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Author: [ADVANCED](#) | Volume Page
 Keyword: |



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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Effects of Citric Acid and Microbial Phytase Supplementation on Performance and Phytate Phosphorus Utilization in Broiler Chicks

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An experiment was conducted to investigate the effects of supplementation of broilers diet with both citric acid and microbial phytase on performance criteria and utilization of phytate phosphorus (P) in broiler chicks from day old to 49d of age. The experiment was carried out using a completely randomized design with factorial arrangement of 3×2 (0, 2.5 and 5 percentage of citric acid and 0 and 500IU of phytase enzyme per kg). Experimental diets were formulated so that had 0.2% lower available P than positive control diet. Four replicates of 15 chicks per each were fed experimental (6 diet) and positive control diet. Weight gain (WG), feed consumption (FC), alkaline phosphatase activity, plasma Ca and P concentration, tibia ash and liver, spleen and abdominal fat weight and also mortality were measured. Supplementation of low P diet with citric acid significantly improved WG and feed: gain ($P<0.05$), decreased activity of alkaline phosphatase ($P<0.01$) and increased plasma P concentration ($P<0.01$), but had no significant effect on feed intake, tibia ash and plasma Ca concentration. Microbial phytase significantly ($P<0.05$) improved weight gain and feed: gain in low P diet and also a significant ($P<0.01$) interaction between citric acid and phytase was observed throughout the experimental period.

Keywords: [alkaline phosphatase](#), [broiler](#), [citric acid](#), [phytase](#)



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