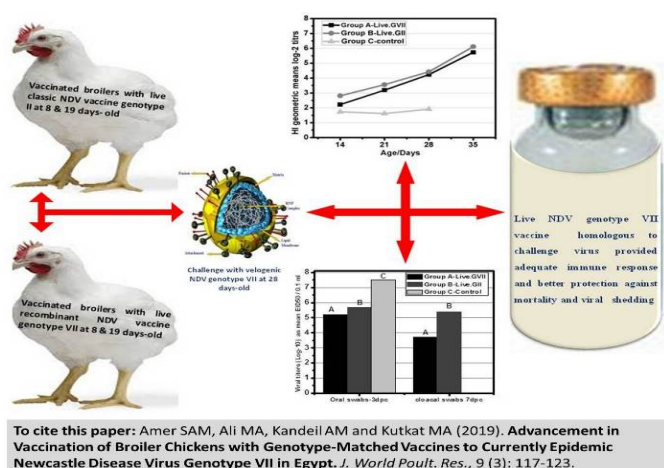


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## Research Paper

### Advancement in Vaccination of Broiler Chickens with Genotype-Matched Vaccines to Currently Epidemic Newcastle Disease Virus Genotype VII in Egypt.

Amer SAM, Ali MA, Kandeil AM and Kutkat MA.

*J. World Poult. Res.* 9(3): 117-123, 2019; pii: S2322455X1900015-9

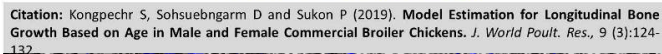
DOI: <https://dx.doi.org/10.36380/jwpr.2019.14>

## ABSTRACT:

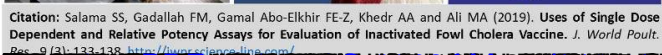
Newcastle disease virus (NDV) outbreaks still occur frequently in Egypt in spite of the heavy implementation of classic NDV vaccines for a long time ago, where NDV genotype VII has become the dominant genotype in Egypt from 2012 until now. Many previous studies have recommended using genotype-matched NDV vaccines against the epidemic virus for providing better protection and minimizing virus shedding. Therefore, the present study evaluated the efficacy of two available live NDV vaccines in Cobb 500 broilers. The group A and B (20 birds each) were vaccinated with live attenuated NDV vaccines genotype VII and II, respectively with double doses at 5 and 19 days of age. Also, group C consisting of 20 unvaccinated birds was studied as a control group. The efficacy of live vaccines was determined using virus challenge test. Hence, all groups were challenged with velogenic NDV genotype VII<sub>d</sub> at a dose equivalent to  $10^{6.0}$  50 percent Embryo Infective Dose (EID<sub>50</sub>) via the intramuscular route at 28 days-old. Serum antibodies level was assessed by hemagglutination inhibition test. Moreover, virus shedding was measured by EID<sub>50</sub>. The obtained results indicated that vaccinated birds had similar haemagglutination titers with no significant difference prior challenge. Meanwhile, group A showed significant protection against mortality, as well as a significant reduction in virus shedding 7 days post-challenge compared to Group B. We concluded that live recombinant-genotype VII vaccine homologous to challenge virus could improve the protective efficiency in chicken against NDV compared to live classic genotype II vaccine. It is suggested that the implementation of genotype-matched NDV vaccines confer better protection in commercial broilers vaccination programs.

**Keywords:** Broilers, Genotype-matched vaccine, Genotype VII, Newcastle disease virus

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Results	No of tested batches	Single dose vaccination			Booster dose vaccination				
		Protection	Mean	ELISA Mean	Protection	Mean	ELISA Mean		
								Titer	
				Kit 1			Kit 2	Kit 1	Kit 2
Satisfactory	32	43.7	309	843	76.2	387	1053		
Unsatisfactory	5	29	194	495	50	242	619		



**Glutamate dose**  
30, 40, 50, 60, 70 mM

**Nitrogen sources**  
KNO<sub>3</sub>, NH<sub>4</sub>NO<sub>3</sub>, Urea, Pepton, Yeast ekstrak, Whey tofu, susu kedelai

**Whey tofu dose**  
10, 20, 30, 40, 50, 60, 70, 80, 90, dan 100%

**Carbon sources**  
Glucose, Lactose, Maltose, Sucrose, Palm sugar, Cane sugar

**Palm sugar dose**  
1, 3, 5, 7, 9, 11, 13, 15 %

60 mM glutamate, 100% whey tofu and 15% palm sugar as inducer, nitrogen and carbon sources

**Inhibitor factor**

Alginate  
(Sulfated linear Di-Heteropolysaccharide)

**Alginat 35,57**

**Biological: fermentation with *Bacillus megaterium* S245**

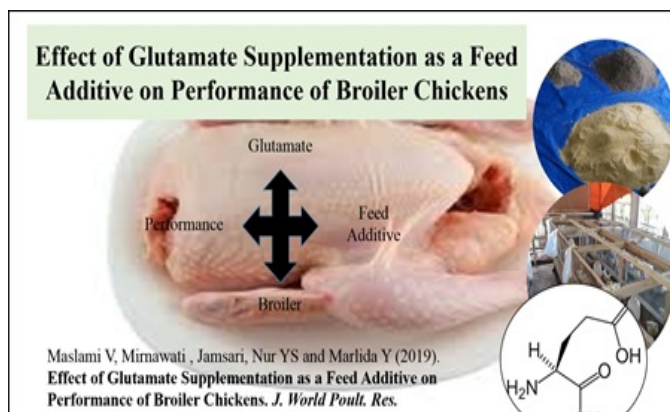
**Sargassum binderi**

Biactive Compound	Function
<b>Alginate</b>	<ul style="list-style-type: none"> <li>Reduce cholesterol and lipid of meat in broiler (Mahata et al., 2015)</li> <li>Reduce blood serum cholesterol (Suzuki et al., 1995; Ren et al., 1994; Medjani, 2002; Al-Jarrah, 2005)</li> <li>Increase HDL (Ren et al., 1994; Wong et al., 1999)</li> <li>Reduce level of glucose (Wikanita et al., 2002 dan 2003)</li> </ul>
<b>Fucoidan</b>	Reduce cholesterol (Yuan, 2008 dan Casa, 2009)
<b>Fucoseanthin</b>	Decrease cholesterol in pulk egg and triglycerida in blood plasma (Al-Harthi dan El-Cweik, 2012)
<b>PUSA</b>	<ul style="list-style-type: none"> <li>Decreases cholesterol and increases HDL level in blood (Weich dan Faruk, 2008)</li> <li>Modification of fatty acid composition on egg (Weich</li> </ul>

**Nutrient content of Sargassum binderi**

Crude protein	4.50%
Crude lipid	0.04%
Crude fiber	7.75%
Energy metabolites	1001 Kkal
Cx	0.53
P	0.28%

(Mubana et al., 2015)



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