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Efficacy and Safety of an Inactivated Novel Variant Infectious Bursal Disease Virus in Broiler Chickens

Research Paper

Efficacy and Safety of an Inactivated Novel Variant Infectious Bursal Disease Virus in Broiler Chickens

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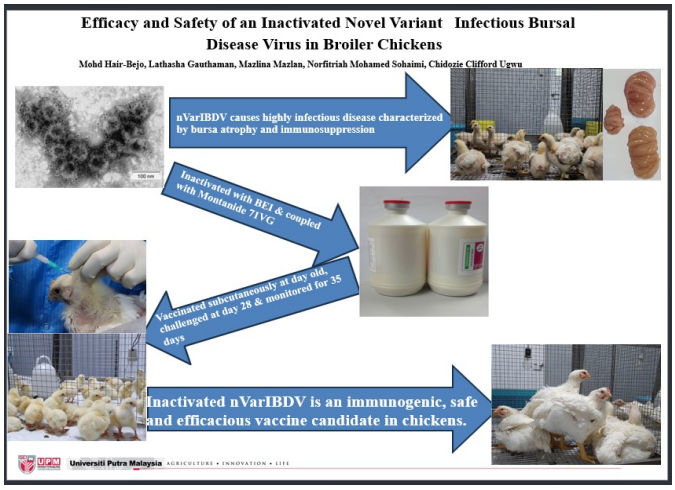

ABSTRACT: The infectious bursal disease virus (IBDV) is severe and highly contagious, causing high mortality and immunosuppression in chickens worldwide. A new novel variant, IBDV (nVarIBDV), has recently emerged in Asian countries, including Malaysia, highlighting the need to develop a new vaccine against this strain due to the inadequacy of existing commercial vaccines in protecting chickens from nVarIBDV infection. Therefore, the current study aimed to evaluate the efficacy and safety of inactivated nVarIBDV as a potential vaccine candidate in broiler chickens. A total of 65 one-day-old Arbo Acres broiler chickens were randomly divided into three groups (five animals in each group with four replications) before the challenge, namely A, B, and C. Groups A and B were immunized subcutaneously at day old with inactivated nVarIBDV (107 EID50/0.2 ml), and Group B was boosted at day 14. Group C was an unimmunized control. The experimental animals were divided into three subgroups and were challenged with pathogenic nVarIBDV (105 EID50/1.0ml) on day 28 post-inoculation through ocular and oral routes. The challenge sub-groups were named ACH, BCH, and CCH, respectively. The live body weight, bursa weight, and blood samples of the chickens were recorded. Gross lesions were examined, and samples of the bursa of Fabricius were collected from all the groups for histological evaluation. All the chickens appeared healthy and normal throughout the trial. Body weight increased in all groups without significant differences. The bursa weight and the bursa-to-body weight ratio of the booster group (Group B) were significantly higher than the non-booster and control groups. Gross lesions were not observed in the investigated groups. The challenged control group had higher bursa lesion scoring than the vaccinated groups. The IBDV antibody titer of challenged chickens in ACH, BCH, and CCH groups was higher than those of unchallenged groups A, B, and C at 35 days post-inoculation. The IBDV antibody titer of challenged chickens in group B was higher than challenged chickens in groups A and C (ACH and CCH). In conclusion, the inactivated nVarIBDV demonstrated safety and efficacy, with the booster Group (B) showing elevated humoral immune responses compared to the non-booster group.

Keywords: Antibody, Chicken, Efficacy, Inactivated vaccine, Novel variant infectious bursal

disease virus

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Effects of Palm (Elaeis Guineensis) Oil on Performance, Thermotolerance, and Welfare of Broiler Chickens in Heat Stress Condition

Research Paper

Effects of Palm (*Elaeis Guineensis*) Oil on Performance, Thermotolerance, and Welfare of Broiler Chickens in Heat Stress Condition

Yarkoa T, Songuine T, Kpomassé CC, Parobali T, Karou DS, and PItala W

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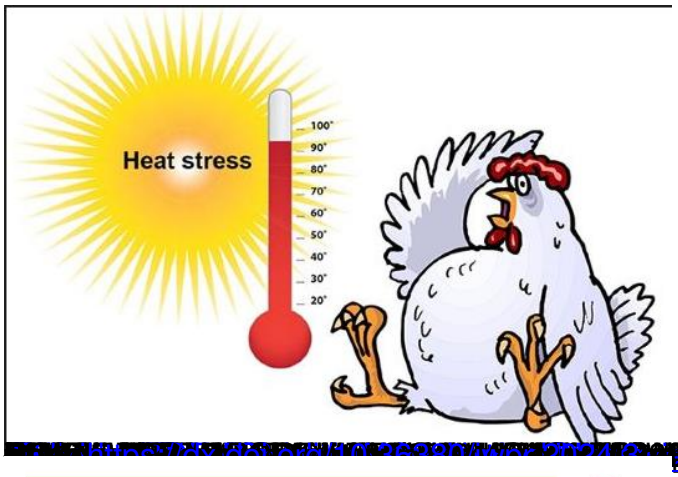
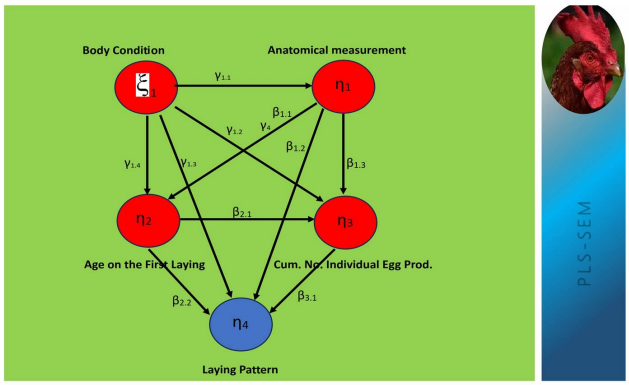
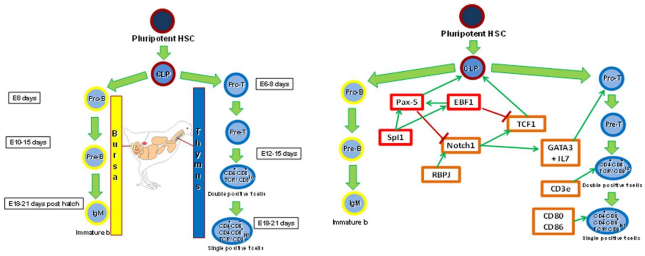


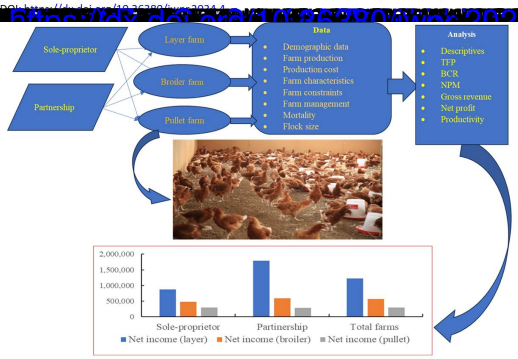


Prayogi HS, Nurgiartiningsih VMA, Sjofjan O, and Suyadi(2024). **Effects of Body Condition, Anatomical Measurement, and Age on the Cumulative Number of Individual Egg Production and Laying Pattern in First Laying Hens.** *J. World Poult. Res.*, 14(1): 23-29. DOI: https://dx.doi.org/10.36380/jwpr.2024.3

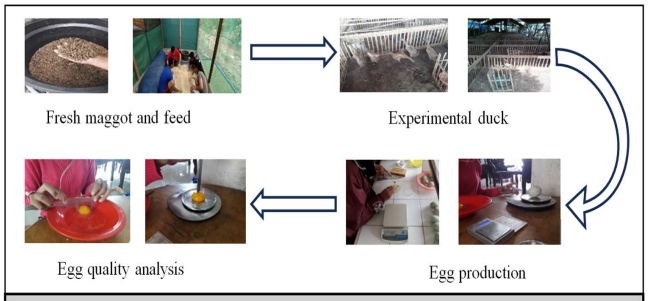
Differential Gene Expression Profiling during Avian Immune Organ Development: Insights from Thymus and Bursa of Fabricius Transcriptome Analysis



El Helaly Goher MN, Moghaieb RE, El-Menawey MA-R, and Ramzy Stino FK (2024). **Differential Gene Expression Profiling during Avian Immune Organ Development: Insights from Thymus and Bursa of Fabricius Transcriptome Analysis.** *J. World Poult. Res.*,

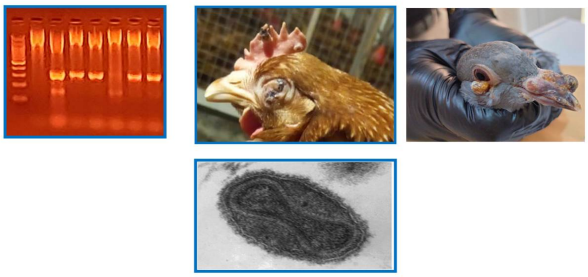


Tsegaye D, Tamir B, and Gebru G (2024). **Production Performance and Profitability of Small-scale Commercial Poultry Farms in**

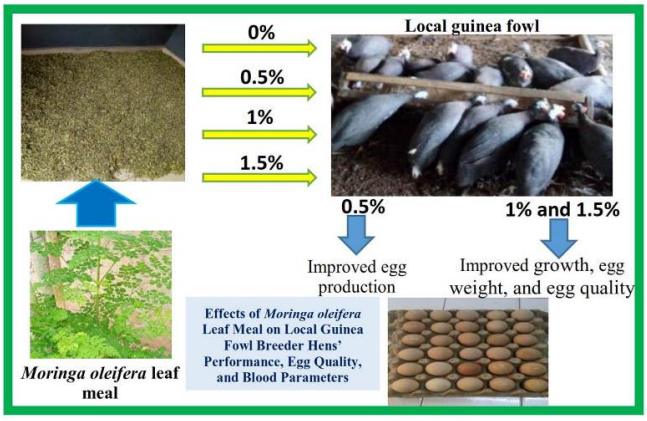


Gunawan A, Malik A, Hayati FN, Goa AS, Junaedi A, and Candra DW (2024). **Growth Performance in Laying Ducks Fed Protein Diets supplemented by Fresh Black Soldier Fly Larva.** *J. World Poult. Res.*, 14(1): 55-61. DOI: https://dx.doi.org/10.36380/jwpr.2024.6

Molecular Detection of Avian Poxvirus in Chickens and Pigeons of Diyala Province in Iraq



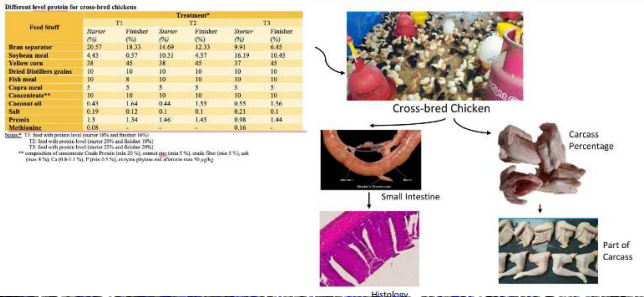
Fowlpox, a highly contagious viral disease in birds, belongs to the Avipoxviruses genus of the Poxviridae family. It causes proliferative nodular skin lesions and diphtheritic lesions on mucous membranes.



Atitso PNK, N'nanle O, Voemesse K, Lare L, Attivi K, and Tete-Benissan KA (2024). **Effects of Moringa oleifera Leaf Meal on Local Guinea Fowl Breeder Hens' Performance, Egg Quality, and Blood Parameters.** *J. World Poult. Res.*, 14(1): 75-87. DOI: https://dx.doi.org/10.36380/jwpr.2024.8

Research Paper

Dietary Protein Levels on Intestinal and Carcass Traits of Cross-Bred Chickens



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