

PROCESSING TECHNOLOGY AND QUALITY EVALUATION OF MEAT FLOSS MADE FROM THE LEG QUARTERS OF DARAG PHILIPPINE NATIVE CHICKEN

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ABSTRACT

The study aimed to find alternative means of utilization of leg quarters from unselected male Darag Philippine native chicken breeders. A processing technology for meat floss using three formulations (FM1, FM2, FM3) was developed using leg muscles from 24-week-old male Darag. The process involves standardized initial cooking and pan-drying methods. FM3 recorded the highest protein content, lowest fat content, and lowest water activity, with superior redness (a^*), yield, and drying efficiency. No significant differences were observed in pH and moisture content across treatments. All formulations tested negative for *Salmonella* spp., *Listeria monocytogenes*, and *Staphylococcus aureus*. Total plate counts, coliform, yeast, and mold counts were below the minimum acceptable limit for dried meat products. Sensory evaluation revealed significant differences ($p < 0.05$) in appearance and texture. FM3 rated highest for color and aroma, while FM2 scored best in tenderness and fibrousness. Despite a higher ingredient cost, FM3 had the lowest cost per gram due to a higher product yield. All meat floss treatment groups showed good consumer acceptability. The findings highlight the potential of meat floss as a safe, high-protein, and economically viable value-added product from older Darag Philippine native chickens.

Keywords: microbial quality, physicochemical, product yield, sensory evaluation, value-added product

INTRODUCTION

Farm animals have long been a fundamental part of human diets, with chicken (*Gallus gallus domesticus*) emerging as one of the most abundant poultry species worldwide and a vital source of protein (Kralik *et al.*, 2018; Ahmad *et al.*, 2018; Bohrer, 2017). In the Philippines, from January to December 2024, chicken inventory comprised 85.6% broilers, 12.6% native or improved chickens, 1.5% layers, and 0.3% game fowl (PSA, 2025). While the poultry industry has focused on commercial broiler and layer production, native chicken breeds remain important in traditional farming systems. Philippine native chickens (PNC) possess unique genetic traits, adaptability to local conditions, and cultural significance

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(Tadeo, 2024). Among the genetic groups, the Darag Philippine native chicken is widely preferred for traditional dishes such as *tinolang manok* and *lechon*. Demand for native chicken products continues to grow, with consumers willing to pay premium prices for their perceived superior taste and quality (Paguia *et al.*, 2021). Flavor has been identified as the key attribute driving market positioning of native chicken (Medialdia *et al.*, 2009).

Despite increasing demand, product diversification for native chicken remains limited compared with commercial broilers, which offer numerous ready-to-cook and ready-to-eat products. Breeding programs select males at 16–20 weeks of age based on weight and conformation, leaving a surplus of unselected males. When slaughtered beyond the ideal age of about four months, these birds produce tougher meat, reducing carcass value and market potential. This underutilization represents a missed opportunity for farmers to add value to surplus breeder males, limiting income streams and overall industry growth.

Previous studies on Darag chicken meat quality show that younger birds yield tender meat suitable for fresh sale. In contrast, older birds have higher yields but lower tenderness, making them more appropriate for processed products. Meat floss is a potential value-added product for Darag, as its processing involves prolonged cooking and shredding, effectively utilizing tougher meat (Akinleye *et al.*, 2020). Meat floss is lightweight, shelf-stable, and ready to eat, offering convenience to consumers while providing a practical solution for maximizing the value of surplus breeder males. By developing and evaluating meat floss formulations, this study contributes to product diversification and improved marketability of Darag native chickens, creating opportunities for smallholder poultry producers. The study aimed to find alternative means of utilizing leg quarters from unselected male Darag Philippine native chicken breeders. Specifically, it aimed to (1) assess the processing yield and production cost of meat floss made from leg quarters, (2) determine the proximate composition, physicochemical, and microbiological characteristics of the formulations, and (3) compare the sensory attributes of the formulations.

MATERIALS AND METHODS

Ethics Statement

All procedures used in this present study were approved according to the protocol review process of the University of the Philippines Los Baños Institutional Animal Care and Use Committee (UPLB IACUC) (Approval Reference No.: UPLB-2024-045; Protocol Review No.: CAFS-2024-028) and with the Research Ethics Board (REB) (UPLB REB 2024-0175).

Experimental Design and Treatment

A completely randomized design was used to test three meat floss formulations (FM1–FM3) prepared from pooled leg quarter meat of 24-week-old unselected breeder male Darag native chickens. Treatments differed in ingredient composition. Replicates were prepared per treatment, processed under uniform conditions, and subjected to physicochemical, microbiological, and sensory analyses.

Sample Preparation

Darag Philippine native chicken meat floss was prepared using leg quarter cuts obtained from 24-week-old birds. The birds were slaughtered by manual exsanguination

following Lumbo *et al.* (2022). After bleeding, they were scalded in a hot water bath (59–60 °C), defeathered, and eviscerated. Dressed carcasses were chilled in an ice water bath (12 °C, 20 min) and fabricated 24 h postmortem to collect the leg quarters. Lean meat was dissected, removing visible fat, connective tissue, and skin, then pooled to obtain a composite sample for the three formulations.

Preliminary Trial

Preliminary trials were conducted to standardize the basic formulation and processing conditions. Various processing techniques and ingredient combinations were tested to develop a product with acceptable sensory qualities and desirable quality attributes. Moisture content, cooking loss, and processing yield were recorded. The results were used to establish the final formulation, optimized processing conditions, and preparation method.

Process Flow of Chicken Floss Production

The production of Darag Philippine native chicken meat floss followed a systematic process to ensure a high-quality and microbiologically safe product. Strict adherence to Good Manufacturing Practices (GMP) was maintained throughout raw material handling, cooking, shredding, drying, and packaging. This included using clean and sanitized equipment, practicing good hygiene, controlling temperatures, proper waste disposal, and maintaining a clean processing environment. Critical control points included initial cooking to eliminate pathogens, proper drying to reduce water activity, and using clean containers for cooling and storage. All ingredients were accurately measured, and utensils and surfaces were sanitized before and after each step to prevent cross-contamination. Integrating GMP and hygienic handling at every stage ensured the production of safe, high-quality meat floss.

Proximate Analysis

Moisture, ash, and crude fat contents of the chicken meat floss were determined following AOAC (1993) procedures. About 50–80 g of sample per formulation was collected for analysis. Crude protein was analyzed using the same AOAC method at an external accredited laboratory.

Physicochemical Analysis

Water activity (a_w) was measured using a calibrated water activity meter (Novasina LabSwift), and pH value was determined with a calibrated spear-type pH meter (PH60S Spear, Apera® Instruments) after homogenizing 10 g of sample with 90 mL distilled water (1:10 w/v). Color (L^* , a^* , b^*) was assessed using a calibrated colorimeter (CHROMA METER CR-400, Konica Minolta) and expressed in CIELAB values. All measurements were performed in triplicate for each formulation.

Total Product Yield (%)

The weight of the leg quarter meat used in each formulation was measured before processing, and the weight of the final meat floss product was recorded after production. These values were used to calculate the product yield for each formulation based on the method described by Mishra *et al.* (2015) using the following formula:

$$\text{Total Product Yield (\%)} = \frac{\text{Final Product Weight}}{\text{Lean Meat Weight}} \times 100$$

Microbial Analysis

The protocol was approved by the Research Ethics Board of the University of the Philippines Los Baños (UPLB REB 2024-0175). The microbiological quality of the meat floss was assessed following standard methods. Total Plate Count (TPC) was determined by the pour-plate method, while yeast and mold counts, *Salmonella* spp., *Escherichia coli*, and total coliforms were analyzed using Compact Dry® culture plates following the manufacturer's instructions. For each formulation, 25 g of sample was homogenized with 225 mL buffered peptone water (BPW) to prepare a stock solution, followed by serial 1:9 dilutions up to 10^{-4} . For TPC, 1 mL aliquots of diluted samples were pour-plated with nutrient agar. *Salmonella* analysis included a pre-enrichment step before inoculation. Plates were incubated at recommended temperatures and durations according to standard protocols.

Sensory Evaluation

Sensory evaluation was conducted to compare the sensory characteristics of the three chicken meat floss formulations using descriptive category scoring for specific attributes and a 9-point hedonic scale for overall acceptability. The evaluation took place in the sensory room of the Animal Product Science and Technology Division, Institute of Animal Science, University of the Philippines Los Baños (UPLB). Panelists (18–65 years old), composed of students and employees of UPLB with prior experience consuming meat floss, were screened for sensory acuity before participation. Qualified panelists were briefed on product attributes, evaluation criteria, and scoring procedures to ensure consistent assessments. Attributes assessed using descriptive scales included color, appearance, fibrousness, aroma, juiciness, tenderness, saltiness, chicken flavor, and overall taste. General acceptability was rated on a 9-point hedonic scale (1 = dislike extremely; 9 = like extremely). For each formulation, 6 g of chicken meat floss was served in 60 mL sensory cups, randomly labeled with unique three-digit codes. Panelists rinsed their palate with water between samples to prevent carryover effects.

Production Cost

An economic evaluation was conducted to determine the total production cost of each meat floss formulation. The cost was calculated by summing expenses for ingredients, packaging, labor, and overhead. Labor covered manual operations (washing, slicing, cooking, shredding, and pan-frying), while overhead included utilities (water, fuel, electricity) and equipment depreciation costs.

Statistical Analysis

Data from the three formulations were analyzed using SAS® OnDemand for Academics. Normality and homogeneity of variances were tested with the Shapiro–Wilk and Levene's tests, respectively. For data meeting these assumptions, differences among formulations were analyzed using the General Linear Model (GLM): $Y_i = \mu + \tau_i + \varepsilon_i$. Where: Y_i is the observed response for the i^{th} formulation, μ is the overall mean, τ_i is the fixed effect of the i^{th} formulation, and ε_i is the random error term associated with the observation. Tukey's HSD test ($P < 0.05$) was used for pairwise comparisons. Parameters failing assumption checks were analyzed with the Kruskal-Wallis test, followed by Dwass-Steel-Critchlow-Fligner (DSCF) multiple comparisons. Sensory data, collected using a randomized complete block design (RCBD) with individual panelist as blocking factor,

were analyzed by the Friedmanequivalent Cochran–Mantel–Haenszel test based on rank scores. Significant effects ($P < 0.05$) were further evaluated using Tukey’s test.

RESULTS AND DISCUSSION

Processing Yield

Processing yields of the three Darag Philippine native chicken meat floss formulations are shown in Table 1. Lean meat input was standardized at 1 kg per treatment. After initial cooking, cooked meat weights were 623.53 g (FM1), 611.12 g (FM2), and 616.39 g (FM3). Final product weights after pan-drying were 253.92 g, 260.01 g, and 271.88 g for FM1, FM2, and FM3, respectively. Total product yields increased across formulations: 25.39% (FM1), 26.00% (FM2), and 27.19% (FM3). FM3 also had the highest drying yield (44.11%), indicating more efficient moisture removal and higher solids retention. These differences likely reflect variations in ingredient composition, as FM3 contained more complex ingredients that may have improved binding and retention during drying. Meat floss is a ready-to-eat, shredded meat product with a distinctive fibrous, porous structure (Li *et al.*, 2021). Its processing involves initial cooking and pan-drying, which reduces moisture, enhances flavor retention, and produces the desired texture. The development of meat floss supports value addition for unselected male breeders of the Darag Philippine native chicken, increasing their marketability through processed products.

Table 1. Processing yield of Darag Philippine native chicken meat floss made from leg quarter meat.

Variable	Formulation 1	Formulation 2	Formulation 3
Lean Meat Weight (g)	1000.00	1000.00	1000.00
Initial Cooked Meat Weight (g)	623.53	611.12	616.39
Final Product weight (g)	253.92	260.01	271.88
%Cooking Yield	62.35	61.11	61.64
% Drying Yield	40.72	42.55	44.11
% Product Yield	25.39	26.00	27.19

Computations are based on the actual processing condition. Variables are computed using the formula:
% Cooking Yield = Initial Cooked Meat Weight ÷ Lean Meat weight × 100;
% Drying Yield = Final Product weight ÷ Initial Cooked Meat Weight × 100, and;
% Product Yield = Final Product weight ÷ Lean Meat Weight × 100.

Proximate Composition of Dara Philippine native chicken meat floss

The proximate composition of the three meat floss formulations developed from the Darag Philippine native chicken is shown in Table 2. Moisture content ranged from $12.90 \pm 0.66\%$ to $13.96 \pm 0.24\%$, with no significant difference among treatments ($p = 0.2393$). Ash content differed significantly ($p = 0.0002$), with Formulations 2 ($6.38 \pm 0.16\%$) and 3 ($6.11 \pm 0.05\%$) having higher values than Formulation 1 ($4.88 \pm 0.10\%$). Crude fat content also showed a highly significant difference ($p < 0.0001$), where Formulation 1 had the highest fat level ($12.52 \pm 0.13\%$), followed by Formulation 2 ($11.67 \pm 0.23\%$) and Formulation 3 ($8.41 \pm 0.21\%$). Crude protein values ranged from 59.50% to 63.20%.

Table 2. Proximate Composition of Darag Philippine native chicken meat floss made from leg quarter meat.

Variable	Formulation			p-value
	FM1	FM2	FM3	
% Moisture Content	13.96±0.08	12.90±0.66	13.19±0.24	0.2393
% Ash	4.88±0.10 ^b	6.38±0.16 ^a	6.11±0.05 ^a	0.0002
% Crude Fat	12.52±0.13 ^a	11.67±0.23 ^b	8.41±0.21 ^c	<0.0001
% Crude Protein	61.18±0.46	59.50±1.57	63.22±0.48	0.0955

Data are presented as means ± standard error of the mean (SEM) n=3. Means in the same row with different superscripts differ significantly (p <0.05).

The moisture content of all formulations was within the typical range for dried meat products, supporting the adequacy of the pan-drying method used. Huda *et al.* (2012) reported that shredded meat may range from $8.60 \pm 0.8\%$ to $13.56 \pm 0.75\%$ moisture, with *serunding ayam* averaging ~12%. Moisture values below 14% effectively limit microbial activity and ensure product stability. Ash, the inorganic component of food (Ekantari *et al.*, 2020), represents minerals that remain after combustion (Tamasoleng *et al.*, 2023). The significantly higher ash content in Formulations 2 and 3 can be attributed to added flavoring agents such as MSG, soy sauces, and spices, which naturally contain sodium and potassium salts. These minerals enhance flavor intensity while contributing trace elements important for electrolyte balance and taste perception. The ash content in this study is higher than the 3.28% average reported by Huda *et al.* (2012) for *serunding ayam*.

Differences in crude fat content reflect formulation design and ingredient interactions during drying. Formulation 1 had the highest fat level, likely due to fewer binding agents or polar ingredients that could absorb surface oil. Huda *et al.* (2012) associated fat variation in shredded meat with the amount of oil added, noting that fat extraction also depends on processing methods that can remove oil. In this study, the amount of vegetable oil added depended on the initial cooking yield of the Darag chicken meat floss preparation. Crude protein values (59.50–63.20%) indicate high protein density typical of dried meat products, slightly higher than values reported by Umar *et al.* (2020) for chicken floss (58.57–59.40%). The higher protein in Formulation 3 may reflect the concentration effect of lower fat content. High protein levels across all treatments highlight the product's potential as a functional, protein-rich snack, offering a natural alternative to conventional meat snacks for health-conscious consumers.

Physicochemical Properties

Table 3 presents the physicochemical properties of the three meat floss formulations developed from Darag Philippine native chicken leg meat. pH values ranged from 6.17 ± 0.03 to 6.26 ± 0.03 , with no significant difference among treatments (p = 0.2556). Water activity (a_w) differed significantly (p < 0.0001), with FM3 recording the lowest value (0.537 ± 0.001), followed by FM2 (0.571 ± 0.001) and FM1 (0.598 ± 0.001). Significant differences were also observed in color parameters. For lightness (L^*), FM3 showed a significantly lower value (46.42 ± 0.39) compared to FM1 and FM2 (p = 0.0013). Redness (a^*) varied highly significantly (p < 0.0001), with FM3 having the highest value (8.40 ± 0.11), followed

by FM1 (7.58 ± 0.11) and FM2 (5.64 ± 0.08). Yellowness (b^*) also differed significantly ($p = 0.0323$), with FM3 and FM1 presenting similar values (~ 25.4) and FM2 having the lowest (23.72 ± 0.46).

Table 3. Physicochemical properties of Darag Philippine native chicken meat floss made from leg quarter meat.

Variable	Formulation			p-value
	FM1	FM2	FM3	
pH	6.17±0.03	6.19±0.04	6.26±0.03	0.2556
Water Activity (a_w)	0.598±0.001	0.571±0.001	0.537±0.001	<0.0001
Color				
L*	50.35±0.53 ^a	52.50±0.86 ^a	46.42±0.39 ^b	0.0013
a*	7.58±0.11 ^b	5.64±0.08 ^c	8.40±0.11 ^a	<0.0001
b*	25.38±0.42 ^{ab}	23.72±0.46 ^a	25.42±0.22 ^a	0.0323

Data are presented as means ± standard error of the mean (SEM). Means in the same row with different superscripts differ significantly ($p < 0.05$).

The pH values of all formulations were within the expected range for thermally processed poultry products. Indi *et al.* (2023) reported a pH range of 6.08–6.25 for shredded *afkir* chicken. No significant differences were found, indicating that the added ingredients did not strongly alter the acidity of the final product. A pH of 6.17–6.26, combined with low water activity, supports microbial control and product stability. These values reflect the intrinsic meat pH and the minor buffering effect of condiments and spices. Water activity decreased progressively from FM1 to FM3, with FM3 achieving the lowest value. The reduction is likely due to increased ingredient complexity, which enhances solute concentration and moisture binding during pan-drying. These ingredients may also act as humectants, reducing free water and improving shelf life. Lower a_w is desirable for shelf-stable meat products because it reduces microbial growth and prolongs storage (Sun *et al.*, 2002). Hang (2015) noted that no bacteria or mold grow below 0.62 a_w . The 0.537–0.598 a_w range observed confirms that all samples meet safety standards for intermediate-moisture foods.

Color differences reflected the influence of ingredients. FM3, which contained dark soy sauce and aromatic spices, had the lowest L* and highest a*, likely due to increased Maillard reaction and pigment stabilization from soy ingredients. These traits enhance visual appeal, as browning is associated with improved flavor and quality perception. In retail settings, darker, redder hues are often perceived as more flavorful or premium, aligning with consumer expectations for meat floss.

Yellowness (b^*) was highest in FM3 and FM1 and lowest in FM2. This variation may be linked to oil, spices, and cooking intensity, as lipid oxidation and spice pigments (e.g., garlic, peppercorns) can influence b^* values. Such changes subtly affect perceived freshness and acceptability.

Microbial Analysis

Table 4 presents the microbiological profile of the three meat floss formulations

developed from the Darag Philippine native chicken. All formulations recorded aerobic plate counts (APC) of <25 CFU/g, interpreted as no detectable colonies at the 10^{-1} dilution, based on an estimated aerobic plate count (EAPC) approach. This indicates a low overall microbial load and effective heat treatment during cooking and drying. Pathogen screening revealed the absence of *Salmonella* spp. in all 25 g samples, and *Escherichia coli* counts were below 10 CFU/g across all formulations. In addition, the formulations also tested negative for *Listeria monocytogenes*.

Table 4. Microbiological quality of Darag Philippine native chicken meat floss formulations.

Microbial Parameters	Formulation		
	FM1	FM2	FM3
Total Plate Count (CFU/g)	<25 EAPC	<25 EAPC	<25 EAPC
<i>Salmonella</i> spp. (25 g)	Absent	Absent	Absent
<i>Escherichia coli</i> (CFU/g)	<10	<10	<10
Coliforms (CFU/g)	<10	<10	<10
Yeast and Molds (CFU/g)	<10	<10	<10
* <i>Listeria monocytogenes</i>	Negative	Negative	Negative
* <i>Staphylococcus aureus</i>	<10	<10	<10

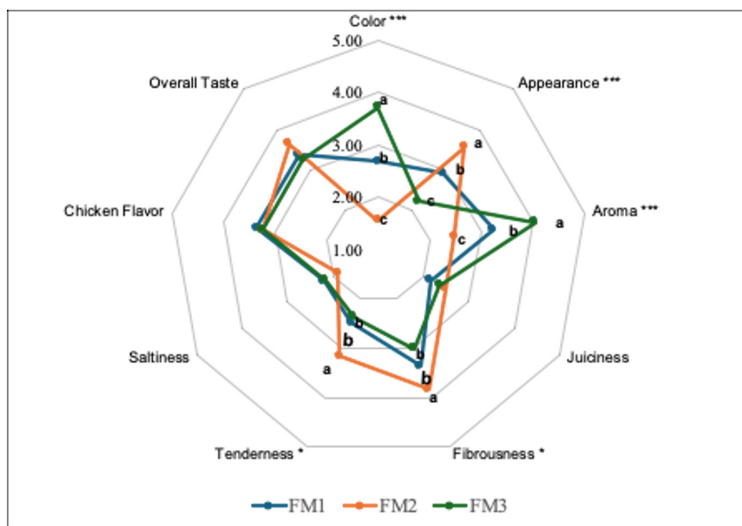
EAPC = Estimated Aerobic Plate Count. A count of <25 CFU/g corresponds to no detectable colonies at the 10^{-1} dilution. Microbial values reported as <10 CFU/g reflect negative detection at 10^{-1} dilution based on a plating volume of 1 mL. *Salmonella* spp. Results are based on presence/absence testing in 25 g samples. * samples were sent to a third-party laboratory as recommended by the Research Ethics Board (REB).

Similarly, *Staphylococcus aureus*, coliforms, yeast, and mold counts were undetectable at the 10^{-1} dilution level (<10 CFU/g), reflecting excellent sanitary handling and shelf-stable conditions. The combined low total microbial counts and absence of pathogens confirm that all formulations meet the acceptable microbiological criteria for ready-to-eat (RTE) dried meat products (FDA, 2022), supporting their safety and stability during ambient storage. These results also align with the low moisture content and water activity observed in earlier analyses, reinforcing the microbiological integrity of the final product. The confirmed absence of *Listeria monocytogenes* and the undetectable levels of *Staphylococcus aureus* (<10 CFU/g) in all treatments comply with microbiological standards for RTE foods, further validating the safety of the developed meat floss formulations for ambient market distribution.

Sensory Evaluation

The mean sensory scores for the three formulations of Darag, Philippine native chicken meat floss are shown in Figure 1. Significant differences ($p < 0.05$) were observed in color, appearance, aroma, fibrousness, and tenderness. FM3 received the highest score for color (3.72 ± 0.14), significantly higher than FM1 (2.68 ± 0.13) and FM2 (1.56 ± 0.14), likely due to soy sauce and spices that enhanced Maillard browning and visual appeal. For appearance, FM2 (3.56 ± 0.19) and FM1 (2.92 ± 0.18) were rated significantly higher than FM3 (2.20 ± 0.87), suggesting that FM3's added ingredients contributed to a more compact structure. Aroma scores followed a similar trend, with FM3 (4.04 ± 0.12) rated highest,

followed by FM1 (3.24 ± 0.18) and FM2 (2.48 ± 0.13), indicating that the more complex spice and sauce blend in FM3 enhanced volatile perception. Fibrousness and tenderness also differed significantly ($p = 0.0017$ and $p = 0.0095$, respectively). FM2 had the highest fibrousness (3.84 ± 0.19), while FM3 was the lowest (3.00 ± 0.18), suggesting that ingredient composition and drying behavior affected fiber separation. FM2 was also rated most tender (3.16 ± 0.20), significantly higher than FM1 and FM3.



*** Variables with different superscripts are significant at a p -value < 0.05 .

Figure 1. Spider web chart with mean sensory scores of the descriptive scoring of the Darag Philippine native chicken meat floss.

No significant differences were found in juiciness, saltiness, chicken flavor, overall taste, or general acceptability ($p > 0.05$). General acceptability scores ranged from 6.32 (FM1) to 7.00 (FM2), corresponding to “like slightly” to “like moderately,” indicating comparable consumer satisfaction across formulations.

Color, appearance, flavor, and taste are critical sensory attributes that influence consumer perception (Lawless and Heymann, 2010). The prominent color in FM3 resulted from dark soy sauce, sugar, and spices, which contributed to a deeper brown tone (Srinivasan, 2005). FM2’s higher appearance score may be linked to its more uniform texture and less compact structure, consistent with Omojola *et al.* (2014), who noted that processing and cooking loss affect visual appeal. Aroma, rated highest in FM3, was enhanced by its complex spice and sauce combination, supporting Winarno (2008), who emphasized aroma’s key role in product palatability.

Differences in fibrousness and tenderness in FM2 may also be related to monosodium glutamate (MSG), which enhances flavor and salivary secretion, facilitating ease of chewing (Zanfirescu *et al.*, 2019). The enhanced sensory traits in FM3 highlight how ingredient combinations improve visual and aromatic appeal in processed native poultry products. Despite these differences, similar general acceptability among formulations suggests all three were equally well-received, while specific ingredients contributed to desirable traits

such as color, aroma, and texture.

Cost Analysis

Table 5 summarizes the cost components involved in producing the three meat floss formulations. A slight increase in total production cost was observed with increasing formulation complexity, from ₱607.39 in Formulation 1 (F1) to ₱610.12 in Formulation 3 (F3). This increase reflects the additional ingredients used in Formulations 2 and 3, which contributed to the enhanced sensory properties. Despite the higher ingredient cost, Formulation 3 yielded the highest product (271.88 g), resulting in the lowest cost per gram (₱2.24). In contrast, Formulation 1, with the lowest yield (253.92 g), resulted in the highest unit cost (₱2.39/g). This suggests that increasing formulation complexity, although initially more expensive, can result in more favorable cost efficiency per unit of output. The results support the principle that yield improvement can partially offset raw material cost increases, especially in thermally processed meat products like floss, where drying behavior influences final weight. The computed selling price per 100 g, based on a 20% markup, also supports this trend. F3 had the lowest estimated retail price (₱268.80), followed by F2 (₱280.80) and F1 (₱286.80). This suggests that among the three formulations, Formulation 3 offers the most economically competitive profile while maintaining a favorable sensory quality. The inclusion of flavor-enhancing and color-developing ingredients appears to not only improve sensory scores but also optimize processing efficiency and reduce per-unit cost, making it more viable for commercial scaling.

Table 5. Cost Analysis of the Darag Philippine native chicken meat floss production.

Cost Component	Formulation		
	F1	F2	F3
Total Cost of Ingredients (PhP)	438.94	439.2	441.67
Labor Cost (PhP)	130	130	130
Overhead Cost (PhP)	37	37	37
Packaging Material (PhP)	1.45	1.45	1.45
Total Production Cost (PhP)	607.39	607.65	610.12
Product Yield (g)	253.92	260.01	271.88
Cost per gram (PhP)	2.39	2.34	2.24
Selling Price (100g)	286.80	280.80	268.80

Labor cost was computed based on the daily wage rate for non-agricultural workers in Region IV-A (₱520/day); Overhead cost includes utility expenses (water, fuel, electricity) and depreciation of tools and equipment; Packaging material used was PET/VMPET/PE metalized foil (70 microns)(₱1.45/pc). Cost per gram = Total Production Cost ÷ Product Yield. Selling price (per 100 g) = (Cost per gram × 100) × 1.20 (20% markup).

CONCLUSION

The study demonstrated the viability of utilizing leg quarter meat from unselected male Darag Philippine native chicken breeders for the production of a high-value meat floss

product. These findings underscore the potential of meat floss as a safe, high-protein, and economically viable value-added product from older native chickens.

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