

Influence of bacterial organic selenium on blood parameters, immune response, selenium retention and intestinal morphology of broiler chickens

ABSTRACT

Background: Several studies indicated that dietary organic selenium (Se) usually absorbed better than an inorganic source, with high retention and bioavailability. Dietary Se as an antioxidant element affects the immune system and hematological status in animals. Therefore, the aim of this study was to evaluate the effect of dietary supplementation of bacterial selenium as an organic source on hematology, immunity response, selenium retention, and gut morphology in broiler chickens. **Results:** The present results revealed that supplementation of inorganic Se was associated with the lowest level of RBC, HB, and PCV with significant difference than ADS18-Se. In the starter stage, both T2 and T5 were associated with the significantly highest IgG level compared to the basal diet, while all supplemented groups showed higher IgM levels compared to the control group. In the finisher phase, all Se supplemented groups showed significant ($P < 0.05$) increases in IgG, IgA, and IgM levels compared to T1. Birds fed bacterial-Se showed high intestinal villus height and better Se retention more than sodium selenite. The organic selenium of ADS18 had a superior action in improving Se retention compared to ADS1 and ADS2 bacterial Se. **Conclusions:** Bacterial organic Se had a beneficial effect on the villus height of small intestine led to high Se absorption and retention. Thus, it caused a better effect of Se on hematological parameters and immunity response.

Keyword: Bacterial Selenium; Retention; Immunity; Hematology; Gut morphology; Broiler