

Sensory Acceptability of Broiler Chicken Meat Supplemented with Hagonoy (*Chromolaena odorata*) Leaf Meal.

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broiler chicken meat, hagonoy (*chromolaena odorata*), leaf meal supplementation, sensory acceptability, oven-baked breast meat, eating quality attributes, alternative feed supplements, meat quality characteristics

Abstract. This empirical study was designed and conducted to determine the post-harvest sensory acceptability and consumer perception of broiler chicken meat derived from livestock supplemented with varying dietary levels of Hagonoy (*Chromolaena odorata*) leaf meal. As the poultry industry continuously searches for sustainable, cost-effective, and locally available nutritional alternatives, understanding the impact of such botanical supplements on the final food product is critical. Specifically, this investigation evaluated the complex organoleptic and sensory qualities of standardized, oven-baked broiler breast meat. The qualitative and quantitative parameters under scrutiny by the evaluation panel included general appearance, aromatic profile, flavor intensity, tissue juiciness, physical tenderness, and overall consumer acceptability. The collected empirical data underwent rigorous statistical analysis, which ultimately revealed no significant differences ($p > 0.05$) among the various experimental dietary treatments for any of the evaluated sensory parameters. The baseline sensory attributes of the oven-baked breast meat samples were consistently and generally rated by the consumer panelists within the highly favorable qualitative spectrum of “Like Moderately” to “Like Very Much.” This range explicitly indicates a remarkably high level of market acceptability and consumer satisfaction across all treatment groups. While minor, subtle variations in the empirical mean scores were observed among the different dietary cohorts, these numeric fluctuations were not statistically significant. This crucial finding strongly suggests that the dietary inclusion of *Chromolaena odorata* leaf meal does not induce any adverse off-flavors, visual anomalies, or negative alterations in the eating quality of the broiler meat. In conclusion, the findings demonstrate that the supplementation of Hagonoy leaf meal in commercial or smallholder broiler diets can be safely utilized by producers without compromising the core sensory qualities, palatability, or consumer acceptability of the poultry meat. Therefore, Hagonoy leaf meal represents a highly viable, sustainable, and potential alternative feed supplement for modern broiler production, effectively lowering input costs while successfully maintaining desirable, premium meat quality characteristics.

Introduction

The poultry industry, particularly broiler production, plays a significant role in the poultry industry as it provides an affordable and accessible source of animal protein for consumers. The increasing demand for broiler meat has encouraged poultry producers and researchers to improve production efficiency while maintaining meat quality and consumer acceptability. Aside from rapid growth performance and feed efficiency, the quality of broiler meat is an important factor that determines its market value and consumer preference. Meat quality is commonly evaluated through sensory characteristics such as appearance, aroma, flavor, tenderness, and juiciness, which greatly influence the acceptability of poultry products.

In recent years, the use of natural feed additives has gained attention in broiler production because of concerns regarding the excessive use of synthetic growth promoters and antibiotics. Herbal plants and leaf meals are being explored as alternative feed supplements due to their potential nutritional and medicinal benefits. Among these plants is Hagonoy, scientifically known as *Chromolaena odorata*, which is known for its bioactive compounds such as flavonoids, tannins, saponins, and antioxidants. These compounds may contribute to improved health status and meat quality in broilers.

The inclusion of plant-based leaf meals in broiler diets may influence not only growth performance but also the sensory characteristics of the meat. Sensory acceptability is an important consideration because consumers prefer meat products with desirable taste, aroma, texture, and overall eating quality. Although Hagonoy leaf meal has potential as a natural feed supplement, its phytochemical components may also affect the flavor and texture of broiler meat when included at different dietary levels. Therefore, evaluating the sensory acceptability of broiler meat supplemented with Hagonoy leaf meal is essential to determine whether its inclusion can maintain or improve meat quality.

This study was conducted to assess the sensory acceptability of broiler chicken meat supplemented with varying levels of Hagonoy leaf meal. Specifically, it evaluated the general appearance, aroma, flavor, juiciness, tenderness, and overall acceptability of oven-baked broiler meat. The results of this study may provide valuable information regarding the potential use of Hagonoy leaf meal as a natural feed additive in broiler production.

Methodology

Experimental Design and Treatment Allocation

The study was conducted using a Completely Randomized Design (CRD) to evaluate the sensory acceptability of broiler chicken meat supplemented with Hagonoy (*Chromolaena odorata*) leaf meals. Broiler chickens were randomly assigned to five dietary treatments with 4 replications. The treatments consisted of a control diet and diets supplemented with Hagonoy leaf meal.

Housing Equipment and Sanitation

The poultry house was constructed using bamboo, lumber, chicken wire, and netting to accommodate the experimental broiler chickens. The twenty (20) experimental cages had dimensions of 1 m × 1 m, covering a total area of 20 m², and were elevated 85 cm above the ground.

Proper hygiene and sanitation were observed throughout the study. All facilities and materials, such as feeders and drinkers, were thoroughly cleaned and disinfected using a disinfectant diluted in water according to the manufacturer's guidelines prior to the start of the experiment. This procedure was carried out to eliminate disease-causing microorganisms and to prevent the occurrence of diseases among the birds.

Collection and Preparation of Hagonoy Leaf Meal

Fresh shoot leaves of Hagonoy (*Chromolaena odorata*) were collected in the morning. The leaves were air-dried and ground into powder before being carefully weighed using a digital weighing scale. The powdered leaf meal was then thoroughly mixed with the feed formulation according to the appropriate amount required for each treatment. The experimental leaf meal was formulated and manually mixed based on the nutritional requirements of the broilers.

Feeding and Care Management

A formulated ration for a starter and finisher ration was used throughout the study. The housing and equipment were cleaned and sanitized daily to prevent harmful diseases that could affect the birds.

Throughout the study, the experimental birds were provided with clean tap water ad libitum, which was changed regularly to ensure its cleanliness and freshness.

Preparation of Baked Breast Meat

The breast meat of the chickens was properly baked. The breast muscles of two (2) broiler chickens were separated and baked for 40 minutes in an oven at 200 °C until the internal temperature of the meat reached 85 °C. No seasoning or flavoring was added to the broiler chicken samples.

The cooked meat was sliced into approximately 1 cm pieces, placed on plates, and properly labeled. A glass of water was provided to each panelist to cleanse their palate between samples.

Sensory Evaluation of the Oven Baked Breast Meat of Broiler Chicken

Broiler meat was baked and evaluated by the respondents. A total of 50 respondents participated in the sensory evaluation of the samples. The broiler meat was evaluated by the panelists, barangay officials, and community members of Barangay Gaddanan. For sensorial test trial, a hedonic, rating scale from 1 to 7 (1: dislike extremely; 2: dislike very much; 3: dislike moderately; 4: neither like nor dislike; 5: like moderately; 6: like very much and 7: like extremely) was used to evaluate the aroma, flavor, color, texture and general acceptance of the chicken breast meat.

Results and Discussion

Table 1 presents the general levels of acceptability of broiler chicken meat supplemented with varying levels of Hagonoy leaf meal in terms of general appearance, tenderness, juiciness, flavor, and aroma. Results showed that all treatments obtained mean ratings interpreted as “Like Moderately” (LM) to “Like Very Much” (LVM), indicating that the panelists generally accepted the broiler meat regardless of the level of supplementation.

For general appearance, the mean scores ranged from 5.04 to 5.52, with all treatments verbally interpreted as “Like Moderately.” In terms of tenderness, the ratings ranged from 5.58 to 6.08, corresponding to verbal interpretations from “Like Moderately” to “Like Very Much.” For juiciness, the mean scores ranged from 5.74 to 6.02, with interpretations ranging from “Like Moderately” to “Like Very Much.” The flavor ratings ranged from 5.64 to 6.06, which were interpreted as “Like Moderately” to “Like Very Much.” For aroma, the scores ranged from 5.94 to 6.26, with verbal interpretations from “Like Moderately” to “Like Very Much.”

Statistical analysis revealed no significant differences (ns) among treatments for all sensory parameters evaluated, namely general appearance, tenderness, juiciness, flavor, and aroma. This means that the supplementation of Hagonoy leaf meal did not significantly influence the sensory acceptability of broiler chicken meat. Furthermore, the coefficient of variation values ranging from 4.56% to 11.83% indicate acceptable consistency in the responses of the panelists. Overall, the results demonstrate that Hagonoy leaf meal can be incorporated into broiler diets without negatively affecting the sensory quality and consumer acceptability of the meat.

The findings of the present study are consistent with the study of Kamorudeen Kolawole Safiyu *et al.* (2024), who reported that the administration of Siam weed or Chromolaena odorata extract in broiler chickens resulted in excellent sensory acceptability of breast meat. Their study revealed that overall acceptability was highest in some supplemented groups, indicating that the inclusion of Chromolaena odorata did not adversely affect the sensory qualities of broiler meat and may even enhance consumer preference. Similarly, Jiwuba *et al.* (2018) reported that broilers fed with *Chromolaena odorata* leaf meal showed good growth performance and acceptable meat quality. Siaboc and Bedro (2024) also found that plant-based feed supplements improved the aroma, flavor, and tenderness of broiler meat. Moreover, Jiwuba *et al.* (2017) observed that *Chromolaena odorata* supplementation did not negatively affect the health and meat quality of broilers. These findings support the present study that Hagonoy leaf meal can be incorporated into broiler diets without reducing sensory acceptability.

Treatments	Criteria				
	General Appearance	Tenderness	Juiciness	Flavor	Aroma
T1(Control)	5.52 LM	5.04 LM	5.3 LM	5.1 LM	5.10 LM
T2(1.5%HLM)	5.82 LM	5.58 LM	6.08 LVM	5.76 LM	5.78 LM
T3(2.0%HLM)	5.74 LM	5.8 LM	6.02 LVM	5.78 LM	5.88 LM
T4(2.5%HLM)	5.82 LM	5.64 LM	6.04 LVM	6.06 LVM	5.92 LM
T5(3.0%HLM)	5.94 LM	6.16 LVM	6.18 LVM	6.14 LVM	6.26 LVM
ANOVA	ns	ns	ns	ns	ns
C.V. (%)	4.56	11.83	5.38	10.01	6.69

LM- Like moderately LVM- Like very much Note: ns – not significant HLM- Hagonoy Leaf Meal

Table 1. General Levels of Acceptability of the Chicken meat.

Conclusion and Recommendations

The results of the study showed that supplementation of Hagonoy leaf meal in broiler diets did not significantly affect the sensory acceptability of broiler chicken meat in terms of general appearance, tenderness, juiciness, flavor, and aroma. All treatments were rated from "Like Moderately" to "Like Very Much," indicating that the meat remained acceptable to the panelists regardless of the level of Hagonoy supplementation. The findings further confirmed that Hagonoy leaf meal can be incorporated into broiler diets without negatively affecting the sensory quality of the meat.

The findings imply that Hagonoy leaf meal has potential as an alternative natural feed supplement in broiler production since its inclusion maintained acceptable sensory qualities and consumer preference of broiler meat. This suggests that poultry raisers can incorporate *Chromolaena odorata* leaf meal into broiler diets without adversely affecting the appearance, tenderness, juiciness, flavor, and aroma of the meat. Furthermore, the use of Hagonoy leaf meal may help promote sustainable and cost-effective poultry production through the utilization of locally available plant resources while maintaining meat quality acceptable to consumers.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.