



Dietary Effect of Dried and Fermented Ginger (*Zingiber Officinale*) on Growth Performance, Meat Quality, Nutrient Digestibility and Cecal Microflora Concentration of Broiler

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Roll No. 0119/06; Registration No. 619

Semester: January-June, 2020

**A thesis submitted in partial of the requirements for the fulfillment of the degree
of Master of Science in Animal and Poultry Nutrition**

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June, 2020

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This is to certify that we have examined the above Master's thesis and have found that the thesis is complete and satisfactory in all respects and that all revisions required by the thesis examination committee have been made.

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List of Abbreviations

DG	-	Dried ginger
FG	-	Fermented ginger
BCRDV	-	Baby Chick Ranikhet Disease Vaccine
IBD		Infectious Bursal Disease
ADG	-	Average daily gain
ADFI	-	Average Daily Feed Intake
FCR	-	Feed conversion ratio
DM	-	Dry matter
CP	-	Crude protein
CF	-	Crude fibre
EE	-	Ether extract
NFE	-	Nitrogen free extract
CVASU	-	Chattogram Veterinary and Animal Sciences University
ME	-	Metabolizable energy
MRS	-	De Man, Rogosa and Sharpe agar
YM	-	Yeast Malta Agar
cfu	-	Colony forming unit
g	-	Gram
Kg	-	Kilogram
%	-	Percentage
et al.	-	And his associates
<	-	Less than
>	-	Greater than
LDL		Low-density lipoprotein
HDL		High-density lipoprotein

Abstract

The present experiment was conducted to determine the impact of dietary dried ginger (DG) and probiotic incorporated fermented ginger (FG) on growth performance, carcass characteristics, meat quality, serum lipid profile, nutrient digestibility, and cecal microflora concentration in broiler. One hundred and twenty unsexed day-old Cobb 500™ commercial broiler chicks were randomly allocated into five dietary treatments and each treatment had three replications with 8 birds per replication in a completely randomized design for a five weeks trial. The five dietary groups were: G₀ (control group, basal diet), G₁ (basal diet+0.5% dried ginger), G₂ (basal diet+1% dried ginger), G₃ (basal diet+0.5% fermented ginger) and G₄ (basal diet+1% fermented ginger). The results demonstrated, substantially ($p < 0.05$) reduced overall FCR at the G₁ fed birds and significantly lowest ($P < 0.05$) final weight and weight gain in G₄ fed birds. During 3rd week, there was significantly ($p < 0.05$) increased average daily gain (ADG) in all the supplemented birds excluding G₄. The lowest average daily feed intake (ADFI) was observed at G₄ birds at the age of 3rd week. Significantly higher ($p < 0.05$) dressed weight, breast meat weight and spleen weight were found in all the dietary supplemented birds compared with control. Dietary treatments did not affect proximate components and p^H of the breast meat. Drip loss percentage of the meat was found to be significantly ($p < 0.05$) reduced in DG and FG supplemented birds. The lowest ($p < 0.05$) cooking loss percentage observed at G₁ fed birds. Meat thiobarbituric acid reactive substances (TBARS) significantly ($p < 0.05$) suppressed in DG and FG supplemented birds than control during 10th day of meat storage. Significantly ($p < 0.05$) serum LDL levels were declined at supplemented birds and serum HDL level inclined significantly ($p < 0.05$) in G₂, G₄ group but declined in G₃ group. Apparent ileal digestibility (AID) for DM, CP, EE and Ash were significantly improved ($p < 0.05$) in all the dietary supplemented birds. The *Lactobacilli* populations in cecal contents significantly higher ($p < 0.05$) whereas lower *E. coli* was found in dietary treated birds. Highest profit achieved from G₁ fed birds. It is concluded that, supplementation of 0.5% DG and 0.5% FG had beneficial effect on growth performance and meat quality with healthier gut environment of broiler.

Keywords: Ginger, broiler, probiotic, digestibility, microflora, lipid profile.