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Serum glucose, albumin and total protein levels in camels infected with *Trypanosoma evansi* in Nyala area

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Trypanosomosis caused by *Trypanosoma evansi* constitutes serious and economically important infections in camels in Sudan and elsewhere. The parasite is transmitted by biting flies such as *Tabanus* and *Stomoxys* spp. which are widely distributed in Sudan. Investigations on the disease which started early as 1905 had been compiled in a bibliography entitled "The one-humped camel (*Camelus dromedaries*) in the Sudan" by A/Majid (2000). Despite these many studies reports on biochemical changes induced by *T. evansi* in camels are unavailable. This study is therefore intended to investigate changes of some serum elements in camels due to *T. evansi* infection in Nyala area (South-Darfur state).

Screening of 350 camels by blood smears, card agglutination test and PCR revealed that 126 were positive and 214 were negative. Blood samples were obtained from both groups and oozing sera was preserved in deep freezer (-20) at the Department of Parasitology, Nyala University. Serum glucose was measured by enzymatic (GOD-PAP) colorimetric method and albumin was measured by bromocresol green (BCG) colorimetric method. The total protein was determined by colorimetric method described Lowry *et al.* (1951) Lowry *et al.* (1951) and Brad -Ford (1976) . The data were analyzed by SPSS software ver. 22 with independent Student's t-test.

The results showed decrease in concentration of serum glucose in the infected camels when compared to non-infected camels (Table 1). The decrease was statistically significant ($P< 0.01$), such results were found to be in agreement with those of Raisinghani and Lodha (1989) in *T. evans* infected camels and to the levels obtained by Yahia (1971) in the effect of dehydration on a camel. Anosa (1988) attributed that to the excessive utilization of blood glucose by the parasite for their metabolism.

The results obtained also showed that there was no significant difference in serum albumin and total protein among infected and non-infected camels. These results were not in line with these obtained by Orhue *et al.* (2005) who showed decrease serum albumin in rabbits infected with *trypanosoma brucei* and Gutiours *et al*. (2006)

Table 1: The means and P values of glucose, total protein and albumin in infected and non-infected camels

Parameters	Measure unit	Infected camels (n=126)	Non-infected camels.(n=224)	P. value
Glucose	mmol/L	2.5±0.37	3.40±0.12	0.01
Albumin	g/dl	3.70±0.14	3.72±0.05	0.16
Total protein	g/dl	7.36±0.18	7.44±0.08	0.10

who showed increase in such element in camels buffalo calves infected with *T. evans*. These results contradicted with those of Gutiours *et al*. differences in the nature of infection in both trials. As in this case the camels were naturally infected and the parasteamia was low while in Gutiour's study, the camels were experimentally infected and the parasite level was high.

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(2006) who showed increase in such elements in camels and buffalo calves infected with *T. evansi*. Such difference may be attributed to

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