Physical Quality of Local Duck Meat with Addition of Different Vegetable Oils in the ration

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Introduction

Duck meat is an option in the push to satisfy creature protein sources that are effortlessly gotten by the network. Lipids (fats and additionally oils) are frequently included to increase vitality thickness in diets of poultry. It is all around recorded that dietary lipid quality can be altered by utilizing distinctive lipid sources, for example, soybean oil, palm oil, grease, and fat [4] [5]. It is for the most part accepted that the estimation of vegetable oils is superior to that of creature fats [6]. Various distinctive oil sources are accessible for poultry from vegetable sources. Most vegetable oils are good sources of linoleic acid, but very few vegetable oils contain significant amounts of α-linolenic acid. Among vegetable oils, perilla oil has the highest α-linolenic acid (omega-3) content, the difference in LDL is 50% cholesterol and 25% protein while HDL is 20% cholesterol and 50% protein [9]. Therefore, research was needed on physical quality of local duck meat with addition of different vegetable oils in the ration so that there is an increase in carcass quality and nutritional content of duck meat.

Table 1. Feedstuffs composition (on dry matter basis) and nutrient content of experimental diets

Ingredients	T1 (Palm oil)	T2 (Canola oil)	T3 (Coconut oil)	T4 (Soybean oil)
Yellow corn (%)	37	37	36.75	37.50
Pollard (%)	10.25	10.25	11.25	9.75
Rich polish (%)	24.5	23.25	23.75	23.50
Soy Bean Meal (%)	21.5	22.75	21.50	22.50
Premix (%)	2.35	2.35	2.35	2.35
Limestone (%)	0.30	0.30	0.30	0.30
NaCl (%)	0.10	0.10	0.10	0.10
Vegetables Oils				
Palm oil (%)	4	0	0	0
Canola oil (%)	0	4	0	0
Coconut oil (%)	0	0	4	0
Soybean oil (%)	0	0	0	4
Total (%)	100	100	100	100
ME, kcal/kg	3258.97	3262.89	3241.44	3266.61
Crude protein, %	19.64	20.14	19.71	19.99
Crude fiber, %	6.09	6.02	6.11	6.00
Extract ether, %	5.64	5.56	5.61	5.56
Ca, %	0.97	0.98	0.98	0.98
P av, %	0.71	0.71	0.71	0.71

Material and Methods

✓ ***Research materials***

A total of 144 ducks were divided into 4 treatment groups, with 6 replicates and and each replicates consisted of 6 head ducks.. The feeding treatments were:

P1: 96% basal ration + 4% palm oil;
P2: 96% basal ration + 4% canola oil;
P3: 96% basal ration + 4% coconut oil and,
P4: 96% basal ration + 4% soybean oil.
The experiment were conducted for 9 weeks





✓ ***Research methods***

The research feed is arranged and formulated manually starting from the largest proportion of feed ingredients arranged first then mixing it with the smallest proportion of feed ingredients so that a layer of each feed ingredient is formed and then mixed until it is homogeneous. The diets were consisted of yellow corn, pollard, rice polish, soy bean meal, premix, NaCl, limestone, and vegetable oils. The basal diets contained crude protein 19-20% and energy 3200-3300 Kcal/kg. Feedstuffs composition and nutrient content of experimental diets were presented in Table 1.

✓ ***Carcass collection***

Data collection of cut weight and carcass weight was carried out when the ducks were nine weeks old. Before slaughtering, two of the ducks were slaughtered in an experimental slaughterhouse with fasting form twelve hours. The process of slaughtering ducks is done by cutting the carotid artery, jugular vein, trachea, and esophagus. The carcass is the body part of ducks after slaughtering based on Islamic Shari'ah, with removal of feathers, and removal of offal, without head, neck and legs. The breast section is taken for meat chemical analysis.

✓ ***Research Parameters***

The parameters observed in the study were cooking loss, tenderness, pH, and water holding capacity.

✓ ***Data analysis***

This research used one way randomized design. The data were analyzed using analysis of variance (ANOVA) and differences between treatment means were further analyzed using Duncan's New Multiple Range Test (DMRT).

•Results and Discussion

The results of the research on the physical quality of local duck meat with the addition of different vegetable oils in the ration consisting of cooking loss, tenderness, pH, and water holding capacity can be seen in Table 2.

Table 2. The average physical quality of local duck meat aged 9 weeks

Variable	Treatment				P Value
	P1	P2	P3	P4	
Cooking loss (%)	35.77±1.97	35.60±1.94	32.78±8.53	35.60±1.55	0.620
Tenderness (g/cm²)	2.98±0.53[b]	2.28±0.44[a]	2.54±0.17[a,b]	2.38±0.43[a]	0.041
pH	5.43±0.20	5.62±0.15	5.5±0.14	5.48±0.16	0.252
Water holding capacity (%)	8.84±8.51	14.71±4.18	18.40±11.77	19.15±0.61	0.230

[a,b] Different superscripts in the same row show significant differences (P<0.05)

P1 : 96% basal ration + 4% palm oil; P2: 96% basal ration + 4% canola oil; P3: 96% basal ration + 4% coconut oil and P4: 96% basal ration + 4% soybean oil

Conclusion

It can be concluded that the addition of vegetable oil in the ration affects the tenderness of duck meat but did not affect the cooking loss, pH, and water holding capacity.

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