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**Cairo University
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Preparation and Evaluation of Combined Inactivated vaccine from NDV Genotype 7D and Infectious Bronchitis Virus Variant 2 Strain

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Abstract

Vaccination is the main preventive measure against Newcastle Disease virus (NDV) infections and infectious bronchitis virus (IBV) infections. Vaccination can partially protect against IBV because of the continuous emergence of variant strains. The aim of the current study is to prepare and evaluate a combined multivalent inactivated vaccine candidate composed of NDV (genotype VII), and two IBV lineages (M41; GI-lineage) and (VarII; GI-23 lineage) in a Montanide ISA-71 oil adjuvant. The results revealed that the prepared vaccine candidate was sterile, safe, and potent. The result of potency test showed the ability of the prepared to stimulate the production of specific antibodies against IBV and NDV starting from 1-week post vaccination (WPV). The maximum levels of specific IBV ELISA antibody titers (2926) were observed at the sixth week post vaccination. HI antibodies against IBV reached their peak at 5th WPV (9.2 log₂) while HI antibodies against NDV reached its peak at 4 WPV (9.5 log₂). Vaccinated chickens showed 100% protection against challenge with virulent NDV, and variant IBV strains with complete absence of clinical signs and postmortem lesions compared to challenged non vaccinated groups. Our results revealed that the prepared vaccine candidate in this study is able to elicit good immune response, eliminate viral shedding, and provide complete protection against challenge. Meanwhile, it is better to control both IBV and NDV outbreaks in a single shot consequently that will save time, effort and reduce stress during chicken vaccination.

Keywords: IBV GI-lineage, IBV GI-23 lineage, NDV genotype VII, inactivated multivalent vaccine, virulent challenge, efficacy, Shedding.

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