

Original Research Article

Effects of soyabean oil and garlic-in-water supplementation on performance, carcass trait, organs weight, haematology, and serum cholesterol content of finisher broiler chickens

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Abstract *A four weeks feeding trial was conducted using the*
In a trial lasting four weeks, 160 four-week old Arbor acre chickens ~~were used~~ to assess the effect of soyabean oil and garlic (*Allium sativum*) in-water on performance, carcass characteristics, organs weight, haematological variables and serum cholesterol content of broiler birds. They were allotted to 4 treatments of 10 birds (5 males and 5 females) per replicate in a 2x2 factorial arrangement in which there were two diets (non-soyabean oil and soyabean oil diets) with or without garlic supplementation in drinking water. The final live weight of birds were significantly ($P<0.01$) increased by the dietary treatments with broilers fed soyabean oil-based diet having significantly ($P<0.05$) higher weight gain than those fed the non-soyabean oil diet. Also, birds without garlic supplementation consistently had higher weight ($P<0.01$) than those offered garlic in drinking water. The water intake of birds given water supplemented with garlic (5.54; 5.64 L/bird) was significantly ($P<0.05$) lower than those without garlic supplementation (5.95; 5.83 L/bird). The haematological variables, serum cholesterol content, carcass characteristics and relative organs weight of the chickens were not significantly different ($P>0.05$). The interactions of dietary oil supplementation and garlic-in-water was not significant ($P>0.05$) for all measured indices. Conclusively, supplementation of diet with soyabean oil led to better broiler performance and garlic-in-water failed to neither lower abdominal fat deposition nor reduce serum cholesterol.

Key words: Broilers performance, Garlic-in-water supplementation, Serum cholesterol, Relative organs weight and abdominal fat, Primal cuts

Introduction

The poor performance of livestock in Africa *has been attributed* was largely ~~advised~~ to inadequate and imbalanced nutrition, high price and poor quality feeds and inefficiency in production and distribution in the feed industry which has greatly reduced animal protein supply (1).

Currently, healthy eating trend is in favour of natural products. Natural feeding supplements such as plant oils like soyabean oil with low fat content and perceived growth-enhancing herbs are commonly used by poultry producers to improve performance. Soyabean oil is known to contain high proportions of unsaturated fatty acids which are believed to reduce heart related diseases. One of the widely used natural supplements to maintain and improve health of humans is garlic (2). It serves as antioxidant, anti-ageing and antihypertensive (3). It has a strong stimulating effect on the immune system and aromatic oils present in it enhance bird's digestion (4).

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Allicin, ~~is~~ the major ~~powerful~~ active ingredient in garlic and its repulsive odour and pungent taste makes it ~~not to be widely used by humans as food~~. Reports (5) that supplementary garlic at 500mg/kg feed in diets of broiler chickens had no adverse effect on performance characteristics, reduced belly fat deposition and ~~also~~ improved meat quality by reducing the production of toxic secondary lipids oxidation products, especially malonaldehyde. *which* There was also similar report ~~in which~~ *has been reported (6).* *Similarly, a* ~~showed~~ reduction in intramuscular fat of broilers fed crushed fresh garlic at 0.3% of the ration. However, report (7) indicated that laborious processes were involved in preparation of garlic powder and its subsequent incorporation into feeds. Therefore, it is conceivable that the addition of garlic in drinking water of broilers could be a way of exploiting the natural potentials of garlic to humans through broiler meat since monogastric animals have the ability to incorporate dietary components directly into their tissues. This study was therefore aimed at evaluating the effects of soyabean oil and garlic-in-water supplementation on performance, carcass trait, organs weight, haematology, and serum cholesterol content of broiler chickens.