

Safety of an immune complex vaccine against infectious bursal disease when applied subcutaneously in slow-growing broiler type chickens under field conditions

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Introduction

Slow-growing broilers are generally considered to be more susceptible to immune complex (ICX) vaccines against IBDV than conventional broilers. GUMBOHATCH® is a new immune-complex vaccine against IBD in which the virus particles are entirely coated with IgY of egg origin. The objective of this study was to test the safety of GUMBOHATCH® when applied subcutaneously in slow-growing chickens under field conditions.

Material & methods

Two flocks of day-old Redbro chickens were vaccinated subcutaneously with either a commercially available recombinant HVT-IBD vaccine (Group A, n=8,670) or GUMBOHATCH® plus HVT vaccine (Laboratorios HIPRA S.A., Spain) (Group B, n=7,900). Both groups were also vaccinated against MD CVI and IB (Ma5 + 4/91) on the same day. The animals were allocated to two separate houses and managed under similar conditions. Mortality, antibody response against IBDV and growth performance were monitored up to 70 days; additionally, the bursa of Fabricius was inspected weekly between 21 and 49 days. The antibody immunity against IB and replication of MDv were also evaluated to determine any interference with vaccination against IBDV.

ELISA titres were Log₂ transformed for the statistical analysis. The significance level was set to 5% for statistical comparison of groups.

Results

As expected, the vaccines tested produced an antibody response against IBDV despite the presence of maternally-derived antibodies, confirming their correct application and probable action. GUMBOHATCH® showed the highest IBDV antibody response with both ELISA kits during most of the study, even at 80 weeks of age (Figure 1).

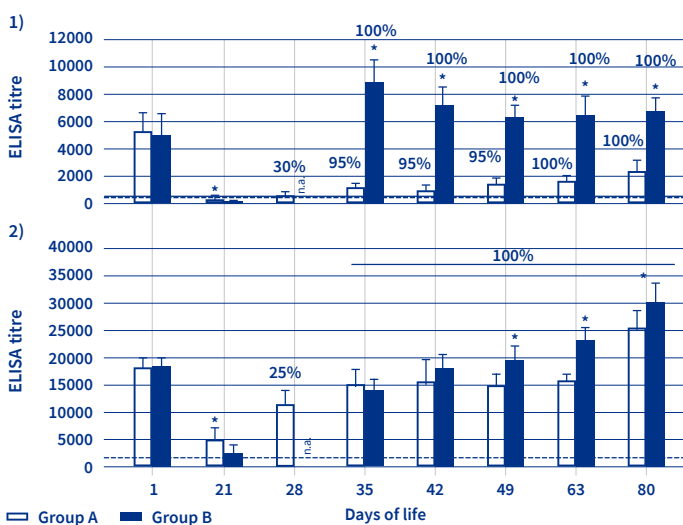


Figure 1. Antibody immunity against IBDV detected by 1) CIVTEST® AVI IBD and 2) ProFLOK® IBD BDA. Results are represented as average and standard deviation of the ELISA titre. Asterisks indicate a statistically significant difference (One-way ANOVA with Tukey's post hoc test; n=19-20, p<0.05). Bold number represent the percentage of positive animals. The slashed lines represent the positive (1: 357 ELISA titre, 2: 998.2 ELISA titre) and negative (268 ELISA titre) cut-off. n.a.: data at 28 days of life were missing.

The two flocks did not show any differences in terms of growth performance or mortality (Figure 2).

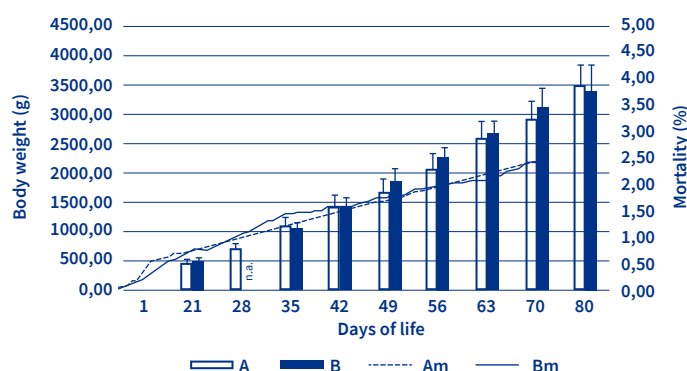


Figure 2. Productive performances. Results are represented as average and standard deviation of the body weight and as percentage of cumulative mortality (Am and Bm). The final weight and the final mortality showed no statistically significant differences (One-way ANOVA, p>0.05; Chi square test, p>0.05). n.a.: data at 28 days of life were missing.

Atrophy of the bursa of Fabricius was observed in the GUMBOHATCH® group, although this finding is to be expected in broilers vaccinated with a live attenuated vaccine against IBD. The antibody response against IB was higher in the flock vaccinated with GUMBOHATCH® than in the HVT-IBD flock (Figure 3).

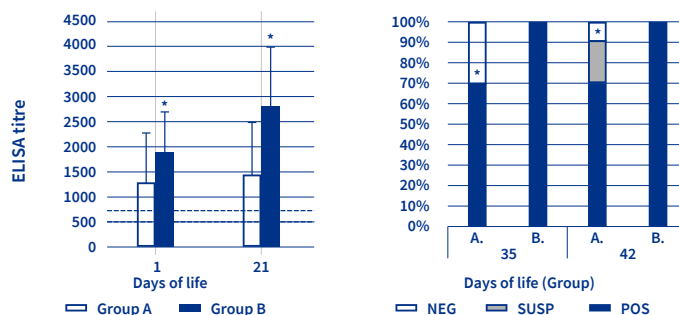


Figure 3. Antibody immunity against IB (CIVTEST® AVI IBV). Results are represented as 1) average and standard deviation of the base 2 logarithms of the ELISA titre and 2) percentage of negative (NEG), suspicious (SUS) and positive (POS) birds. The slashed lines represent the positive (710 ELISA titre) and negative (505 ELISA titre) cut-off. 1: Asterisks indicate a statistically significant difference (One-way ANOVA with Tukey's post hoc test; n=19-20, p<0.05). 2: Asterisk indicate statistically significant differences (Levene's test; p<0.05).

Conclusions

Therefore, it was confirmed that GUMBOHATCH® does not compromise the health or productive performance of slow-growing broilers and thus that it is suitable for application in chickens regardless of the growing profile.

Aknowledgments

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