

## 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