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Efficacy of bivalent Baculovirus-expressed H5+ND inactivated vaccine against single and dual infection with Avian Influenza H5N1 and velogenic Newcastle disease virus in broiler commercial chickens

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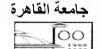
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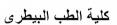
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Dedication

Dedicated to:

Soul of Prof Doctor | Ismail Reda

Father

Mother

Brothers

Wife

My son Mazen

and

My young daughter

jody

I hope that they will be happy, with my deep thanks for their support during the work.

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Abstract:

This study aimed to evaluate the bivalent vaccine (recH5/NDV-Vaccine) for both Avian Influenza and Newcastle viruses. One hundred and eighty commercial Hubbard chicks were divided into nine groups, (20 each). Forty birds that vaccinated at 5th day of age by recH5/NDV-Vaccine (0.5ml per dose via subcutaneous route) were divided into 2 groups. In addition to eighty birds were vaccinated at 10days old with the same vaccine and route then subdivided into 4 groups. The rest birds were divided into 3 groups which kept none vaccinated as control groups. Birds were challenged either single and / or dual (with 3 days interval) at 21 day post vaccination with 10⁶ EID₅₀ dose by either the highly pathogenic avian influenza H5N1 Egyptian virus of clade 2.2.1.2/2015(HPAI-H5N1-CV) or velogenic NDV isolate of genotype VII (eNDV-GTVII) of Egyptian origin 100 ul per bird via the intra-nasal route. The results showed that the protection % for all groups vaccinated at 10 days old were 100 % expect one group which challenged with HPAI-H5N1-CV then eNDV-GTVII (90%), while groups vaccinated at 5day were 80% and 70%. Estimation of shedding % for both viruses showed that all groups not exceeded 30% shedding and extended for 5day post challenge (dpc) only but the quantity of virus shed in case of 5 day vaccinated groups were more than groups vaccinated at 10days old. When Re-isolation of the challenged viruses inoculated in Embryonated Chicken Egg (ECE) indicated that no virus shedding after 1st passage in case of groups vaccinated at 10days old. However, 5 day vaccinated groups were shed virus at percentage 20% &10% for H5 and only 10% for NDV. Generally, the antibody titer & histopathological scoring in groups vaccinated at 10days old were much better than 5 day vaccinated groups. Indeed, we do our recommend to use the vaccine at 10th day of age.

Keywords: Inactivated vaccine, recH5/NDV, dual infection, highly pathogenic avian influenza H5N1, clade 2.2.1.2, velogenic Newcastle disease virus, genotype VII, chickens, Egypt.

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