

JOINT EVENT

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## Efficacy and safety of inactivated Newcastle disease virus vaccines emulsified with two different oil adjuvants

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Newcastle disease (ND) is one of the most contagious and economically important avian diseases that are characterized by respiratory, nervous and enteric infections. To prevent and control ND in practice, the inactivated NDV vaccine has been widely used. The inactivated vaccines used in poultry industry often require oil adjuvants to elicit a sufficient immune response. SEPPIC Montanide ISA 70 VG (ISA70), which is a ready-to-use oil-based adjuvant, is largely used in the manufacture of oil emulsions for poultry vaccines. Although the inactivated vaccines using ISA70 as an oil adjuvant have still shown great efficacy and safety profile, there has been a need to develop other cheaper oil adjuvants, because of its high cost. In this study, we prepared the inactivated NDV vaccines using ISA70 and Seojin KF-40 (KF40), which is fairly inexpensive mineral oil for veterinary use, as an adjuvant. To compare the protective efficacy of these vaccines, we compared the antibody responses of birds vaccinated with different vaccines and evaluated protection (mortality and virus shed) against challenge with virulent strain of NDV. For the safety study, the birds vaccinated with different vaccines were subjected to evaluate histopathological lesions in injected site. The following tests were conducted: 1) Efficacy test: Each vaccine formulation was evaluated for immunogenicity in 3-week-old specific-pathogen-free chickens. Challenge study with a very virulent NDV was conducted to compare protection against mortality and measure the virus levels in oral and cloacal swabs. 2) Safety test: Body weight gain of each group was evaluated every week and Birds from all of the experimental groups were euthanized. The pectoral muscle tissues were processed and assessed by a pathologist. We found that the efficacy and safety of KF40, as an adjuvant with inactivated NDV vaccine, is comparable to those of ISA 70, which is a standard to other oil adjuvant. In conclusion, KF40 can be used as an effective, safe and inexpensive mineral oil-based adjuvant system.

### Biography

Jei Hyun Jeong is a graduate student who is majoring in Avian Disease at the Veterinary College in Korea. His primary interest in this area is to control and prevent devastating poultry diseases, such as Newcastle disease and Avian Influenza. To accomplish this, he is exploring novel adjuvant system which is effective, safe and economical. In the poultry industry, the cost of the vaccine is still one of the most important determinants, and its significance becomes even greater in developing country, which have been most severely damaged by such infectious diseases. By developing most suitable oil adjuvant, he wants to offer better preventive options to poultry industry in developing country.

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