A CASE STUDY

eryC-5’ nuclease PCR: differentiating wild *Brucella* strains from vaccine strain S19

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ABSTRACT...... Brucellosis is a zoonotic disease caused by the bacteria of the genus *Brucella* that produce infections leading to abortion and infertility, and recurrent fevers in humans. The disease is endemic in many areas of the world. Thus, we designed a TaqMan-based 5’ nuclease-real-time PCR for molecular diagnosis by targeting the 702bp deleted sequence of eryC gene from *B. abortus* S19 that allowed the specific quantitative detection of *Brucella* wild strains but not the vaccine strain *B. abortus* S19. The ery C gene which encodes the enzyme d-erythulose-1-phosphate dehydrogenase that plays an important role in the erythritol metabolism. This carbohydrate promotes the growth of some strains and is present in the placenta. The assay proved to be 100 per cent specific, as determined with *Brucella* isolates and reference *Brucella* strains, and highly sensitive with excellent linearity and PCR efficiency. When implemented on blood samples, the real time PCR assay detected higher proportion (80%) of positive samples than conventional bscp31 PCR (70%) and i-ELISA (65%).

KEYWORDS...... *Brucella* spp., Vaccine strain *B. abortus* S19, ery C locus, 5’ Nuclease PCR


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