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## Performance and Meat Quality of Chickens Fed Diets Containing Palm Oil Sludge Supplemented with Garlic

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### Abstract

The performance and meat quality of broiler chickens fed diets containing palm oil sludge (POS) in partial replacement of the dietary energy from maize (0, 20 and 40%) with/without garlic supplementation (0 and 5000 mg kg<sup>-1</sup> diet) were assessed for 4 weeks in a 3 × 2 factorial arrangement. Two hundred and sixteen (216) started broiler chickens (Marshal Breed) were randomly assigned to the six experimental treatments with 12 birds per replicate of 3 replicates. Feed intake and weight gained by the birds were recorded weekly. At the end of the feeding trial, two female birds were selected per replicate and humanely slaughtered. Blood samples were collected for serum cholesterol analysis. The moisture and lipid contents, oxidative stability and organoleptic characteristics of selected muscles were also determined. The results showed that the final live weight, total weight gain, total feed intake and feed conversion ratio were not significantly ( $p > 0.05$ ) influenced by POS, garlic and the interaction between POS and garlic. Although the serum cholesterol content of the birds increased numerically with higher level of POS in the diets, supplementary garlic significantly ( $p < 0.05$ ) reduced it. Moisture content of meat was not significantly influenced by dietary treatments. Garlic supplementation significantly ( $p < 0.05$ ) reduced the meat lipid content and increased its oxidative stability. The acceptability of thigh meat from the birds increased with increased level of POS and garlic due to increase in muscle fat by POS and enhanced flavour by garlic. Garlic aroma increased ( $p < 0.001$ ) with increased level of dietary garlic supplementation. To reduce the high cost of feed, up to 20% of the dietary energy from maize could be replaced with that of POS without adverse effect on the performance characteristics of broiler chickens. Also, garlic supplementation of diets containing palm oil sludge would improve oxidative stability and acceptability of meat from the chickens.

**Keywords:** Garlic, meat quality, palm oil sludge, performance, serum cholesterol