

# Characterization of *Brucella* spp., and other abortigenic pathogens from aborted tissues of cattle and goats in Rwanda

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April 16, 2024

## Abstract

This study aimed to characterize *Brucella* spp., and other abortigenic pathogens from aborted tissues of cattle from five selected districts of Rwanda. For cattle, aborted tissues (n=19) were collected, cultured, and *Brucella* spp. were detected using genus-specific 16S-23S ribosomal DNA interspacer region (ITS) assay and further speciated using AMOS and Bruce-ladder PCR assays. *Brucella* negative samples were screened using eight abortion pathogens PCR panel ( *Anaplasma phagocytophilum*, *Bovine Herpesvirus 4*, *Campylobacter fetus*, *Chlamydophila* spp., *Coxiella burnetti*, *Leptospira* spp., *Listeria monocytogenes*, and *Salmonella* spp.). samples from an abortion outbreak that occurred within a goat tribe in the Nyagatare district were included in this investigation. Sera of females (n=8), and males (n=2) were analysed using the Rose Bengal Test (RBT), and indirect enzyme-linked immunosorbent assay (i-ELISA), while vaginal swabs (n=3), and aborted tissues (n=1) were cultured and characterized. The ITS-PCR detected *Brucella* DNA in cultures from two aborted tissues of cattle [10.5%, (2/19)] which were identified as *B. melitensis* (n=1), and *B. abortus* (n=1) using AMOS and Bruce-ladder PCR assays. *Campylobacter fetus* (n=7) and *Leptospira* spp. (n=4) including co-infections (n=2) of *C. fetus* and *Leptospira* spp. were identified with the PCR panel from the *Brucella* negative samples of cattle. Goats (100.0%, 10/10) were brucellosis seropositive on RBT and i-ELISA. Mixed infections caused by *B. melitensis* and *B. abortus* were isolated from the vaginal swabs (n=3) and aborted tissues (n=1). The isolation of both *B. abortus* and *B. melitensis* indicated cross-infections and mixed livestock farming in Rwanda. This is the first identification of abortion-associated pathogens ( *B. abortus*, *B. melitensis*, *C. fetus*, and *Leptospira* spp.) in aborted cattle samples in Rwanda indicating the enormous financial losses to cattle owners and a threat to public health. It is therefore essential to include these identified pathogens in the surveillance scheme of veterinary and human services, and raise the awareness of caretakers, abattoir workers, and laboratory personnel.

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