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The Arabian Camel (Camelus dromedarius) as a Major Reservoir of Q Fever in Saudi Arabia

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Abstract : Serum samples from 489 male and female camels were tested for antibodies against C. burnetii using indirect enzyme-linked immunosorbent assay (ELISA). Antibodies to C. burnetii were recorded in sera of 252 (51.64%) camels. Significant differences in prevalence were found between male and female camels, juvenile and adult camels, different ecotypes and different sampling locations. 307 camels were simultaneously tested for C. burnetii antibodies by ELISA and indirect immunofluorescence (IFA). Close agreement was found between the results of the two tests. A high prevalence of C. burnetii antibodies was also recorded in milk samples tested by ELISA. Clinical samples from serologically positive camels were subjected to PCR analysis using primers which amplify the repetitive transposon-like and transposase gene regions of C. burnetii. Positive DNA amplification was obtained from both regions, with highest shedding of C. burnetii in faecal samples (27.59%) followed, in descending order, by urine (23.81%), blood (15.85%) and milk (6.5%). The present results indicate that camels are a major reservoir of C. burnetii in Saudi Arabia. The high prevalence of infection in camels, the poor sanitary standards under which the animals are kept and the consumption of raw camel milk indicate that camels could also be a major source of transmission of Q fever to humans in Saudi Arabia.

Keywords : Arabian camel, Camelus dromedarius, Coxiella brunetii, ELISA, immunofluoresence, PCR
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