Utilization of Crude and Recombinant ELISAs for Serodiagnosis of Camel Trypanosomosis in Sudan

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ABSTRACT

A serum-based epidemiological study using ELISA and Card Agglutination Test (CATT/*T. evansi*) was performed to update the seroprevalence of camel trypanosomosis and to evaluate the application of crude and recombinant antigen ELISAs. The advantage of TeGM6 antigen is that it is 100% identical to *T. b. brucei*GM6 and is highly conserved among salivarian trypanosomes. Therefore it might be useful in the detection of *Trypanozoon*, *T. congolense* and *T. vivax*. One hundred and eighty-nine blood samples were obtained from camels in different herds (148 samples) and local markets in the western part of Sudan(148 samples).ELISA was performed using *T. evansi*crude antigen and *T. evansi* recombinant antigen GM6 (rTeGM6-4r). Protein A was used as secondary antibody, while CATT/*T. evansi* was used as a control test. This resulted in varying degree of prevalence depending on the technique used as follows; CATT/*T. evansi* 39% (73/189), crude antigen ELISA 39% (73/189) and rTeGM6-4r ELISA 62% (118/189). Kappa value of rTeGM6-4r was 0.369 indicating a fair agreement with sensitivity of 54.24% and specificity 87.32%, while Kappa value of crude antigen was 0.7991 indicating a substantial agreement with sensitivity of 87.67% and specificity 92.24%. In conclusion, we found that camel trypanosomosis is highly endemic in camels in Sudan and that the rTeGM6-4r ELISA assays applied in this study has detected a higher number of positive samples confirming that it is not species-specific and could be used as a universal diagnostic antigen that can detect salivariantrypanosomes including *T. evansi* and *T. vivax* . Moreover, crude antigen was efficient for application in the serodiagnosis of camel trypanosomosis caused by *T. evansi*.

Keywords: *dromedary camels, ELISA, serodiagnosis, Sudan, surra, trypanosomosis*