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Adaptation of an antibody-ELISA for *Trypanosoma evansi* infection (surra) in buffaloes and its application to a serological survey in Thailand

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Abstract

Surra, caused by *Trypanosoma evansi,* is a neglected disease due to frequent subclinical evolution, especially in bovines in Asia. However, acute and chronic signs are regularly observed, with significant sanitary and economic impacts. In this study, we standardized and applied an antibody-ELISA test for the detection of anti-*T. evansi* immunoglobulin G in buffaloes using anti-bovine conjugate. Based on buffalo reference sera from the Philippines, a TG-ROC analysis was conducted to define an optimal cut-off value; sensitivity and specificity were estimated at 92.5% and 94.2%, respectively. A cross-sectional serological survey was carried out in the major buffalo breeding areas of Thailand; 892 buffaloes from 8 provinces were sampled in North, North-Eastern and Southern Thailand. Seropositive buffaloes were found in all 8 provinces, on 20.3% of farms for an overall prevalence of 12.2% (95%CI: 10.2-14.5%). Nearly one third of the sampled population was exposed to infection. Broader sampling would be necessary but is not possible in the southern half-wild breeding systems. The impact on livestock systems and husbandry practices is discussed. According to our results, buffaloes may constitute a large and robust reservoir for *T. evansi,* which is a permanent threat to other livestock such as cattle, and horses as well as wild animals such as elephants in South-East Asia.

Keywords: *Trypanosoma evansi,* buffalo, ELISA *T. evansi*, Thailand.