

## Epidemiological Survey Of Emeriosis In Dromedary Camel Reared At Semi-Arid Region Of Borno State Nigeria.

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### ABSTRACT

A survey was conducted to determine the epidemiological studies and intensity of *Eimeria* species infecting camels in semi Arid region of Borno state, Nigeria. A total of 100 camels were examined, of which 29 (29%) were infected, with a total oocysts burden of 308. The common species of oocysts were *Eimeria dromedarii* 158 (51.3%), *Eimeriacameli* 77(25.0%) and *Eimeria rajasthani* 73 (23.7%). Of the 35 males examined 8(22.9%) were infected with a oocysts burden of 108(35.1%) compared to the 65 females examined 21(32.3) infected and a oocysts burden of 200 (64.9%) however, there was no statistical significant difference infection between sexes ( $P > 0.05$ ). Epidemiological studies base on the age of the camels examined showed that the group of >12 months had 27(29.6%) with an oocysts burden of 300(97.4%) while camels < 12 months had 2 (22.2%)with an oocysts burden of 8 (2.6%) ( $P > 0.05$ ). The result of this study show the significance of oocysts camel production in this semi arid region of Borno state, Nigeria.

**Key Words:** - Eimeriasis, Epidemiological studies dromedary camel, semi arid region of Borno state, Nigeria.

### INTRODUCTION

Camel with a global population of 17.44 million and increasing at a rate of 1.62% annually (1), the camel, an origin of North America about forty (40) million years ago (2) due to migration have now adapted to many tropical region of the world especially the arid and hot areas of desert. In Nigeria with total population of 87,839 (3). It serves as a means of transport and food in terms of milk and meat in Africa, Middle East, and Asia (4, 5). Livestock production constitutes an important component of agricultural economy in developing countries and it is instrument to socio economic change, improved income and quality of rural life in Nigeria (Okumadewa, 1999) (6). It has been reported that most Nigerian diet are deficient in animal protein which result increase in spread of diseases and consequently death (F.G.N/ UNICEF; 1994 Apantaku et al.1998; (7)). It has also been reported that, several parasitic condition such as trypanosomiasis (8) and hydatidosis (11) Apart from preliminary studies

on parasitic disease of camels in this study area (9, 10).

## MATERIALS AND METHODS

A total of 100 faecal sample were randomly collected from camel reared at semi-Arid region of Borno State, using disposal hand gloves. The faecal sample were incubated separately in Petri dishes at room temperature. Subsequently, faecal sample were meshed using pestle and mortar, which was inserted into a Petri dish containing 2.4% potassium dichromide to sterile and eliminate organism that will compete with oocysts for oxygen and nutrition. Subsequently, the samples were left for 24-48 hours to allow unsporulated oocysts to sporulate. Little saturated salt solution was added to the faecal sample, then filter the solution into a cup and transferred into floatation bottle until meniscus was formed. Then, the lid of the floatation bottle was cover using clean grease free cover slip and left for 5-10 minutes to allow oocyst to adhere to the surface of the cover slip. Then, the cover slip was placed especially on a clean glass slide and examined microscopically for their morphological size and color.

## RESULTS

An epidemiological study to identify and determine the *Eimeria* oocysts infecting 100 camels revealed on overall incidence of 29(29%), with a total oocyst burden of 308. The common *Eimeria* oocysts harvested were *Eimeria*

*dromedarii* 158(51.3%), *Eimeria cameli* 77 (25.0%), and *Eimeria rajasthanana* 73(23.7%) as shown in (Table1). Table 2 shows the incidence of oocysts species based on the sex and age of camels examined. Of the 35 males and 65 females examined, the incidence was 8(22.89%) and 21(32.3%) respectively. There was no significant ( $P>0.05$ ) difference between incidence and sex, with oocysts burdens of 108(35.1%) and 200(64.9%) for males and females respectively ( $P>0.05$ ). Also age groups of >12 months had 27(29.6%) with anoocysts burden of 300(97.4%), while camels <12 months had incidence of 2(22.2%) with an oocyst burden of 8(2.6%). *Eimeria* Species distribution/burden based on the sex and age of the camels examined is presented in Table3. *Eimeria rajasthanana* were more evenly distributed among both sexes and age-groups with 2(50%) and 7(33.3%) incidence among males and females, 7(25.9%) and 1(50.0%) among >12 and <12 months' age groups respectively.

## DISCUSSION

The study has revealed an incidence of 29% for Eimeriasis in camels reared at semi arid Region of Borno State, Nigeria. The high incidence could be attributed to the husbandry practice (nomadism) in this region.

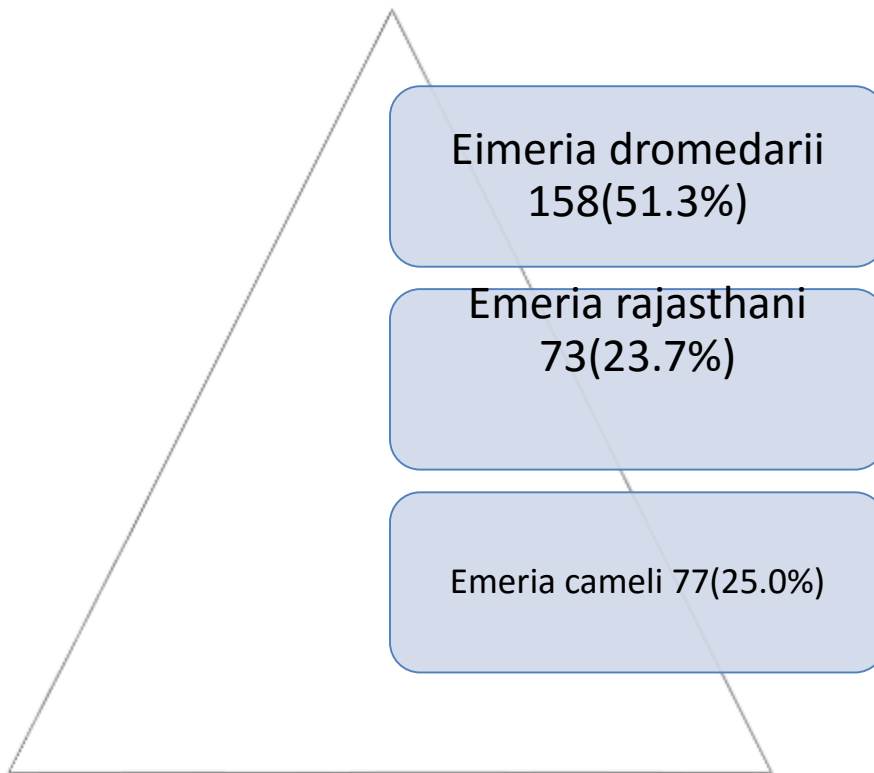
The finding of more (though non-significant) incidence of infection in adults than the young camels reflects the finding that a good immunity develops with increases in age only in cattle

where outbreaks are confined to young stock, but adults continue to harbor low burden of adult parasites.

It has been reported (Anwar, 1987) (12) that gastro intestinal parasites Eimeriasis is one of the major health problems of camels which need special attention to save the already people from poverty who are the main camel keepers in semi-arid Region of Borno State.

Conclusively, the insufficiency of veterinary attention to the Fulani-nomads exposes their animals to parasites, hazards with a declination of livestock production in general. Thus, alternatives are proffered such that, for this purpose, it is suggested that camel centers be established in the region to look after the health, management and breeding aspects of the camels, physiology, veterinary care and responses to new climates (Mason, 2004), (13).

**Table 1:** Epidemiological studies of Eimeria species found in in dromedary camel of semi-arid region of Borno state.



**Table 2:** prevalence of Eimeria species harvested based on sex and age of camels.

	Total examined	No.(%) infected	Oocysts burden harvested (%)	Relative Rock	95 confident interval (%)
Over all	100	29	308		
Sex:					
Male	35	8(22.9)	108(35.11)	0.7188	0.45-1.14
Female	65	21(32.3)	200(64.4)	1.391	0.88-2.20
Age:					
>12	91	27(29.7)	300(97.4)	1.364	0.85-2.19
<12	9	2(22.2)	8(2.6)	0.7333	0.46-1.18

**Fisher's** exact test with two- sided p-value

**Age:** P= 0.2590 not significant

**Sex:** P= 0.2050 not significant.

	No. (%) Infected M	No. (%) Infected F	Parasite Age		No. (%) oocysts examined
			>12 Month	<12 Month	
Eimeria dromedarii	1 (25%)	7(33.3%)	6(22.22%)	1(50.0%)	158(51.3)
Eimeria rajasthani	2(50%)	7(33.3%)	7(25.9%)	1(50.0%)	73(23.7%)
Eimeria cameli	3(50%)	4(33.4%)	6(52.69%)	0(0.0%)	77(25%)
Overall					<b>308</b>

**Table 3:** Relative Frequency of occurrence of Eimeria species in relation to sex and age of camels.

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