

Effects of chitin and chitosan from cricket and shrimp on growth and carcass performance of broiler chickens

ABSTRACT

Majority of the studies on the effect of chitin and chitosan on growth and carcass characteristics of broiler chickens has concentrated more on shrimp chitin and shrimp chitosan, and often with contradictory results. Therefore, the objective of this present study is to evaluate and compare the effect of dietary chitin and chitosan from cricket and shrimp on growth performance, carcass, and organ characteristics of broiler chickens. One hundred fifty-day-old male Cobb500 broiler chicks of similar average weight were randomly allotted into one of the five dietary treatments with three replicates. Treatment 1 (T1) chicks were fed basal diet only (control), treatment 2 and 3 (T2 and T3) chicks were given basal diet with 0.5 g/kg diet of cricket chitin and cricket chitosan, respectively, while treatment 4 and 5 (T4 and T5) chicks were served basal diet with 0.5 g/kg diet of shrimp chitin and shrimp chitosan respectively. No significant variation occurred between cricket chitin and shrimp chitin, although data on growth performance were higher in cricket chitin, but growth performance varied significantly between cricket chitosan and shrimp chitosan. This study revealed that cricket chitin at 0.5 g/kg significantly improved growth performance, carcass quality, and organ characteristics of broilers more than chitosan. Birds fed basal diet alone, although gained more weight, also accumulated more fat having the poorest feed conversion ratio (FCR) and the highest mortality. However, carcass of birds fed cricket chitin was the leanest and thus economically beneficial as they consumed the least amount of feed with the best FCR.

Keyword: Dietary chitin; Dietary chitosan; Growth performance; Mortality; Organ characteristics