

Investigating the status of *Brucella melitensis* contamination and comparing different molecular and non-molecular diagnosis methods in one of Kennel dogs in suburb of Tehran- Iran

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Abstract

Brucellosis caused by *Brucella melitensis* is one of the important health and economic diseases in Iran is very important to pay attention to it as a zoonotic disease. The aim of the study was to investigate *B. melitensis* infection in a kennel dog and also to compare different laboratory methods to diagnose *Brucella melitensis* infection in dogs. In this study, the whole blood samples (for PCR and culture), vaginal swabs samples (for PCR tests) and serum samples (for Rose Bengal, Wright and 2 mercaptoethanol tests) were obtained from 14 bitches at a kennel, in which a bitch had been aborted due to *Brucella melitensis* infection. Also, the whole blood sample and semen sample were obtained from the only male dog of this kennel for PCR test. Finally, the data obtained from these tests were analyzed by calculating the sensitivity and specificity as well as the Kappa coefficient. Bacteriological culture results of all blood samples were negative. The PCR results of seven blood samples (%50) and eight vaginal swab samples (%57.1) obtained from 14 bitches were positive. By using PCR primers, *B. melitensis* were identified in all positive samples. In the serological test, out of 14 sera obtained from bitches for the Rose Bengal screening test, eight positive samples were observed, but only one positive sample was observed in Wright and 2 mercaptoethanol tests. The results showed that the sensitivity and specificity of PCR test in vaginal swab samples was 100% and there is an excellent performance (kappa coefficient = 1) between the results of the Rose Bengal test and PCR of vaginal swab samples in the diagnosis of *Brucella melitensis* in dogs. In dogs suspected of brucellosis, at first it is recommended to take a sample of the animal's blood to perform the Rose Bengal test, and if the result is positive, to confirm the diagnosis and to determine the strain of *Brucella*, then a vaginal swab sample should be taken to perform the PCR test.

Key words: *Brucella melitensis*, Dog, Serology, PCR, Brucellosis

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