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Original article

Evaluation of commercial ELISA kits for the detection of antibodies against bluetongue virus

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Abstract

The aim of this study was to estimate the diagnostic value of different commercially available ELISA kits for the detection of bluetongue virus (BTV) antibodies in infected and vaccinated animals. The relative specificity of ELISA kits was evaluated using a panel of sera originating from healthy cattle, never vaccinated nor exposed to BTV. All ELISA kits applied had a high relative specificity (99.3 – 100%). The relative sensitivity of ELISA kits assessed using a panel of sera collected from BTV infected cattle was also high and similar for all the kits (97.3 – 100%). However, the relative sensitivity evaluated on the basis of testing vaccinated animals was different: the highest sensitivity was found for Ingenasa, PrioCHECK and ID VET ELISAs (96.5 – 98.3%). Slightly lower sensitivity was calculated for Pourquier and LSI kits (82.8% and 85.4%, respectively) and much lower sensitivity was found for VMRD ELISA kit (69.5%). The repeatability of BTV ELISA kits was expressed as a coefficient of variation (CV) of results of sera tested 5 times in the same day and in different days by the period of 2 months, by the same person, in the same conditions, and by using the same equipment. The CVs of sera tested in all ELISA kits ranged from 6.1 to 9.8% and were below 10% threshold adopted as a maximum for the acceptable repeatability of the method. In conclusion, it can be stated that the applied ELISA kits can be a valuable diagnostic tool for the serological monitoring studies in the BTV contaminated premises. All the methods are very specific and sensitive when testing BTV infected animals. Nevertheless, the Ingenasa and PrioCHECK can be the most useful in sero-surveillance of livestock following vaccination.

Key words: bluetongue, serology, ELISA kits, evaluation

Introduction

Bluetongue (BT) is an economically important viral disease of domestic and wild ruminants that induces variable clinical signs depending on the species and the breed (MacLachlan 1994). The disease is caused by the bluetongue virus (BTV) which is the member of the *Orbivirus* genus within the family *Reoviridae*. Twenty four immunologically distinct serotypes (BTV1 to BTV24) of the virus have been identified worldwide (Gorman 1990). In 2008 an additional putative BTV serotype 25 (Toggenburg virus) was iso-

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