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Effects of fermented dried Japanese snail (*Achatina fulica*) as a feed supplement on growth performance and carcass yield of broilers (*Gallus domesticus*

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ABSTRACT

The rising interest in using alternative livestock feed sources is mostly driven by the rising cost of commercial feed and the desire for agricultural sustainability. This study was conducted to determine the growth performance and carcass yield of broilers fed a commercial diet supplemented with different levels of fermented dried Japanese Snail (*Achatina fulica*) meal. The study utilized sixty (60) broiler chickens, randomly distributed into four (4) treatments, on a Randomized Complete Block Design. The experimental treatments were: T_0 (Control) 100% pure commercial feeds, T_1 (4% FJSM + 96% commercial feeds), T_2 (8% FJSM + 92% commercial feeds), and T_3 (12% FJSM + 88% commercial feeds). Growth performance was evaluated based on average final weight, average body weight, and average feed intake, whereas feed utilization was measured using feed conversion ratio and feed conversion efficiency. Dressing percentage was also determined as an indicator of carcass yield. All data were subjected to Analysis of Variance (ANOVA) using the Statistical Tool for Agricultural Research (STAR) to determine significant differences among treatments. Results showed significant differences among treatments for all measured parameters. Broilers receiving 8% fermented Japanese snail meal (FJSM) + 92% commercial feeds (T_2) exhibited the best average final weight, body weight gain, and highest feed intake, alongside superior feed conversion ratio and efficiency. The highest dressing percentage was recorded in birds supplemented with fermented Japanese snail meal (T_3). Supplementation of fermented Japanese snail meal positively impacts broiler growth and carcass yield, with 8% supplementation being optimal for growth parameters and 12% for dressing percentage.

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INTRODUCTION

Broiler chickens (*Gallus gallus domesticus*) are birds raised specifically for meat. Broiler production dominates the poultry industry. Reaching an estimated 137 million metric tons of meat produced annually worldwide (Oviedo-Rondón, 2022). Typically, broiler chickens are known for their high feed conversion ratio and fast growth rate (Tallentire *et al.*, 2016), and their rising consumer demand highlights their significance in the poultry industry (Zampiga *et al.*, 2021; Acheampong, 2024).

In the Philippines, poultry production is one of the fastest-growing agricultural industries (Domingo and Olaguera, 2017; Galang, 2017). According to Chang (2007) and Dela Cruz *et al.* (2026), poultry farming, specifically broiler production, also plays a vital role in food security, job creation, and economic growth. Broiler chickens have become the country's leading source of accessible animal protein due to their fast growth rate, low production costs, efficient feed conversion, and relatively short production cycle (DOST-PCAARRD, 2018; Lambio *et al.*, 2010). However, the biggest financial burden in formulating poultry rations comes from common protein sources such as fishmeal and soybean meal due to their limited regional availability and unstable markets (Kanyama *et al.*, 2024). This accounts for major expenses up to 60 to 70% of total broiler production costs (Espino and Bellotindos, 2020).

Consequently, the search for sustainable, unconventional protein feedstuffs (Abasubong *et al.*, 2025) and locally available alternative protein sources has become important for maintaining the viability of the local poultry sector (Diarra, 2015; Karim and Grace, 2023).

A potential alternative protein source is the African giant land snail *(Achatina fulica*), also known as the Japanese Snail (Adeyeye *et al.*, 2020). *A. fulica* is a widespread plant pest in tropical regions, including the Philippines, particularly in the province of Cebu. It is a significant economic threat to various crop vegetation (Neharkar *et al.*, 2025; Lowe *et al.*, 2000). Although *Achatina fulica* is considered an invasive pest (Kumar, 2020; Tiwari, 2024; Rekha Sarma *et al.*, 2015), its meat is rich in nutrients, with high crude protein on a dry matter basis (Pathak *et al.*, 2025).

Additionally, it has a good balance of essential amino acids and relatively low-fat content (Ghosh *et al.*, 2025; Diarra *et al.*, 2015; Al Mamun *et al.*, 2025). These nutritional profiles make *A. fulica* a potential feed ingredient for poultry production, particularly for small growers.

Despite their benefits, Aribisala (2023) stated that the immediate application of unprocessed snail meal in animal feed has not been fully accepted due to issues related to taste, antinutritional and microbial factors. To address these constraints, alternative feed sources that fail to satisfy the nutritional requirements of livestock should be subjected to bioprocessing methods, including microbial fermentation.

Microbial fermentation breaks down complex macromolecules into accessible organic acids and tiny functional peptides, greatly enhancing avian gastrointestinal tract nutrient digestibility and absorption (Katu *et al.*, 2025; Ibrahim *et al.*, 2023); Lian *et al.* (2024) found that fermentation produces probiotic molecules that reduce intestinal oxidative stress and inhibit gut pathogens.

Recent studies have shown that fermented feed ingredients, particularly snail meal, have greatly improved the average daily weight gain and feed conversion efficiency of broiler chickens (Diarra, 2015). Suryadi *et al.* (2024) reported that hydrolysates derived from fermented snail flesh can be utilized as dietary supplements with a restricted protein level to promote growth parameters and the stability of the immune system. Fermentation enhances the health of the host's digestive system and nutrient efficiency, resulting in better carcass quality and meat output (Lian *et al.*, 2024; Sun *et al.*, 2023).

Although many non-conventional proteins are being studied for animal feeds, little is known about fermented dry *Achatina fulica* meal in broiler

production. In particular, the ideal inclusion level of fermented dry Japanese snail meal for the highest growth performance and dressing percentage of broilers has not been clearly identified (Suryadi *et al.*,2024). Hence, a study investigated the growth performance parameters and carcass yield of broilers fed dried fermented Japanese Snail (*Achatina fulica*) meal as a feed supplement.

MATERIALS AND METHODS

Collection, preparation, and fermentation of Japanese snail meal

Achatina fulica (Japanese Snail) was collected from mountainous areas in Sitio Katiwihan, Tolosa, Malabuyoc, Cebu. The collected Japanese snails were thoroughly washed three times to remove slime, soil, dirt, food particles, and potential contaminants. Subsequently, boiled in water for two (2) minutes, and afterwards the meat was extracted and blanched for five (5) minutes following the method of Ong *et al.* (2017). For the fermentation process, the study used an equal ratio of Japanese snails to molasses (1:1) according to Carabio *et al.* (2021). The mixture was placed in the pail and mixed well. It was covered with two layers of manila paper, secured with a rubber band, and labeled. After 14 days, the fermented Japanese Snail was harvested and sun-dried for 2 to 3 days. It was crushed with the use of a hammer mill to a specific size (2 mm-6 mm), the same as the starter and grower-finisher crumble. Afterwards, it was kept in a dry, clean container ready for feed inclusion.

Preparation for experimental house

The construction of the experimental compartments was made using 1 x 2 and 2 x 2 lumber and plastic screen wire. Each experimental cage unit was measured approximately 0.372 meters in length and 0.372 meters in width, providing a total floor area of about 0.14 square meters. The setup allocated 1 square foot per broiler, aligning with the Philippine Council for Agriculture, Aquatic and Natural Resources and Development (PCAARRD) and Philippine Agricultural Engineering Standards (PAES 402:2001). The cages were elevated 0.9 meters (PAES 402:2001) above the ground to enhance airflow, maintain sanitation, and support efficient waste management. Empty feed sacks were used as curtains and hung along the side of the building to prevent drafts or direct contact with sunlight and rain.

Constructed using wooden framing with wire mesh sides and flooring, the design ensures adequate ventilation and drainage. A wooden door was positioned at the front of each unit for convenient access during feeding, cleaning, and bird handling. Other requirements, such as a watering trough, feeding trough, and bulbs as sources of light, were also provided. The housing equipment needed for the study was properly cleaned before use.

Procurements of experimental birds

A total of seventy-six (76) day-old chicks were purchased from a certified commercial hatchery, with sixty (60) chicks allocated for the study, and an additional sixteen (16) chicks were purchased as a reserve to reduce potential mortality. To promote early physiological development, all chicks were given clean water supplemented with commercially available electrolytes and a multivitamin B-complex for three (3) days after they arrived at the study area.

Stocking of experimental birds and brooding

The broiler chicks were initially brooded for two weeks before being transferred to finishing quarters. After two weeks of brooding, the experimental birds were weighed and randomly distributed into twelve compartments, with five birds in each compartment for the study treatment. Their water and feed provisions were closely monitored, alongside proper sanitation and ventilation. Each bird had 1.0 square foot of space for adequate movement and access to resources, promoting overall welfare.

Electric bulbs were installed to serve as a heat source for the broiler chicks during the brooding stage. The temperature of the brooder was set to 32 to 35°C to sustain optimal temperature. The temperature was gradually reduced by 2 to 3°C each week until it

reached the normal ambient level. Old newspapers were used as absorbent litter material throughout the brooding period, providing cushioning and moisture control while facilitating easy cleaning and replacement. Individual plastic feeding and watering troughs were installed in each cage to ensure consistent access to feed and water while preventing contamination between experimental groups.

Research design and treatments

The experimental design used in this study was the Randomized Complete Block Design (RCBD) to evaluate the potential effect of Fermented Japanese Snail Meal as a feed supplement in broiler diets. A total of sixty (60) day-old broiler chicks were randomly assigned to four (4) dietary treatments and replicated three (3) times. There were five (5) broilers in every replicate, for a total of fifteen (15) birds per treatment.

Each compartment had a dimension of 0.14 sq. meters and was arranged as follows: RCBD.

To- 100% pure commercial feeds

T1-4% FJSM feed supplementation + 96 % commercial feeds

T2-8% FJSM feed supplementation + 92% commercial feeds

T3-12% FJSM feed supplementation + 88% commercial feeds

Administration of treatments

All experimental birds received the same brand of commercial feeds to ensure that any observed differences can be attributed to the feed supplementation treatments. Feed supplementation was provided by adding pure commercial feeds with different levels of Fermented Dried Japanese Snail Meal to the birds' feeding troughs. Supplementation was started on day fourteen (14) and continued until day twenty-eight (28), with a total of fourteen (14) days of treatment.

Watering and feeding management

In accordance with the feeding recommendations by the Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development (PCARRD), broiler chickens were given ad libitum or unlimited access to the feeds. The total feed given per day was based on the recommended broiler feeding guide of Universal Feed Mill Corporation (Unifeeds). Feed was offered twice daily, in the morning (7:00) and afternoon (4:00). Before each daily feeding commenced, the leftover feeds from the previous feeding were collected and weighed to determine the amount of feed consumed during the preceding period. The quantities of feed offered and the corresponding leftovers were carefully recorded for each feeding session. This data facilitated the calculation of daily feed intake, feed conversion ratios, and overall feed efficiency. The experimental birds were given broiler booster crumble for one week, then broiler starter crumble during the growing stage until the finishing stage.

The experimental chickens had unrestricted access to clean water, which was supplied in the morning and afternoon to ensure adequate hydration. Appropriate waste disposal practices were implemented to prevent contamination of feeds or water, thereby maintaining a clean and healthy environment.

Health management

Sanitation and proper management practices were observed throughout the duration of the study to prevent the entry of diseases. The poultry house was sanitized using proper disinfection practices. Necessary tools and equipment were thoroughly washed and cleaned after being used. The cages, feeders, waterers, and other equipment used in the study were properly cleaned and disinfected. Manure was removed daily.

Data gathered

A rechargeable digital weighing scale was used once a week to record the body weights of each bird as well as the daily feed allocations. The average final weight (AFW), average body weight gain (ABWG), average feed intake (AFI), feed conversion ratio (FCR), and feed conversion efficiency (FCE) were computed for every treatment, feeding phase, and overall period.

Average final weight

The Average Final Weight (AFW) of broilers was a critical indicator of their overall health, growth performance, and production system efficiency. It is a standard metric used by poultry producers to assess the success of our management practices and the health of our flock**.**

Average final weight = (Total weight of birds per compartment)/(Total number of samples/ compartment)

Average body weight gain

Average body weight gain (ABWG) is the average increase in the body weight of broiler chicken over a specific period. It is one of the most important indicators for evaluating the growth performance and effectiveness of feeding programs in broiler production. This was obtained by subtracting the birds' average final weight from their average initial weight.

ABWG = Average final weight–Average initial weight

Average feed intake

Average Feed Intake (AFI) represented the average amount of feed consumed by a broiler chicken during a specific period. Further, monitoring AFI helped in assessing feeding behavior and feed consumption patterns. It is essential for evaluating feed efficiency and ensuring that nutritional requirements are met without overfeeding, which can lead to increased production costs.

Average feed intake = Feed given-left over/Number of animals

Feed conversion ratio

Feed Conversion Ratio (FCR) is a measure of an animal's efficiency in converting feed mass into increased body mass. It indicated how much feed is required for a unit of weight gain. A lower FCR value signified better feed efficiency, meaning less feed is needed for the broiler to gain weight. This is crucial for cost-effective production, as feed costs constituted a significant portion of total production expenses. Monitoring FCR helped optimize feeding strategies and improve overall production efficiency.

Feed conversion ratio = Average feed intake/Average body weight gain

Feed conversion efficiency

Feed Conversion Efficiency measures the ability of animals to convert the feed they consume into body weight gain. A high feed conversion efficiency indicates that birds utilize nutrients more effectively, requiring less feed to produce a given amount of weight gain.

Average feed conversion efficiency=(Average body weight gain/Average feed consumed)×100

Eviscerated full dressed

At the end of the trial, birds were slaughtered humanely, and the dressing percentage was determined. The head, feathers, entrails, and feet were removed before computing the data, using the formula.

% Dressing Percentage (DP) = (Dressed weight of carcass/Liveweight) × 100

Data analysis

All data were subjected to Analysis of Variance (ANOVA) using a Randomized Complete Block Design (RCBD). Statistical analysis was performed using the Statistical Tool for Agricultural Research (STAR) to determine significant differences among treatments, with post-hoc analysis using the Least Significant Difference (LSD). The significance level was set at 0.05%.

RESULTS AND DISCUSSION

Average final weight

Table 1 shows the average final weight of broilers after two weeks of FJSM supplementation at different levels. Results revealed that

supplementation with 8% dried fermented Japanese snail meal + 92% commercial feeds (T_2) attained the highest average final weight at 1838.40 grams and was significantly different from Treatments 0, T1, and T3. The treatments supplemented with 4% dried fermented Japanese snail meal + 96 % commercial feeds (T_1) and 12 % dried fermented Japanese snail meal + 88% commercial feeds (T_3) did not significantly differ from the control group (T0). This indicates that including 8% of fermented Japanese snail meal into broiler diets improves growth performance. Zhang *et al.* (2026) and Katu *et al.* (2025) stated that fermentation improves unconventional feed ingredients by reducing antinutritional factors, boosting protein digestibility, and increasing essential amino acid availability. Fermentation elevates feed quality through improved nutrient utilization and digestibility (Dai *et al.*, 2020). Similar findings by Paler *et al.* (2024) reported that fermented alternative protein can be used to improve broiler growth at the right level of inclusion.

Table 1. Average final weight of broilers supplemented with fermented Japanese snail meal from two (2) weeks -old to finishing stage

Treatment	Average final weight
T0-pure commercial feeds	1760.53 b
T1-4% FJSM supplementation +commercial feeds	1776.67 b
T2-8% FJSM supplementation + commercial feeds	1838.40 a
T3-12% FJSM supplementation + commercial feeds	1754.80 b
CV (%)	0.6314
pValue	0.0003

Means having the same letter are not significant different.

Table 2. Average body weight gain of broilers supplemented with fermented Japanese snail meal from two (2) weeks -old to finishing stage

Treatment	Average body weight gain
T0-pure commercial feeds	1276.13 b
T1-4% FJSM supplementation + commercial feeds	1278.67 b
T2-8% FJSM supplementation + commercial feeds	1344.93 a
T3-12% FJSM supplementation + commercial feeds	1265.87 b
CV (%)	0.8445
pValue	0.0004

Means having the same letter are not significant different.

The twelve (12) percent inclusion rate had the lowest mean compared to the control group and could indicate palatability issues at higher levels of supplementation. Excessive levels of supplementation altered the taste of broilers. These findings aligned with a study by Amobi *et al.* (2019), which found that the dietary inclusion level should not exceed the optimal level. Additionally, Niknafs and Roura (2018) reported that domestic animals, including poultry, also possess taste buds that make them sensitive to taste sensations. So, if palatability were affected at higher levels of fermented snail meal supplementation, the birds' feed intake would lessen, thereby decreasing the rate of growth of the birds.

Average body weight gain

Table 2 shows that in terms of the average body weight gain, results revealed that broilers consuming 8% supplementation (1344.93 grams) significantly attained the highest body weight gain compared to the control diet (1276.13 grams), 4% supplementation (1278.67 grams), and 12% supplementation (1265.87 grams). Body weight gain is a direct indicator of growth efficiency. The superior performance of birds under T_2 shows that fermentation increased protein quality and nutrient digestibility, helping birds convert nutrients into muscular tissue. Leeson and Summers (2009) stated that the optimum quality of dietary protein and the amino acid balance are important factors

influencing broiler gain. Fermented feeds also promote the development of gut microbial populations, leading to better intestinal morphology and nutrient absorption.

Canibe and Jensen (2012) further noted that fermented feeds benefit the gastrointestinal tract by promoting the growth of beneficial bacteria and inhibiting harmful bacteria. Improved gut health leads to more efficient nutrient utilization and faster growth.

In contrast, the 12% supplementation(T_3) exhibited the lowest body weight gain (1754.80). This indicates that supplementation with higher amounts of fermented snail meal affected palatability. Babatunde *et al.* (2021) noted that broilers reduced voluntary feed intake when the inclusion rate crossed an optimal threshold, resulting in lower weight gain.

Average feed intake

The average feed intake of broilers at fourteen (14) days of supplementation was significantly affected by the different treatments, as shown in Table 3. Feed intake significantly differed among treatments.

Supplementation with 8% fermented Japanese snail meal + 92% commercial feeds(T_2) had the highest feed intake (1793.93 grams), followed by 4% supplementation + commercial feeds(T_1) at 1780.67 grams, control, plain commercial feeds (T_0) at 1764.87 grams, and 12% supplementation+ commercial feeds (T_3) at 1743.13 grams. Cruz *et al.* (2005) and Behnke and Beyer (2002) stated that feed intake was influenced by feed quality, nutrient density, and palatability. Fermentation has been shown to enhance feed aroma and decrease compounds that limit feed acceptance (Canibe and Jensen, 2012).

Table 3. Average feed intake of broilers supplemented with fermented Japanese snail meal from two (2) weeks -old to finishing stage

Treatment	Average feed intake
To-pure commercial feeds	1764.87 c
T1-4% FJSM supplementation + commercial feeds	1780.67 b
T2-8% FJSM supplementation + commercial feeds	1793.93 a
T3-12% FJSM supplementation + commercial feeds	1743.13 d
CV (%)	0.3399
pValue	0.0002

Means having the same letter are not significant different.

Table 4. Feed conversion ratio of broilers supplemented with fermented Japanese snail meal from two (2) weeks -old to finishing stage

Treatment	Feed conversion ratio
To-pure commercial feeds	1.38 a
T1-4% FJSM supplementation + commercial feeds	1.39 a
T2-8% FJSM supplementation + commercial feeds	1.33 b
T3-12% FJSM supplementation +commercial feeds	1.38 a
CV (%)	0.9625
pValue	0.0066

Means having the same letter are not significant different.

The lower intake at the 12% inclusion level indicated that higher supplementation levels adversely affected feed intake by reducing palatability. Higher supplementation of snail meal imparts a stronger, more pungent flavor and odor from both the snail tissue and the fermentation process. De la Higuera (2001) noted that voluntary feed consumption may be reduced due to changes in flavor, odor, or nutrient composition resulting from excessive incorporation of unconventional feed ingredients.

Feed conversion ratio

Table 4 indicates the feed conversion ratio of broilers supplemented with different levels of fermented dried

Japanese snail meal. Broilers consuming the 8% fermented Japanese snail meal supplementation in their diet (T_2) exhibited the most favorable feed conversion ratio (1.33 grams). This was significantly lower than the control group (1.38 grams), the 12% supplementation (1.38 grams), and the 4% supplementation (1.39 grams). This means lower FCR in broilers requires less feed to gain weight, which improves production efficiency.

As Sugiharto *et al.* (2026) point out, lower feed conversion ratios reflect superior nutrient utilization and overall broiler performance. The greater FCR observed in T_2 indicates that fermentation increased nutrient accessibility, allowing birds to transform feed into body mass more effectively. Ravindran (2013) reported that enhanced nutrient digestibility significantly reduces feed conversion ratio by improving nutrient absorption. Similar findings were reported by Predescu *et al.* (2024), who found that fermented feed ingredients improve gut health and nutrient digestibility, leading to a better feed conversion ratio.

Feed conversion efficiency

Table 5 shows the feed conversion efficiency (FCE) of broilers supplemented with different levels of Fermented Japanese Snail Meal (FJSM). Broilers supplemented with 8% FJSM had the greatest FCE (74.97%), significantly higher than the control group (72.31%), 4% supplementation (71.81%), and 12% supplementation (72.62%). The lack of significant differences among T_0, T_1, and T_3 indicates that while a moderate 8% inclusion optimizes efficiency, higher inclusion rates (12%) do not yield further benefits due to palatability issues.

Table 5. Feed conversion efficiency of broilers supplemented with fermented Japanese snail meal from two (2) weeks -old to finishing stage

Treatment	Feed conversion efficiency
To-pure commercial feeds	72.31 b
T1-4% FJSM supplementation + commercial feeds	71.81 b
T2-8% FJSM supplementation + commercial feeds	74.97 a
T3-12% FJSM supplementation + commercial feeds	72.62 b
CV (%)	0.9608
pValue	0.0060

Means having the same letter are not significant different.

Table 6. Dressing percentage of broilers supplemented with fermented Japanese snail meal from two (2) weeks -old to finishing stage

Treatment	Dressing percentage
To-plain commercial feeds	74.51 c
T1-4% FJSM supplementation + commercial feeds	75.64 b
T2-8% FJSM supplementation + commercial feeds	76.24 ab
T3-12% FJSM supplementation + commercial feeds	76.82 a
CV (%)	0.7425
pValue	0.0116

Means having the same letter are not significant different.

The superior performance of the 8% supplementation suggests that an optimal inclusion rate facilitates a more efficient conversion of feed nutrients into body tissue. This improvement can be attributed to fermentation, which breaks down complex organic molecules, increases protein digestibility, and degrades antinutritional factors, thereby enhancing overall nutrient availability and uptake (Sugiharto and Ranjitkar, 2019).

These findings align with Mountzouris *et al.* (2007), who demonstrated that fermented feeds help maintain a balanced gut microbiome, which directly improves digestion and nutrient absorption. From an economic perspective, achieving a higher FCE at the 8% level offers significant advantages to broiler producers by maximizing weight gain per unit of feed, ultimately lowering overall production costs.

Dressing percentage

Table 6 revealed the dressing percentage of broilers supplemented with fermented dried Japanese snail meal after two weeks of inclusion. Dressing percentage is a key parameter of slaughter efficiency and carcass yield recovered after slaughter. The study revealed significant differences between treatments.

Treatment 3 (12% fermented Japanese snail meal) had the highest dressing percentage (76.82%) compared to the control (T_0, pure commercial feeds), which had the lowest (74.51%). Although T_3 did not have the highest final body weight, the progressive improvement in dressing percentage with increasing snail meal supplementation indicates improved carcass recovery. *Achatina fulica* meal is highly concentrated with proteins, minerals, and chitin. At a concentration of 12%, it helps build dense muscles and strong bones, so less weight is put on fat or water absorption. This means that a better dressing percentage is produced.

The results coincide with the studies of Liu et al (2017) and Rodrigues *et al.* (2008), who reported and emphasized that dietary proteins affect carcass yield, and amino acid nutrition affects broiler performance. The 2.31% advantage from control to T_3 was due to better nutrient availability for tissue deposition. Similar findings of Abbas *et al.* (2024) emphasized how feed quality affects carcass yield.

The significant treatment effect indicates that differences in dressing percentage are due to the different supplementation levels of fermented Japanese snail meal.

CONCLUSION

This study showed that supplementation of dried fermented Japanese Snail (*Achatina fulica*) meal (FJSM) is a suitable supplement to broiler feed and can enhance growth and feed utilization parameters. The growth performance of the treatments was found to be best for the 8% FJSM supplementation + 92% commercial feed (T_2), which yielded the highest average final weight (1,838.40 grams), body weight gain (1,344.93 grams), feed intake (1,793.93 grams), best feed conversion ratio (1.33 grams), and highest feed conversion efficiency (74.97%). The 12% FJSM supplementation + 88 % commercial feeds (T_3) obtained the highest dressing percentage (76.82%), which showed higher carcass recovery.

The overall results indicate that 8% FJSM supplementation is the best percentage to be included to improve growth performance and efficiency. In contrast, inclusion at 12% might have benefits in dressing percentage but could have adverse effects on palatability and growth performance. Hence, fermented *A. fulica* meal has the potential to be used as a locally available alternative feed supplement for broiler production.

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