Naureen A, Saqib M, Muhammad G, Hussain MH & Asi MN; (2007). J Vet Diagn Invest; 19:362-367.
Neubauer H, Sprague LD, Zacharia R, Tomaso H, Al Dahouk S, Wernery R, Wernery U & Scholz HC; (2005). J Vet Med B Infect Dis Vet Public Health; 52(5); 201-205
Scholz HC, Pearson T, Homstra H, Projahn M, Terzioglu R, Wernery R, Georgi E, Reihm JM, Wagner DM, Keim PS, Joseph M, Johnson B, Kinne J, Jose S, Hepp CM, Witte A & Wernery U; (2014). PLOS Neglected Tropical Diseases; DOI: 10.1371
Sprague LD, Zachariah R, Neubauer H, Wernery R, Joseph M, Scholz HC & Wernery U; (2009). BMC Veterinary Research; doi: 10.1186/1746-6148-5-32
Wernery U, Al Temann D, Kinne J & Wernery R; (2012). Pictorial guide to the diagnosis of glanders in horses, donkeys and camels; OIE; 40.
World Organization for Animal Health (OIE) (2016-in press). Manual of diagnostic tests and vaccines for terrestrial animals; Chapter 2.5.11; World Organization for Animal Health, Paris

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Evaluation of the diagnostic performance of equine infectious anaemia (EIA) serological ELISAs as screening tools in control programmes

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EIA is a retroviral disease affecting all equidae and its diagnosis is principally based on the use of serological methods represented by agar gel immunodiffusion test (AGIDT), ELISA and the immunoblot that are used on the basis of the intended purpose. OIE proposes both AGIDT and ELISA as suitable for the demonstration of individual or population freedom from infection. Important characteristic for a serological method to be used as screening test in a control programme is its sensitivity that assures the detection of the highest possible number of cases. Relative to this are different studies reporting on the higher sensitivity of the ELISA compared to the AGIDT (1, 2). As Italy, like in many other countries, has a regulatory control program for EIA, the National Reference Centre for EIA (NRCEIA) conducted a study in which the diagnostic performance of all ELISA serological kits available in the country, as candidate/s for a screening test, was evaluated. Ten official laboratories participated in the study where each examined a sample panel containing negative and positive sera with different levels of positivity, using four commercial and 2 in-house kits. The same kits were also assessed for their precocity by the NRCEIA using a panel of sera from vaccinated animals at different days post-vaccination. All the serum samples used in this study were also tested in AGIDT. The parameters evaluated were: diagnostic sensitivity (DSe) and specificity (DSp), Cohen K, weighted Cohen K, coefficient of variation (CV), accordance and concordance. The results obtained were the following; Dse and DSP for all kits were 100% defining, all tests as accurate. K multiple was equal to 0.76 while the value of K for all laboratories, compared with each other was 0.72. The K values indicate a degree of concordance almost perfect according to the classification of Landis et. al. (3). The CV values obtained for all sera were less than 20%, and for this repeatability and the reproducibility for the kits evaluated was satisfactory. Moreover, accordance and concordance were close to 100% in more than half of the sera. Analysis of these parameters show that all kits employed have a high diagnostic performance and also a higher sensitivity than AGID in terms of analytical sensitivity and precocity. Even if a complete evaluation, according to the OIE standards, is required, all kits resulted suitable candidates as screening tools capable of increasing the efficacy of EIA control programmes.

References

1. Issel, C. J. et. al (2012) Vet. Rec. 165, 123 − 134.
2. Scicluna, M.T. et. Al., (2013) Vet. Mic. 165, 123−134.
3. Landis J. R. and. Koch G. G (1977) Biometric 33;159-174.