عنوان مقاله:

Immunogenicity of Concentrated and Purified Inactivated Avian Influenza Vaccine Formulation

محل انتشار:

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خلاصه مقاله:

Avian influenza (AI) H۹N۲ is a low pathogenic virus subtype belonging to Orthomyxoviridae family. Given the prevalence of this subtype as an infectious agent in poultry industry, special attention has been always directed toward the development of vaccine production against this infection. The vaccine of this infection is produced by killing the virus and using a mixture of inactivated antigen and oil phase. Egg-based viral antigens have high levels of unwanted proteins that may adversely affect the vaccine formulation. In addition, it is required to raise the antigen concentration for the production of combination vaccines, especially in low doses. This underscores the need to the improvement of the downstream purification process and concentration of antigens. The optimization of downstream processing would decrease the cost of vaccine procurement and maintenance. Regarding this, the present study was conducted to evaluate a downstream procedure for the concentration and purification of avian influenza virus (H۹N۲) and investigate the immunogenicity of the vaccine containing these antigens. To this end, after harvesting and clarifying virus-containing allantoic fluid, it was concentrated and purified using ultrafiltration and chromatography, respectively. The concentrated and purified samples were checked for their ovalbumin level and emulsified with oil adjuvant to access their immunogenicity. The results showed that one dose of both formulated antigens (i.e., concentrated and purified) was effective in raising the immune response in the vaccinated chicks for a long time. The applied formulation had a one-year stability in the refrigerator. Furthermore, the concentrated antigen showed a high hemagglutination activity through a year when storing in the refrigerator. Based on the findings, the optimization of downstream process of influenza (H۹N۲) vaccine production and use of new technologies could be considered in the large-scale preparation of a sustainable vaccine without any unwanted risk factors.

کلمات کلیدی:

Avian H۹N۲ Influenza Virus, vaccine, Immunogenicity, Ultrafiltration