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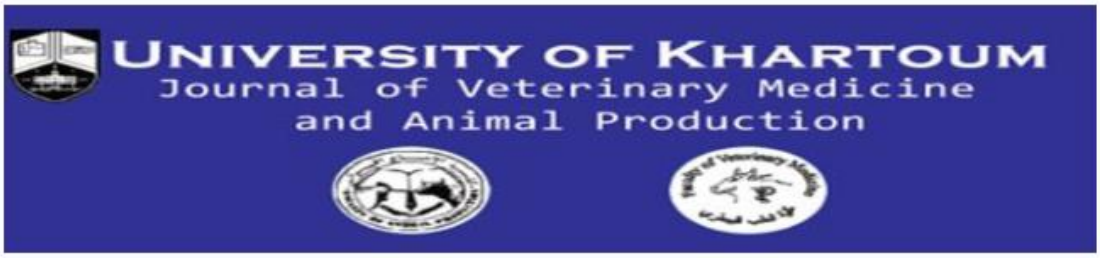

Seroprevalence of Toxoplasma gondii in Camels in Tamboul area, Sudan

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Introduction

The importance of meat in the diet is that it is Toxoplasma gondii is an obligate intracellular protozoan parasite that infects almost all blooded-animals and man (Dubey *et al*., 2013). The definitive host is cat and the intermediate hosts are mammals and birds (Dubey, 2004). The source of transmission is the ingestion of food contaminated by cat faces, raw or undercooked meat. In Sudan, many people consume raw, uncooked camel livers. Also, camel herders are accustomed to drink raw, unboiled camel milk. Despite such risk factors,

investigations on toxoplasmosis in camels are rather limited (Zain El-Din *et. al*., 1985; Elamin *et al.*, 1992 and Ibrahim, 2015). The present study was carried out in 2017 to determine the seropositivity of anti-Toxoplasma antibodies in camels in Tamboul which is one of the largest camel markets in Sudan.

Blood samples were collected from 150 camels (83 females and 76 males). The age of camels ranged from 1 to 9 and > 9 years. The blood (5ml) samples were collected in clean tubes and left for one hour for clotting to occur before transport to Tamboul Veterinary Laboratory where they were centrifuged at 3000 rpm for 5 minutes. Sera were collected and stored at – 20C°. 50 ul from each serum sample was drawn and added to 25 ul latex reagent (Latex Agglutination test) on clean slide .The slides were shaken gently , allowed to stand for 4 min. and examined visually for agglutination.

The results showed that out of 150 camels examined for anti-Toxoplamsa antibodies, 47 (31.3%) were found to be seropositive. The seropositivity in males and females were 29.8% and 32.4% respectively (Table 1).

The seropositive percentages in 1-4 years group was 30.5% in 5 – 8 years group was 34.0% and in those over 9 years old was 23.0% (Table 2).

Table 1: Seroprevalence of *Toxoplasma* antibodies in camels in relation to sex

Sex	No. examined	Positive (%)	Negative (%)
Males	67	20(29.8%)	47(70.2%)
Females	83	27(32.4%)	56(67.6%)

Table 2: Seroprevalence of *Toxoplasma* antibodies in camels in relation to their age

Age	No. examined	Positive (%)	Negative (%)
1 – 4 years	85	26(30.5%)	59(69.5%)
5 – 8 years	52	18(34.6%)	34(55.4%)
9 - >	13	3(23.0%)	10(77.0%)

The results obtained revealed 31.3% as overall seroprevalence of Toxoplasma-antibodies in camels in Tamboul. This rate seems to be moderate when compared with the percentages reported by Elamin *et al.* (1992) and Zain El-Din et.al.(1985) which were 67% and 56% respectively; and lower than that reported by Bornstein and Musa (1987) and Abbas *et al.* (1987) which were 22.5% and 12.0% respectively. Despite the differences in the techniques used and locations, they all revealed marked seropositivity. Such findings clearly indicate that toxoplasmis is highly prevalent in camels in Sudan. The differences in prevalence rates among the various studies may be due to the variations in the management systems, sensitivity of the adopted tests and/or the degree of exposure to infection. In explaining acquisition of camels to infection, Zain El-Din *et al.* (1985) suggested that wild felidae and rodents may act as source of infection since the domestic cat is not usually present in remote nomadic pastural areas. The prevalence rates in males and females were similar which indicate that it is not linked with sex. Such results are in agreement with those reported by Elamin *et al.* (1992). As far as age is concerned , the seropositive percentages in all age groups were similar. Although camels over 9 years had slightly higher rate, their small number did not allow deduction of rational remarks. In conclusion, the prevalence of anti-Toxoplasma antibodies in camels in Tamboul is high and that it has no bearing to age not sex.

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