Effect of phytase with or without multienzyme supplementation on performance and nutrient digestibility of young broiler chicks fed mash or crumble diets

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Abstract

A total of 210 unsexed 1-day old Arbor Acres broiler chicks were wing banded and randomly distributed among 30 cages of 7 birds per cage keeping equal initial BW during days 1-20 of age. A factorial design (2×3) was used in which there were two feed forms (mash vs crumble diet) and three enzyme treatments (unsupplemented, phytase, phytase plus multienzyme). Each treatment was replicated 5 times with 7 chicks per replicate. Body weight (BW), body weight gain (BWG) and feed conversion ratio (FCR) of fed chicks were significantly improved when the crumble diet was administered. However, feed intake of chicks fed on the crumble feeds was significantly lower than those fed the mash diet. Digestibility of ether extract and crude fiber was significantly greater in groups fed the crumble diet than those fed the mash diet.
Enzyme supplementation significantly and similarly increased growth and production index, and improved FCR. Also greater digestibility of crude protein and crude ash was observed but growth during days 8-14 of age and crude fibre digestibility were significantly greater in chicks receiving the multienzyme plus phytase supplement than those receiving phytase alone. Crumble feed supplemented with multienzyme resulted in the highest performance and nutrient digestibility of broilers during days 1-20 of age.

**Key words:** Broilers, Form of feeds, Enzymes, Phytase, Digestibility.

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productive and physiological traits of broiler chicks fed diets with or without aflatoxin during the first 3 weeks of life

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abstract
An experiment was conducted to determine whether some non-nutritive feed additives (NNFA) could block the adverse effects of aflatoxin (AF) on growth performance and physiological parameters of Cobb broilers throughout the period from 1 to 21 day of age. There were eight treatments consisting of two levels of AF at 0 and 200 ppb and four NNFA within each AF level. These additives included mannan oligosaccharides (MOS) at 2 g/kg diet, hydrated sodium calcium aluminosilicate (HSCAS) at 2 g/kg diet and Lactobacillus acidophilus (Lac) at 2 g/kg diet.
At 21 day of age, five chickens of each treatment were slaughtered to study dressing percentage and relative weight of inner organs and glands. AF had a significant negative effect on body weight gain (BWG), and feed intake, while impairing feed conversion ratio (FCR). Aflatoxin significantly increased percentage liver, lymphocyte (%), monocyte (%), serum triglyceride level, and the aspartate aminotransferase (AST), and alanine aminotransferase (ALT), concentrations while decreasing dressing percentage, intestinal percentage, white blood cells (WBCs), red blood cells (RBCs), haemoglobin (Hgb), packed cell volume (PCV), heterophil (%), heterophil/lymphocyte ratio, total serum protein and serum albumin. Aflatoxin adversely affected the morphology of the liver, bursa and the thymus. There was a significant interaction between AF and NNFA on the relative weights of liver, heart and intestine. Lac completely blocked the negative effects of AF on the percentage liver and the heart and partially on the intestine. In conclusion, Lac was most effective in reversing the adverse effects of AF on growth and FCR and on the percentage, functions and morphology of the liver. Hydrated sodium calcium aluminosilicate also improved the economic traits of broilers but was less effective than Lac and more effective than MOS.

**Keywords**
aflatoxin, broilers, productive performance, feed additives, blood constituents

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