A Field Study of Monochromatic Light Effects on Antibody Responses to Newcastle Disease by HI Test and the Correlation with ELISA

Authors : Seyed Mehrzad Pahlavani, Mozaffar Haji Jafari Anaraki, Sayma Mohammadi

Abstract : A total of 34700 day-old broilers were exposed to green, blue and yellow light using a light-emitting diode system for 6 weeks to investigate the effects of light wave length on antibody responses to Newcastle disease by HI test and the correlation with ELISA. 3 poultry house broiler farms with the same conditions was selected and the lightening system of each was set according to the requirement. Blood samples were taken from 20 chicks on days 1, 24 and 46 and the Newcastle virus specific antibody was titered in serum using HI an ELISA test. On day 24, the probability value of more than 0/05 was observed in HI and ELISA tests of all groups while at the end of breeding period, the average HI serum antibody titer was more in the green light than the yellow one while the blue light was not significantly different from both. At the last titration, the green light has got the highest titer of Newcastle antibodies. There were no significant differences of Newcastle antibody titers between all groups and ages in broiler pullets in ELISA. According to the sampling and analysis of HI and ELISA serum tests, there were no significant relationships between all broiler pullets breeding in green, blue and yellow light on days 24 and 46 and the P-value was more than 0/05. It is suggested that the monochromatic light is effective on broilers immunity against Newcastle disease.

Keywords : monochromatic light, Newcastle disease, HI test, ELISA test
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