

Comparison of the Effect of Probiotic Powder, Probiotic Liquid, and Probiotic Combination on Broiler Carcass Quality and Carcass Percentage

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Abstract.

A key factor in accomplishing the SDGs is the livestock industry and broiler chicken farming. Zero hunger is one of the SDGs' goals, and it enhances nutrition to support food security in the livestock and agricultural sectors. It's intriguing to research the usage of probiotics as a booster in chicken feed addition. The purpose of this study was to determine how adding probiotic-based liquid, powder, and combination affected the quality and percentage of the carcass weight. Under a fully Randomized Design in a 4 x 4 factorial layout, one hundred Ross broilers were randomly split into four groups (five replicates per treatment and five birds per replicate). T0 is the control group (no probiotics), T1 is the baseline diet plus probiotic powder (50 mg/kg), and T2 is the drinking water plus probiotic liquid (1 mL/L). and T3= Combination (Liquid probiotic + drinking water 1 mL/L) and Powder-based utilized Basal diet + probiotic powder 50 mg/Kg. Duncan was employed in additional tests. Probiotics can increase the percentage of carcass and the quality of the carcass weight. T3 is the most effective treatment in terms of carcass weight and percentage of the carcass.

Keywords: *probiotic, broiler, carcass*

Introduction

SDGs are a collection of sustainable goals and targets that are universally agreed upon by the world to carry out agreed and established agendas and policies. The creation of goods, services, and products is intimately tied to the idea of desire. Livestock business and cultivation in broiler poultry cultivation have an important role in achieving the SDGs. One of the SDGs targets is zero hunger, which promotes food security in the livestock and agriculture sectors by improving nutrition. These days, it's fascinating to research the addition of probiotics to chicken feed as a booster. The many benefits of giving probiotics include: maintaining digestive health in chickens, technology-friendly growth promoters because they are a substitute for Antibiotic Growth Promoters (AGP), modulating intestinal microflora, inhibiting pathogens, and improving meat quality. (Susanti et al., 2021) given SPE can improve weight performance. Prior studies on the effects of probiotics on broiler chicken performance were conducted by (Susanti et al., 2022) showed that the addition of liquid-based probiotics and the addition of combined probiotics had a real effect on increasing body weight.

One way to improve meat quality is by observing the carcass quality of broiler chickens. Researchers are competing to use technology to maximize carcass quality. One way to improve carcass quality is by adding probiotics. According to the observations of (Rehman et al., 2020), there is no significant influence between the use of probiotics on carcass quality, where several

factors are related, such as poultry and probiotic strain, gender, and dosage used. According to observations by (Sarangi et al., 2016), the use of probiotic, prebiotic, and symbiotic observations on carcass quality has no real effect but has many other advantages compared to no treatment. (Pelicano et al., 2003) Found that, other from thigh weight, the amount of probiotic use had no discernible impact on carcass quality or weight as compared to controls. (Pelicano et al., 2005) stated that neither the qualitative nor quantitative assessments of carcass quality were impacted by the usage of probiotics. (Abu et al., 2017) Results indicated that the percentage of moisture and protein, water holding capacity, neck weight, and liver weight were all significantly impacted by the administration of probiotics. (Kabir, 2009) added that the use of probiotics can suppress the development of pathogens such as *Staphylococci* and *Escherichia coli*, the use of probiotics improves carcass quality in pre-freezing and postfreezing storage.

Research from (Badaruddin et al., 2022) about the addition of several probiotics to drinking water revealed a noteworthy impact on body length, femur length, chest, and yeast. Research from (Ahmed et al., 2019) probiotics added to the diets of birds raised under stress conditions (i.e., not in extremely hot temperatures) improved clinical blood values, carcass characteristics, and growth performance.

Materials And Methods

This study was conducted to observe the effect of the addition of probiotic-based powder, liquid, and combination on carcass quality and carcass percentage.

Birds, Design, and Experimental

The study was carried out at Politeknik Negeri Lampung Teaching Farm. Under a fully Randomized Design in a 4 x 4 factorial layout, one hundred Ross broilers were randomly split into four groups (five replicates per treatment and five birds per replicate). T0 represents the control group (no probiotics), T1 represents the basal diet plus probiotic powder (50 mg/kg), T2 represents drinking water plus probiotic liquid (1 mL/L), and T3 represents the combination of (Liquid probiotic + drinking water 1 mL/L) and (Powder-based utilized Basal diet + probiotic powder 50 mg/Kg). Additional assessments made use of Duncan

Carcass Yield

At the end research (28 days), each bird from the replicates was randomly selected to study carcass quality and percentage carcass. Carcass quality was calculated by the weight of the meat after being cut, removing the internal organs, and removing the feathers. Therefore carcass percentage = (Carcass weight/weight before slaughtered) x 100%.

Result and Discussion

Table 1. Observation Carcass Quality and Percentage of Carcass

Parameters	T0	T1	T2	T3
Carcass weight (gr/b)	838.00±21.67	872.00±25.88 ^a	912.00±16.43 ^{ab}	924.00±13.41 ^{ab}
Percentage of Carcass(%)	75.80±3.49	81.00±3.67 ^a	82.20±1.78 ^a	84.20±1.09 ^a

Desciption: ^{a,b} = values followed by unequal letters in a row indicating significantly different (P<0.05), T0= Control; T1= Basal diet + probiotic powder (50 mg/Kg); T2= Drinking water +

probiotic liquid (1 mL/L); T3= Combination (Powder based used Basal diet + probiotic powder 50 mg/Kg) and (Liquid probiotic+ drinking water 1 mL/L).

Results from observation of carcass weight quality (**Table 1**) showed that giving probiotics was significantly different (<0.05) than the control. This carcass weight condition in contrast with funding from (Sarangi et al., 2016) the use of probiotic observations on carcass quality has no real effect but has many other advantages compared to control. Previous research from (Susanti et al., 2022) giving probiotics can improve body weight in birds and have a significant effect on T2 and T3. Observation on T2 and T3 on carcass weight had a significant effect than no probiotic. According to research from (Badaruddin et al., 2022), the length of the femur, the body length, and the yeast chest were all significantly impacted by the addition of various probiotics to drinking water. Based on therapy to control, the quality of carcass weight is increased by all probiotics. T3, with an average of 924.00 grams per pound, is the best treatment based on carcass quality.

Observation from percentage of carcass (**Table 1**) showed that giving probiotic had significantly different (<0.05) than without probiotic. This funding in contrast with (Pelicano et al., 2005) showed probiotic usage had no impact on carcass quality assessments, either qualitative or quantitative. Therefore, research from (Abu et al., 2017) revealed the percentage of carcass, particularly the weight of the neck and liver, the percentage of moisture and protein, and the water-holding capacity, were significantly affected by the addition of probiotics. The best treatment from the percentage of the carcass is T3 with average about 84.20%. (Ahmed et al., 2019) added that Probiotic supplementation improved clinical blood markers, carcass characteristics, and growth performance.

Conclusion

Based on this research, adding probiotics can improve carcass weight quality and improve the percentage of the carcass. The best treatment for carcass weight and percentage of carcass is T3.

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