

## Effects of Propolis on Immunomodulatory and Antibody Production in Broilers

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**Abstract :** The immunomodulatory effect of propolis has been widely investigated in the past decade. However, the beneficial effects in broilers are still poorly understood. The aim of this study was to evaluate the effect of propolis added in drinking water on immunomodulatory and antibody production in broiler. Total of 48 chicks were randomly allocated into four groups with 12 broilers per group. All birds were intranasal inoculated with Newcastle Disease vaccine at 4 and 14 days old of age. Four groups, including control without any treatment, groups of A, B and F [3 days of anterior (A), 3 days of posterior (P) and 6 days of full (F)] were supplied the propolis at 300 ppm in drinking water when vaccination was performed, respectively. Our results showed that no significant difference was found in growth performance, antibody production and immune organ index among groups. However, propolis treatments in broilers significantly reduced IL-4 expression in spleen at 14 days-old of age and bursa at 28 days-old of age compared with control group. The expression of IFN-gamma in spleen (A, P and F group) and bursal (F group) were elevated compared with control group at 28 days-old of age. In conclusion, our results indicated that propolis-treated birds could bear the capability for immunomodulatory effects by change Th1 subset cytokine expression in vaccination.

**Keywords :** propolis, broiler, immunomodulatory, vaccination

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