World Academy of Science, Engineering and Technology
International Journal of Animal and Veterinary Sciences
Vol:12, No:10, 2018

Effect of Dietary Inclusion of Moringa oleifera Leaf Meal on Blood Biochemical Changes and Lipid Profile of Vanaraja Chicken in Tropics

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Abstract : Present study investigated the dietary inclusion of Moringa oleifera leaf meal (MOLM) on production efficiency, hemato-biochemical profile and economy of Vanaraja birds under tropical condition. Experiment was conducted for a period of 56 days on 300 Vanaraja birds randomly divided in to five different experimental groups including control of 60 birds each group replicated with 20 chicks in each replicate. T1, T2, T3, T4, and T5 were offered with 0, 5, 10, 15, and 20% Moringa oleifera leaf meal along with basal ration. All the standard managemental practices were followed during experimental period including vaccination schedule. Locally available Moringa oleifera leaves were harvested at mature stage and allowed to dry under shady and aerated conditions. Thereafter, dried leaves were milled to make a leaf meal and stored in the airtight nylon bags to avoid any possible contamination from foreign material and use for experiment. Production parameters were calculated based on the amount of feed consumed and weight gain every weeks. The body weight gain of T2 group was significantly ($P < 0.05$) higher side whereas T3 group was comparable with control. The feed conversion ratio for T2 group was found to be significantly ($P < 0.05$) lower than all other treatment groups, while none of the group was comparable with each other. At the end of the experiment blood samples were collected from birds for haematology study while serum biochemistry performed using spectrophotometer following statndard protocols. The haematological attributes were significantly ($P > 0.05$) not differed among the groups. However, serum biochemistry showed significant reduction ($P < 0.05$) of blood urea nitrogen, uric acid and creatinine level with higher level of MOLM diet, indicates better utilization of protein supplemented through MOLM. The total cholesterol and triglyceride level was declined significantly ($P < 0.05$) as compare to control group with increased level of MOLM in basal diet, decreasing trend of serum cholesterol noted. However, value of HDL for T3 group was highest and for T1 group was lowest but no significant difference ($P < 0.05$) found among the groups. It might be due to presence of β-sitosterol a bioactive compound present in MOLM which causes lowering of plasma concentration of LDL. During experiment total, LDL and VLDL level was found to be decreased significantly ($P < 0.05$) as compare to control group. It was observed that the production efficiency of birds significantly improved with 5% followed by 10% Moringa oleifera leaf meal among the treatment groups. However, the maximum profit per kg live weight was noted in 10 % level and least profit observed in 20% MOLM fed group. It was concluded that the dietary inclusion of MOLM improved overall performances without affecting metabolic status and effective in reducing cholesterol level reflects healthy chicken production for human consumption.

Keywords : hemato biochemistry, Moringa oleifera leaf meal, performance, Vanaraja birds
Conference Title : ICLFAN 2018 : International Conference on Livestock Farming and Animal Nutrition
Conference Location : London, United Kingdom
Conference Dates : October 15-16, 2018