BRUCELLA ANTIBODIES IN SUDANESE CAMELS

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SUMMARY

Sera of 740 camels of both sexes from three regions of Sudan were tested for antibodies to Brucella abortus. The overall incidence of antibodies was 4.9%. The highest positive number of samples (7.5%) was from the Eastern Region followed by Darfur Region (3.1%) and the Central Region (2.0%). Brucella antibodies were as frequent in males (5.6%) as females (4.5%).

INTRODUCTION

The camel population of Sudan estimated to be 2.7 million (Watson, Tippett, Rizk, Jolly, Beckett, Scholes and Casbon, 1977) is mainly confined to the poor savannah and semi-desert zone between latitudes 12° and 20° north. Nearly all camels are kept by nomads under traditional methods of husbandry. The camel is a meat, milk and wool source for many tribes in the northern part of Sudan and its export for meat contributes substantially to the national economy. Brucella infection in camels has been reported from the USSR (Tuci, 1939), Egypt (Zaki, 1948), Ethiopia (Domenech, 1977), Nigeria (Okoh, 1979) and Saudi Arabia (Radwan, Asmar, Frerichs, Bekairi and Al-Mukayel, 1983) and a survey has been conducted in eastern Sudan (Mustafa and Awad Elkarim, 1971). Complaints by camel owners of abortions in camels early in the rainy season and a growing awareness of Brucella infection in humans in Sudan have increased interest in Brucella infection in camels. This report supplies data on the presence of antibodies to Brucella abortus in camels in the Eastern, Central and Western Regions of Sudan.

MATERIALS AND METHODS

Jugular blood samples were collected from 740 slaughter camels of both sexes ranging in age from four to 15 years. These animals were slaughtered at Gedaref in the Eastern Region, Tomboul, Hudeiba, Rufa’a and Omshanig in the Central Region and El Fasher in Darfur Region (western Sudan). The blood was allowed to clot and the serum poured off and clarified by centrifugation at 3,000 rev/min for 10 min. The serum was stored at -20°C and tested within one month of collection.

Serum samples were tested by the Rose Bengal Plate (RBP) test, serum agglutination (SA) test and complement fixation (CF) test as described by Morgan, MacKinnon, Gill, Gower and Norris (1978). Br. abortus strain 99 provided by the CVL, Weybridge, England was used for antigen preparation and standardisation by methods provided by the Weybridge Laboratory. The titres were converted to international units.

RESULTS

Table I shows that Brucella antibodies detectable in RBP, SA and CF tests were present in camel sera in the three regions surveyed. Of the 740 sera tested 36 (4.9%) were positive in all three tests. All of the positive sera had titres greater than 80 iu in the CF test and 15.5 iu in the SA test. Six sera which were contaminated with bacteria
and reacted in the RBP test but were negative in the other two tests were discarded. The Eastern Region shows the highest positive number of samples (7.5%), followed by Darfur Region (3.1%) and Central Region (2.0%). Table I shows that the incidence of antibody in males (4.6%) was not appreciably different from that in females (5.6%). Fig. 1 shows the distribution of titres in the SA and CF tests. In the

![Figure 1](image)

**FIG. 1.** Distribution of positive titres in the complement fixation and serum agglutination tests.