# Impact of cinnamon powder extract on productive performance, blood parameters, digestive enzymes, immunity, antioxidant and microbial count of growing Japanese Quails.

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## ABSTRACT

**This study aimed to investigate the effects of cinnamon powder extract (CPEx) on the intestinal microbial populations, serum indices and growth performance of Japanese quail. A total of 320 Japanese quail, aged ten days, were randomly divided into four treatment groups, each consisting of four replicates of 20 birds, for a feeding study lasting 38 days. The dietary treatments included a control group (a basal diet without CPEx), as well as three other groups that received the basal diet supplemented with CPEx at levels 150, 250 and 500 ppm/ kg, respectively. The results demonstrated that quails receiving diets supplemented with 250 and 500 ppm CPEx/ kg diet exhibited the highest live body weight, body weight gain, growth rate and performance index, with statistical significance ($P \leq 0.01$). Moreover, quails fed 250 and 500 ppm CPEx /kg diet displayed the best feed conversion ratio and the lowest feed intake. Additionally, quails provided 250 and 500 ppm CPEx/ kg diet demonstrated the lowest total cholesterol, LDL, triglycerides, ALT, AST, TBARS, populations of *Escherichia coli* and *Salmonella*, with the highest levels of high-density lipoprotein (HDL), amylase, lipase, trypsin, immunoglobulin A (IgA), immunoglobulin M (IgM) and population of *Lactobacilli* compared with control ($P \leq 0.01$). Lastly, quails received 150ppm CPEx/ kg diet exhibited the highest levels of GSH-PX and immunoglobulin G (IgG). In conclusion, the inclusion of 250 and 500 ppm CPEx/ kg quails' feed resulted in improved growth performance, antioxidant capacity, blood biochemical parameters, immunological indices and intestinal microbiota in growing Japanese quails.**

**Egyptian Poultry Science Journal(2024) 44: 143-160.**