microscopy. Some ticks when presented in the sampled animals—were also collected for tick identification. Analysis of blood smears revealed 100% samples positive for blood parasites. Out of these cases, 22 samples (22%) were harboring single infection of *Babesia* spp. and 14 samples (14%) were having single infection of *Theileria* spp. Interestingly the Remaining 64 blood samples (64%) showed mixed infection of *Babesia* spp. with *Theileria* spp. *Rhipicephalus evertsi* (72.84%), *Rhipicephalus pulchellus* (34.57%), *Amblyomma lepidum* (3.70%) and *Hyalomma rufipes* (1.23%) were identified from the investigated goats. In conclusion, the findings of this study indicated that, the prevalence of tick and tick-borne diseases were considered to be high in Benadir region of Somalia. A further area wide in-depth study is recommended in the country.

Keywords: Piroplasmosis; T&TBDs; Goat; Benadir Region; Somalia

1. Introduction

Haemoparasite protozoan parasites are the main livestock production constraints all over the world ([1-3]). Causing serious economical losses, tick and tick borne diseases (T & TBDs) still remain to be a major threat to animals in tropical and sub tropical countries ([1,4,5]) including Somalia. In case of these blood parasites infection up to 75% erythrocytes may be destroyed in fatal cases and even in milder infection so many erythrocytes are destroyed, then a severe anaemia result ([1,2]). Babesiosis, Theileriosis and Ehrlichiosis (Cowdriosis and Anaplasmosis) are the major TBDs that cause serious diseases among Central and East African animals including goats ([1,4]). This study was undertaken to know the ubiquity of T&TBDs prevalent in goat in Benadir region, Somalia. This will further pave the way for launching sustainable animal disease controlling/minimizing in Somalia. The livestock sector in Somalia is an important contributor to

the overall economy of Somalia, with its vast rangeland grazing area and large animal population. They are adapted to a nomadic way of grazing which may be migrated through borders with Djibouti, Ethiopia and Kenya. This may affect the distribution of such diseases in the country. There is little information on national herd distribution and composition up to date. About 37.5 millions grazing animals were reported ([6,7]). Other data gathered by the Food Security Assessment Unit [8] were a total of 38.9 millions grazing animals. The composition of animals in southern Somalia is shown in the **Table 1**.

The total collapse of the state and lawlessness resulted in the loss of most animal health services and facilitates scarcity of research projects. Then the spread of livestock diseases in the country is uncontrolled. Therefore this study will contribute on a recent data base of parasitological diseases in Somalia.

and Acarology, Veterinary Research Institute (VRI), Khartoum, Sudan.

3. Results and Discussion

In this study, screening test of 100 blood samples reveals that all blood smears were positive with hyperparasitaemia of Piroplasms (**Plate 1**). Despite the animal is apparently healthy and this might be due to the unusual acaricidal practice among goat householders or due to host resistant to these parasites, hence there is a hyperparasitaemia as well as mixed infection of Piroplasms. A further investigation using advanced molecular techniques is needed in this aspect.

As shown in **Table 2**, analysis of stained blood smears revealed 100% samples positive for blood parasites. Out of these cases, 22 samples (22%) were harboring single

infection of *Babesia* spp. and 14 samples (14%) were having single infection of *Theileria* spp. Interestingly the remaining 64 blood samples (64%) showed mixed infection of *Babesia* spp. with *Theileria* spp.

In the present study *Rhipicephalus evertsi* is found to be the superior (72.84%) among goat ticks in Somalia (**Plate 2**), followed by *Rhipicephalus pulchellus* (34.57%), *Amblyomma lepidum* (03.70%) and *Hyalomma rufipes* (01.23%). This may reflect the high prevalence of TBDs reported in these goats. Similar tick species were identified in East Africa [1].

4. Acknowledgements

We are grateful to acknowledge *Abdullah Abukar Hassan (Afgooye)* for his dynamic guidance and sympathetic attitude during this study. We would like to thank *Prof.*

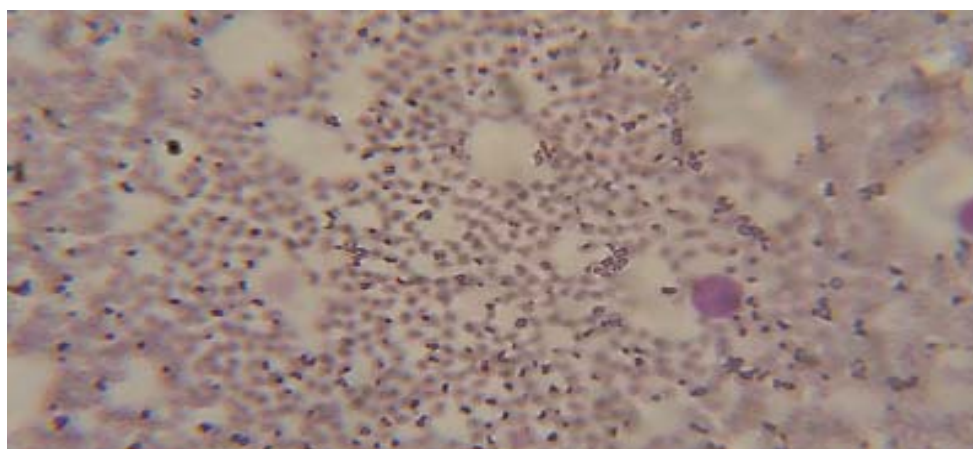


Plate 1. Somali goat blood smear showing hyper-parasitaemia of Piroplasms.

Table 2. Analysis of stained blood smears.

Piroplasms \ Area	Dharkeynley (n = 53)	Wadajir (n = 47)	Total Prevalence
<i>Babesia</i> spp.	7 (13.21%)	15 (31.91%)	22 (22%)
<i>Theileria</i> spp.	9 (16.98%)	5 (10.64%)	14 (14%)
Mix infection	37 (69.81%)	27 (57.45%)	64 (64%)
Overall prevalence	53 (100%)	47 (100%)	100 (100%)



(a)



(b)



(c)



(d)

Plate 2. Ticks identified from Somali goats in Benadir area. (a) *Rhipicephalus evertsi*; (b) *Rhipicephalus pulchellus*; (c) *Amblyomma lepidum*; (d) *Hyalomma rufipes*.

Ahmed A. Ismail, SUST and VRI for their technical support.

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