SEROLOGICAL ANALYSIS AND MONITORING OF IBR
IS IT POSSIBLE TO CONTROL IBRgE ANTIBODIES IN A BULK TANK MILK?

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INTRODUCTION

The detection of antibodies in Bulk Tank Milk (BTM) provides an easy and cheap methodology for monitoring the health status of the herd[1]. The application of this methodology to the detection of IBR-gE antibodies presents some limitations. Blocking IBRgE-ELISAs have low sensitivity[2]. So, IBRgE-ELISAs are only capable of detecting positive tanks when the prevalence in the animals in production is greater than 15-20%[3]. Under these conditions, gE detection in the BTM is not adequate for monitoring the tank and even less so for the classification of the farms. The objective of this work is to develop and validate an IgG concentration method to increase the sensitivity of the IBR-gE detection systems in BTM sample.

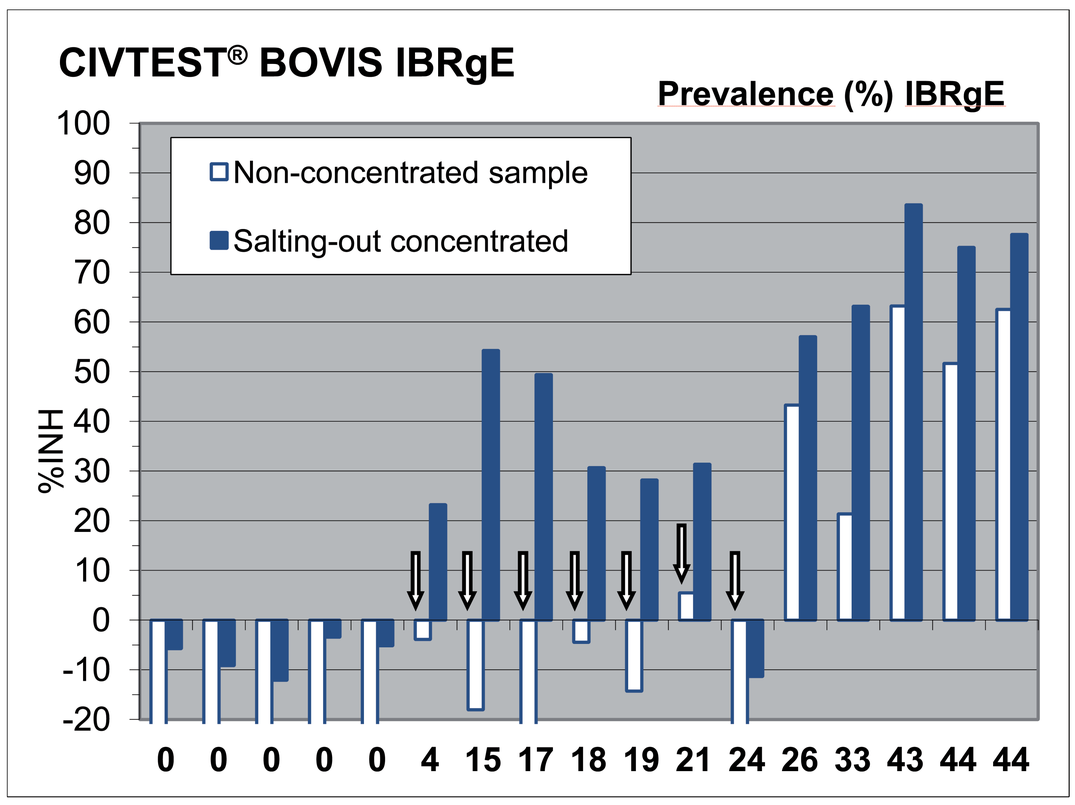
MATERIAL & METHODS

We have developed a simple methodology that in less than 60 minutes can concentrate up to 30 times the IgGs from a sample of 5.0 ml of BTM. To validate this methodology 17 dairy-farms from the North-West of Spain with a known IBR status were selected (8 vaccinated and 9 non-vaccinated). From each farm we have obtained individual sera of all the animals in production and a sample of each tank. Taking into account the IBRgE results in sera, the true prevalence of each tank was calculated. Non concentrated and concentrated BTM samples were also analysed for gE antibody.

RESULTS

The actual prevalence against gE, calculated from individual serum samples in the 17 selected farms was: 0% (5 farms), 4%, 15%, 17%, 18% 19%, 21%, 24%, 26%, 33%, 43% and 44% (2 farms). By using non-concentrated milk only 5 tanks were consistently detected as positives to gE. These tanks corresponded to the farms with the higher prevalence values (from 26% to 44%). By contrast, applying to the same samples the methodology of concentration of IgGs, all tanks were detected positive, even the lowest prevalence one. This methodology did not affect the 5 negative tanks that remained negative (Fig. 1).

Figure 1. BTM ELISA IBRgE titres from 17 dairy-farms. Prevalence detection from 0 to 44%. Column □ non-concentrated BTM and Column ■ concentrated BTM (IgGs concentration). CIVTEST® BOVIS IBRgE interpretation: Higher than 5.0 (%INH) = positive sample, Lower than or equal to 5.0 = negative sample.



DISCUSSION

These results indicate that the proposed IgG concentration system does not affect the specificity of the ELISA but increases the sensitivity, having allowed in this study to detect tanks with the lowest prevalence (4%).

REFERENCES

1. Nylin, B., Strøger, U., Rønsholt, L. “A retrospective evaluation of a Bovine Herpesvirus-1 (BHV-1) antibody ELISA on bulk-tank milk samples for classification of the BHV-1 status of Danish dairy herds”. (2000). *Preventive Veterinary Medicine*. 47, 91-105.
2. Kramps, J.A., Banks, M., Beer, M., Kerkhofs, P., Perrin, M., Wellenberg, G.J. and Van Oirschot, J.T. (2004) “Evaluation of tests for antibodies against bovine herpesvirus 1 performed in national reference laboratories in Europe”. *Vet Microbiol.*, 8;102(3-4):169-81.
3. Wellenberg, G.J., Verstraten, E.R.A.M., Mars, M.H., Van Oirschot, J.T. (1998) “ELISA detection of antibodies to glycoprotein E of bovine herpesvirus 1 in bulk milk samples”. Vet Rec. 142(9), 219 – 20.

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