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Effects of ginger, roselle and their blends on performance, carcass and meat lipid oxidation in broiler chickens

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Abstract

The paradigm shift towards making livestock production as natural as possible has necessitated increased research into the use of plants with medicinal and other bioactive components, as feed additive in livestock production. This experiment was designed to explore the dietary inclusion of ginger rhizomes, roselle calyces and their blends on the performance, carcass and meat lipid oxidation in broiler chickens. Six identical diets (each representing a treatment) were formulated thus: Treatment 1- Control diet (No Additive), Treatment 2- Control diet+1 % dried Ginger (*Zingiber officinale*), Treatment 3- Control diet+1 % dried Roselle (*Hibiscus sabdariffa*), Treatment 4- Control diet+1 % dried Ginger-Roselle [25:75], Treatment 5- Control diet+1 % dried Ginger-Roselle [50:50], and Treatment 6 - Control diet+1 % dried Ginger-Roselle [75:25]. A total of 90 one-day-old chicks were procured, with 5 allocated to each treatment in 3 replicates. The birds were fed ad libitum on respective allotted diets for eight weeks during which performance parameters were measured. At the eighth week, 2 birds per replicate were randomly selected and slaughtered for carcass analysis and meat lipid oxidation study. Birds from Treatment 1 had the highest ($p < 0.05$) final weight (2533.20g), while birds on treatment 5 had the lowest ($p < 0.05$) final weight (2232.67g). Birds from treatment 4 had the lowest ($p < 0.05$) deposition of abdominal fat (2.36g). Meat from treatment 4 also had the lowest ($p < 0.05$) level of lipid oxidation (2.25 μ g/g) after four weeks of storage. Treatment 4 (Ginger-Roselle [25:75]) was found to significantly reduce abdominal fat deposition and also reduce lipid oxidation up till four weeks of storage. Dietary inclusion of ginger-roselle [25:75] blend in broiler chicken diets can promote carcasses with less fat, which also retains meat quality better during short term cold storage.

Keywords: Bioactive components, chicken, ginger, lipid oxidation, meat, roselle