

EVALUATION OF THREE ELISAs FOR DETECTING SERUM ANTIBODIES AGAINST *Mycoplasma hyopneumoniae*

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INTRODUCTION

Mycoplasma hyopneumoniae (Mhyo) is an important component of the so called Porcine Respiratory Disease Complex (PRDC). Mhyo infection in pigs is usually monitored through serology. In this study, we compared three ELISAs developed to detect antibodies to Mhyo in swine serum. The main objectives of this study were to differentiate serum antibody profiles of four groups of animals: non-challenged/vaccinated, challenged/vaccinated, challenged/non-vaccinated and non-challenged/non-vaccinated animals.

MATERIALS AND METHODS

Seventy young piglets (10-day-old) serologically negative to Mhyo were divided into 7 groups of 10 animals each. Groups 1-5 were vaccinated with 5 different commercial vaccines against enzootic pneumonia on D0, and D21, and subsequently challenged on D70 with Mhyo strain 3371. Groups 6 and 7 were used as non-vaccinated/challenged and non-vaccinated/non-challenged control groups, respectively. Blood samples were taken from all animals at D0, D21, D42, D70 and D98. All samples were tested using the CIVTEST® SUIS MHYO ELISA kit, a commercial indirect ELISA (ELISA-I), and a commercial competition ELISA based on a monoclonal antibody against the p74 (ELISA-C).

RESULTS

All the kits showed good performance in the analysis of specificity (100%). In regard to sensitivity, it varies depending on the type of sample analyzed: ELISA-C detected more positive samples from vaccinated animals (72,2%), followed by CIVTEST® (41.67%) and the ELISA-I (14.81%). No differences in sensitivity were observed between ELISA-C and the CIVTEST® (87.5% in both cases) in the samples from challenged animals (vaccinated and non-vaccinated); ELISA-I was less sensitive (50%) (Figure 1). All three kits showed some common performance characteristics: they displayed maximum sensitivity at D42 after two doses of vaccine and sensitivity diminishes at D70. Also, sensitivity was lower when dealing with only challenged samples; in this case, CIVTEST® and ELISA-C displayed the same sensitivity (33.3%) and detected all samples from vaccinated/challenged animals (100%); ELISA-I was the less sensitive (0% and 61.54%, respectively).

Figure 1. Quantitative representation of the Mhyo ELISA serology using three commercial kits. The results are shown as a mean (central point) and standard deviation (vertical bars).

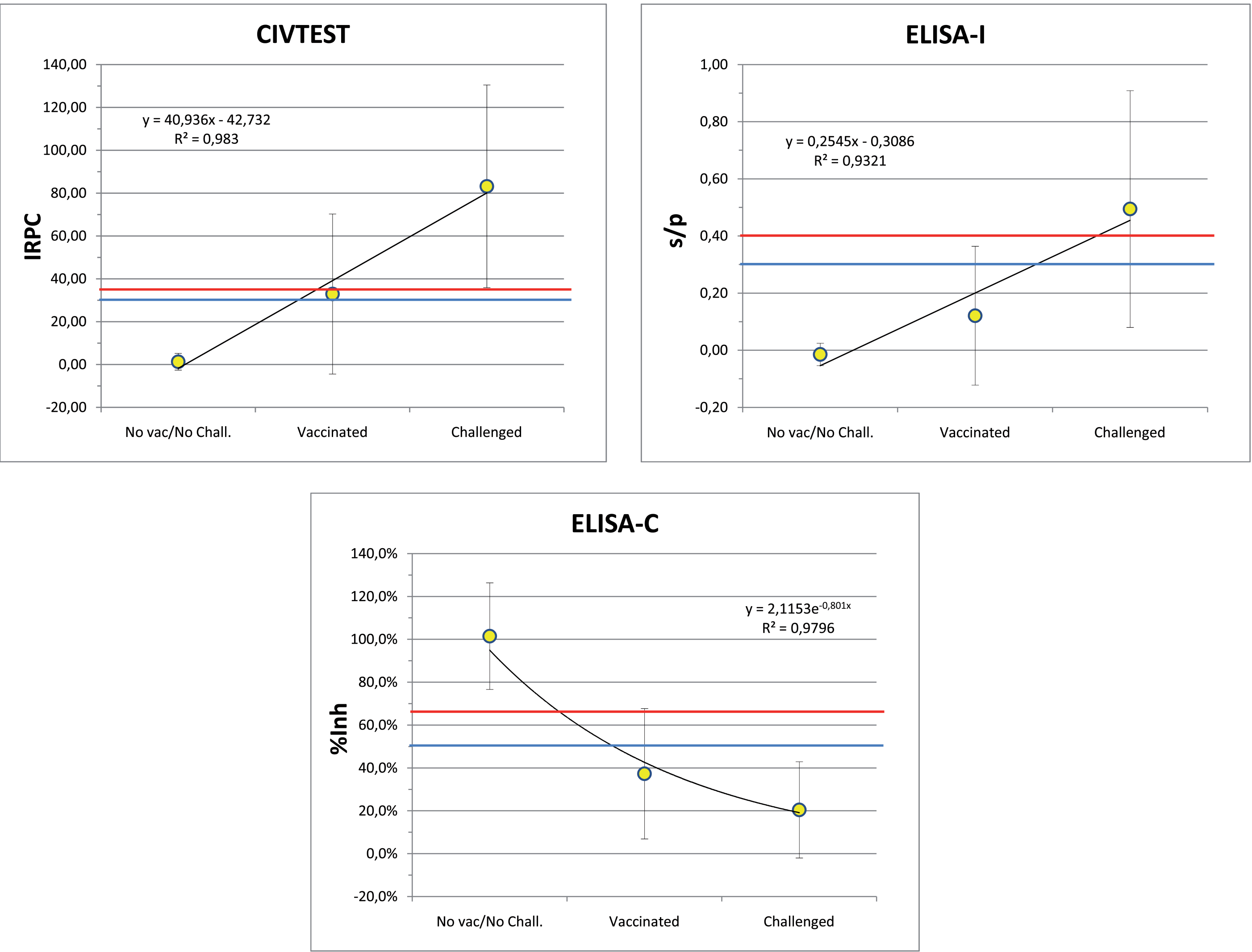


Table 1. Kappa values obtained in the different comparisons.

Comparison	All	Vacc.	Chall.
CIVTEST® vs ELISA-C	0.7	0.4	1.0
CIVTEST® vs ELISA-I	0.54	0.39	0.25
ELISA-C vs ELISA-I	0.34	0.12	0.25

CONCLUSIONS AND DISCUSSION

The most similar kits were the CIVTEST® and the ELISA-C because both of them have a high sensitivity (Table 1). CIVTEST® has better performance differentiating quantitatively samples from vaccinated animals and samples from vaccinated/challenged animals. The high sensitivity of the ELISA-C when detecting vaccination seems to make this test have more problems when distinguishing between samples from vaccinated animals and samples from vaccinated/challenged animals (Figure 1).

BIBLIOGRAPHY

- Ameri-Mahabadi, Mehrdad et al: 2005, J Vet Diagn Invest 17:61-65.
- Earlandson, KR et al: 2005, Journal of Swine Health and Production 198:203.



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