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Comparative Evaluation of Rose Bengal Plate Test and Serum Agglutination Test in Diagnosis of Brucella Infection in Camels in Khartoum State, Sudan

[1]Elamir Gafar Saad Mohamed, [2]Enaam Mohamed El Sanousi, [3]Abdelhamid Ahmed Mohamed Elfadil

[1]Minstry of Animal Resources

[2]Faculty of Veterinart Medicine, University of Khartoum

[3]College of Vetrinary Medicine, Sudan University of Science and Technology

ABSTRACT

Camel brucellosis is an infectious and contagious disease usually caused by *Brucella abortus* and *Brucella melitensis.* Brucellosis is a major zoonosis with an important economic and public health impact, habitual consumption of raw milk, raw liver and close contact with infected animals signifies possible important threat of this disease in the study area. The main bovine serological tests used for diagnosis of camel brucellosis are not validated for use in camels yet, as approved by the World Organization for Animal Health (OIE). A Prospective study was established during 2012-2014 in Khartoum State to identify the health status of camel herds in basis of infection with brucellosis. From the total camel herding in the State 415 camels were selected randomly for serological testing. The investigation of brucellosis in camels was done by Rose Bengal Plate Test (RBPT) and Serum Agglutination Test (SAT). Twenty-four samples tested positive giving an individual animal prevalence rate of 5.8%. All RBPT positive reactors were further tested by SAT which confirmed 21 seropositive cases out of 24 RBPT reactors (87. 5%). The RBPT degrees of agglutination were recorded as weak positive (+1), positive (+2), strong positive (+3) or very strong positive (+4). All RBPT agglutinations above +1 were found positive by SAT except for three samples. SAT titers were distributed between the interpretation of 1/20 (20.5 IU) and 1/320 (410.5 IU). RBPT agglutinations and SAT titers showed strong positive linear relationship with correlation coefficient (r) = 1 which indicated Perfect Positive Association. Statistically the strength of agreement (Kappa) between RBPT and SAT was 93% which considered being very good. On determining the sensitivity of the two tests it was found to be 100% and 87.5% for RBPT and SAT, respectively. The specificities were 99.2% for the RBPT and 100% for the SAT. Further comparative studies between different serological tests are required to optimize serological diagnosis for camel brucellosis. The prevalence situation of brucellosis in other ruminants should be determined to be used in formulation of integrated control strategy of this disease in the Sudan.
Keywords: *camels, brucellosis, serological tests, RBPT, SAT, Khartoum state.*