

## Comparative Serological Evaluation of The Maternal and Acquired Immunity of Newcastle Disease In chickens

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### Abstract

Infectious avian, including Newcastle disease (ND), are a major concern in poultry husbandry. The primary method of preventing viral infections is immunization by vaccines to produce neutralizing antibodies. In the first ten days of life, chicks are protected by maternally derived antibodies (MDA). This study aimed to; evaluate and reveal the strength and importance of maternal immunity against ND in the bird's life and to compare it with the acquired immunity by measurement of antibody titers with Elisa test. Total number of 150-day-old broiler chicks (Ross 308) with a history of vaccination of parent against ND, were reared to achieve the study, serum samples were also taken from vaccinated layers with ND to complete the current study. Commercial Elisa kit was used to determine the titers of antibodies against NDV in broilers and layers. The results showed that the chicks have high levels of maternal antibodies at day old with an average titer of 1287. The levels of maternal antibodies declined over time, and by day 31, the average titer was 90.8 in the unvaccinated group. The vaccinated group had higher levels of antibodies on day 31 (21 days after vaccination), with an average titer of 370.4. However, MDA levels on the first day of life were still higher than the levels of acquired antibodies because MDA interfered with the development of acquired immunity after vaccination. This study concluded that maternal immunity is important for providing early protection against ND, and recommended that the chicks must be tested to measure the antibody levels before vaccination to avoid interference between MDA and acquired antibodies.

**Keywords:** broiler chicks, antibodies, immunity, vaccine.