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A modified agglutination test for the diagnosis of Besnoitia besnoiti infection.

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Source

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Abstract

Bovine besnoitiosis is caused by Besnoitia besnoiti, an obligate intracellular apicomplexan parasite. Affected animals present cutaneous and systemic manifestations and the disease may lead to considerable economic losses. Although generally associated to tropical and subtropical areas, bovine besnoitiosis is now considered an emergent disease in Europe, due to the increasing number of new cases and apparent geographical expansion. In this study we evaluated the performance of a modified agglutination test (B-MAT) in the serodiagnosis of bovine besnoitiosis in comparison to the indirect immunofluorescent-antibody test (IFAT). To establish optimal protocol conditions we used bovine sera with a known infection status for B. besnoiti infection. Positive animals (n=36) presented B. besnoiti dermal cysts and anti-B. besnoiti specific antibodies, as determined by the indirect immunofluorescence test (IFAT). Negative animals (n=103) were from non-endemic areas in Portugal and negative by the IFAT. From here, we evaluated the sensitivity and specificity of the B-MAT relative to the IFAT with a panel of sera from herds with history of bovine besnoitiosis in Portugal, Spain and France (n=402), using three serum dilutions (1:80, 1:160, 1:320). Considering the positive cut-off at 1:160 serum dilution, the B-MAT showed an almost perfect test agreement with the IFAT; (κ=0.968; 95% CI: 0.941-0.996) with a relative sensitivity of 97.2% (95% CI: 94.1-100%) and a relative specificity of 99.3% (95% CI: 98.4-100%). As a simple and inexpensive technique the B-MAT represents a valuable tool for the diagnosis and study of the epidemiology of bovine besnoitiosis.