

SURVEY ON PREVALENCE OF ANAPLASMOSIS IN SMALL RUMINANT AT OYO STATE COLLEGE OF AGRICULTURE AND TECHNOLOGY, IGBOORA.

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ABSTRACT

A study was undertaken to determine the prevalence of *Anaplasma* infection in goat and sheep unit of Oyo State College of Agriculture and Technology Training and Research Farm Igboora. Prior to this time health of the animals under study have been affected with clinical signs such as weakness, anorexia, dehydration, anaemia most especially in sheep with reduction in weight. 82 samples were collected from sheep and goat (46 from goat and 35 from sheep respectively). Blood smears were made and subjected to Giemsa stain and examined under light microscope. Out of 46 samples smear from goat 11 were positive for anaplasmosis with the percentage of 23.4, while in sheep out of 35 samples smear 9 were positive for anaplasmosis with percentage of 25. With this rate of infection, it is certain that anaplasmosis is evident in the farm under study which calls for urgent action. Therefore, appropriate measures to control the tick population and the prophylaxis treatment should also be instituted before onset of raining season.

Keyword: Anaplasmosis, Prevalence, Giemsa stained, Infection, Microscope

INTRODUCTION

Anaplasma is a rickettsia organism, microscopic, belonging to the *Anaplasmatadaceae* family. They are among the obligate parasites that reside in cells most especially in red blood cells. This organism is responsible for animal and human anaplasmosis which is worldwide in distribution. The incidence is highly common in tropic and sub-tropic regions of the world (Renniker *et al.*, 2013). The incidence of this parasitic infection is connected with tick bite and other mechanical means by biting insect, needles and other instruments (Doosa, 2015). Anaplasmosis infection is not contagious, but it leads to great economic losses such as loss in weight and production losses most especially when the infected animals are subjected to stress conditions (Matsunmoto *et al.*, 2006). Other signs of anaplasmosis include: progressive hemolytic anaemia, weakness, anorexia, constipation, dehydration, jaundice, laboured breathing and depression (Ola - Fadunsin *et al.*, 2018). Rymaszewska and Grenda (2008) also reported of abortion and fatality. Species of anaplasmosis that is responsible for *Ovine* and *Caprine* is *Anaplasma ovis* others are *Anaplasma marginalis* and *Anaplasma phagocytophilum* (Yasini *et al.*, 2012). Another species of *Anaplasma* was isolated from sheep and goat in Netherlands and it appears more pathogenic in sheep than goat and non-infective to cattle than *Anaplasma ovis* called *Anaplasma mesaeterum*. *Anaplasma ovis* was first discovered in Africa in 1912 as reported by (Friedhoff, 1997) then *Anaplasma caprine* in North America, China, Turkey, and Iran (Hashmi, 1997). The objective of this study was to determine the presence and prevalence of the organism in question (*Anaplasma*) in the college farm due to some ill health being encountered in the flock of the small ruminants.

MATERIALS AND METHODS

The study was carried out at the goat and sheep unit of Teaching and Research Farm, Oyo State College of Agriculture and Technology, Igbo-ora, Ibarapa central local government area of Oyo state of Nigeria. The study area lies within latitude 7° 24' 45" - 7° 26' 45" N and longitude 03° 16' 30" - 03° 18' 45" E with an average rainfall of 1278mm and average annual temperature of 27°C (Google Earth, 2020).

Sample collection

The breed of animals used for this experiment is West Africa dwarf, reared under semi intensive system. A total of 82 blood samples were collected from goats (35) and sheep (47) consisting of males and females. 5mls of blood was collected from each animal from the jugular vein into sample bottle containing 1mg of ethylene diaminetetra-acetic acid (EDTA). The samples were then transported with icepacks at 4°C to laboratory for screening.

Laboratory examination

Thin blood films were prepared from non-coagulated blood using standard protocols as documented by (Taylor *et al.*, 2000) with few modifications. a drop of blood was placed on one end of a clean, grease-free glass slide and made into a thin film using a spreader (a clean glass slide) the prepared thin films were then air-dried, fixed in methanol for 5 min, and stained in freshly prepared 10% Giemsa stain for approximately 25 min. next, the stained films were rinsed in buffered water and allowed to dry the smears were examined using an Olympus microscope (Germany) at 1000× (oil immersion) for the presence and identification of *Anaplasma* parasites.

Table 1: Showing animal status to *Anaplasma* screening.

Parameters	Goat	Sheep	Total (Goat and Sheep)
Total Screened	47.00	35.00	82.00
Number Positive	11.00	09.00	20.00
Number Negative	36.00	26.00	62.00
Positive (%)	23.40	25.00	24.39

Results and discussion

Small ruminant production plays a major role in the rural agrarian economy of the nation. Goats and sheep contribute more than 52% of household's total income towards nutrition and food security of the family of goat keepers. Anaplasmosis is one of the major parasitic disease affecting the health and productive performance of small ruminants most especially sheep and goat (Adejimi *et al.*, 2004). Result of this study shows that small ruminant in Oyo State College of Agriculture and Technology Research and Training Farm are positive to *Anaplasma* infection. 82 animals were screened for this research work in which 20 were positive to anaplasmosis which is 24.39%. The table above shows goat and sheep status to the *Anaplasma* screening. From the result gotten in sheep screening, it could be seen that 9 samples were positive to *Anaplasma* screening out of 35 Sheep samples which is equivalent to 25.71% infectivity which is in line with Arunkamar (2014) who recorded 26.15% after screening sheep for presence of *Anaplasma* infection. However, the findings of this research work was in contrary to the result of Egbe-Nwiyi *et al.*, (2018) who confirmed anaplasma in sheep to be 5% rate of infection. For goat, it could be seen that out of 47 samples screened for *Anaplasma* 11 samples were positive which is equivalent to 23.40% infectivity. This result is in line with Anyanwu *et al.*, (2016) and Rajasokkappan and Salvarraju 2016 who recorded 20.7% and 26.15% respectively from goat in Nassarawa State of Nigeria. At the same time Jatu *et al.*, (2011) and Arunkama (2014) reported as lower as 11.34% and 9.2% respectfully from their work. Amina *et al.*, 2019 also recorded 9.2% of *Anaplasma* in their own work which was carried out among goats reared by Fulani hardsmen in Maduguri Borno State Nigeria. In this research it could be seen that both sheep and goat have almost the same rate of infection. The high rate of infection could be due to high tick population in the study area.

Conclusion and Recommendation

Based on this study, anaplasmosis is prevalent in goats and sheep being reared in, Oyo State College of Agriculture and Technology, Igbo-ora. It is one of the major constraints for fast growing small ruminant industry. Hence, stake holders should take appropriate measures to control the tick population and also institute the chemoprophylactic measures before onset of raining season, control of tick population should also be work upon. Further research work should be carried out on *caprine* and *ovine* anaplasmosis in this region to confirm the species that is responsible for the infection.

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