

Development of an in-house Rose Bengal plate test for diagnosis of brucellosis in goat

ABSTRACT

Brucellosis, caused by *Brucella melitensis*, is a significant problem for both public and animal health worldwide. The Rose Bengal plate test (RBPT) antigen from *Brucella melitensis* local isolates were developed in this study. The performance of the assay was investigated using serum samples collected from goats. A total of 1063 serum samples obtained from goats were examined for the presence of antibodies against *Brucella* by in-house RBPT (LRBPT), commercial RBPT (Veterinary Laboratory Agency ó VLA, UK) and Complement Fixation test (CFT). The sensitivity and specificity was calculated using CFT as the gold standard. Out of 1063 goats sera analyzed 364 (34.24%), 335 (31.51%), and 373 (35.08%) were found to be positive by LRBPT, commercial RBPT and CFT, respectively. The sensitivity calculated for the LRBPT, was 90.1% compared to commercial RBPT 85.0%. However, the specificity of the LRBPT was lower (95.9%), than the commercial RBPT (97.4%). Furthermore the LRBPT has better value of NPV (94.7%) than commercial RBPT NPV (92.3%). While the PPV, of the commercial RBPT is higher (94.6%) than LRBPT (92.3%) respectively. High sensitive and low cost LRBPT compared to cRBPT *B. melitensis* RBPT test was successfully developed in this present study. Therefore it was concluded that this diagnostic test kit can complement and replace the available commercial RBPT which is relatively more expensive and less sensitive in detection of brucellosis in goats. It could also be used for epidemiological surveillance of caprine brucellosis in Malaysia.

Keyword: *Brucella melitensis*; Rose Bengal plate test; Complement fixation test; LRBPT positive predictive value; Negative predictive value