

Effect of marjoram leaves extract on performances, blood indices, digestive enzymes, immunity, antioxidant and microbial population of growing Japanese quails.

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ABSTRACT

The purpose of this study was to investigate the effects of adding marjoram leaves extract (MLEx) to growing Japanese quails diets on the gut microbiota, serum parameters, immunity, and growth performance. A total of 320 birds, were randomly assigned to four groups each consisting of four replicates of 20 birds (4 ×4×20). A MLEx-free control diet was given to the first group. The control diet plus 50, 100, and 200 mg of MLEx/kg diet were given to the second, third, and fourth groups, respectively. The study found that the groups fed a diet with 200 mg MLEx/kg diet had the best performance index, body weight, body weight gain, feed conversion ratio and faster growth rate when compared to the control group. Moreover, quails treated with MLEx consumed less feed than control group. With the exception of TG, the group that was fed a diet containing 200 mg of MLEx/kg diet had the lowest numbers of *Salmonella*, *Escherichia coli*, lipid profiles, blood glucose and liver enzymes (ALT and AST), with the highest levels of IgG, IgA, IgM and trypsin in comparison to the control group (p < 0.01). Furthermore, quails given 100 mg MLEx/kg diet showed the highest numbers of lactobacilli, amylase, and lipase, while TG and TBARS values were lowest in these birds. To sum up, growth performance, antioxidant activity, serum biochemical and immunity indices, and gastrointestinal bacteria were enhanced by the addition of MLEx at 200 and 100 mg/kg in diets of growing Japanese quails.

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