Simultaneous Detection of Brucella abortus and Brucella melitensis in Human Blood Samples by Multiplex PCR

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Background & Objectives: There are several methods to detect Brucella spp. from clinical samples, but most of these methods do not have the power of rapid and simultaneous detection of Brucella species from clinical samples. This study was designed to evaluate rapid and simultaneous detection of *Brucella abortus*, *Brucella melitensis* in human blood samples through the Multiplex PCR Methods.

Methods: Human blood samples were collected from 52 patients. Following DNA extraction, PCR assay were performed, using three primers that could simultaneously identify and differentiate two major species of pathogenic Brucella in humans and animals. These primer set, amplified a 494 bp fragment (*B. abortus*) and 733 bp fragment (*B. melitensis*). Finally, to confirm PCR products, In addition to the products sequence, RFLP was performed on PCR products using restriction enzymes.

Results: of the 52 blood samples tested, 25 sample (48%) showed positive reactions in multiplex-PCR. Twelve samples were positive for *B. abortus* (48%) and 13 for *B. melitensis* (52%).

Conclusion: In case where specific primers were utilized, multiplex-PCR has proved to be a simple, fast, and relatively inexpensive Methods for simultaneous detection of all three clinically important Brucella spp.

Keywords: *Brucella abortus*; *Brucella melitensis*; Multiplex PCR