

Antimicrobial Effect of Immunoglobulin Y (IgY) Extracted from Village Chicken Eggs and Farm Chicken Eggs Against *Salmonella*

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Chicken Immunoglobulin Y (IgY) found in egg yolk acts as the main innate immune response against the systemic infections in early stages of chick life. Colibacillosis and salmonellosis are important bacterial diseases which can lead to early chick death. However, the survival rate of indigenous day-old chicks against such diseases is believed to be higher compared to the farm day-old chicks which may have contributed from the IgY activity present in egg yolk. The current study was focused to compare the IgY content in village and farm chicken eggs and to compare the antimicrobial effects of IgY found in both egg types against *Salmonella*. Six village and six farm laying hens were identified for the egg collection. Gallus Immunotech Chicken IgY Egg Press Purification Kit was used to extract the IgY. Fourier-transform infrared (FTIR) spectroscopy and 10% SDS-PAGE gel electrophoresis under reducing and non-reducing conditions were used to confirm the extracted IgY. Extracted protein concentration (mg mL^{-1}) of samples was measured using nanodrop spectroscopy. The Mann-Whitey test was used to compare the yield analysis (mg). Antimicrobial susceptibility of extracted IgY was determined against *Salmonella* sp. isolated from dead day-old chicks. Inhibition reactions of IgY was measured using agar well diffusion assay by turbidity of broth adjusted to the 0.5 McFarland standard. Extracted protein concentration was (7.35 ± 0.92) and (7.12 ± 0.93) in village and farm samples, respectively. Although there was no significant difference, village chicken eggs showed higher IgY yield (132.47 ± 22.31) compared to farm chicken eggs (115.01 ± 17.40). There was no significant different in inhibition zones (mm) of IgY extracted from village (12.1 ± 2.3) and farm (11.3 ± 1.9) chicken eggs. In conclusion, IgY extracted from both village and farm chicken eggs had a similar antimicrobial effect against *Salmonella*. However, increasing the sample size can improve the accuracy of this preliminary study.

Keywords: Immunoglobulin Y, Village eggs, Farm eggs, *Salmonella* sp., Antimicrobial