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A CASE STUDY .....

*ery*C-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 *ery*C 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-*ery*thrulose-1-phosphate dehydrogenase that plays an important role in the *ery* thritol 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 bcsp31 PCR (70%) and i-ELISA (65%).

KEY WORDS..... *Brucella* spp., Vaccine strain B. *abortus* S19, *ery C* locus, 5' Nuclease PCR

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