



The assessment of perfect bleeding on laying hen's carcasses (*Gallus gallus*) sold in traditional markets in Banda Aceh

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Abstract

The perfect bleeding in slaughtering animals is closely related to the halalness of the meat. This study aims to describe the perfectness of blood drains in discarded laying hen's carcasses sold at traditional markets in Banda Aceh City. The research samples were nine chicken carcasses bought from three traditional markets, i.e., Peunayong, Ule Kareng, and Seutui (three samples from each market). The study used a cross-sectional method to test the perfect carcass bleeding with the Malachite Green (MG) test in the form of seeing changes in the color of the solution. The results showed that all samples changed color from green to dark blue. A perfectly slaughtered chicken will not find hemoglobin in the chicken carcass, causing O₂ to oxidize malachite green to a dark blue, indicating that the slaughtering and bleeding occurred perfectly. In conclusion, the carcasses of discarded laying hens sold in the traditional markets of Peunayong, Ule Kareng, and Seutui are halal.

Keywords: laying hens; perfect blood drain; malachite green test.

Background

The increase in egg industries has resulted in an increase in discarded laying hens that have reached the end of optimum production. These chickens are usually 18 to 20 months old and weigh about 2 kg to 2.5 kg. Once the egg production stage ends, they are ready to be discarded (can number in tens of thousands per production cycle). As a result, if not all of them are sold and switched as source of meats, the cost of feed and maintenance can be a considerable burden to the farmers since they are no longer profitable (Kenedi et al., 2020).

Discarded laying hens still have economic value for breeders or producers when distributed to traditional markets. At certain times, many culled laying hens are sold in traditional markets in Banda Aceh. The selling pattern of discarded laying hens in Banda Aceh is the same as that of other broilers. Generally, chicken meat, both

broilers and discarded laying hens, is sold in the form of carcasses after being slaughtered at poultry abattoirs.

Before slaughtering, the chicken must be healthy and rested for 12-24 hours. Rest time aims to minimize stress so perfect bleeding can be achieved when slaughtered (Yana et al., 2017). Discarded laying hens are usually more stress-sensitive than broiler chickens because they are harvested at a relatively older age. Stress on spent laying hens can affect the level of perfection of bleeding. According to Amelia et al. (2012) stress can lead to fatigue, so if slaughter is carried out when the chicken is exhausted, it will be difficult for the heart to pump blood, resulting in the blood is not drained perfectly.

Materials and Method

This study used a cross-sectional study method. The sampling was conducted

at the Peunayong, Ule Kareng, and Seutui traditional markets in Banda Aceh. The sample examination was conducted at the Laboratory of Veterinary Public Health, Faculty of Veterinary Medicine, Universitas Syiah Kuala.

The examination procedure was carried out by making meat extract by cutting 6 g of meat into small pieces and putting it into 14 ml of distilled water in an Erlenmeyer. The mixture was rested for 15 minutes, then filter the extract, and take 0.7 ml of filtrate, and put in a test tube. Into the test tube, put one drop of malachite green and one drop of hydrogen peroxide (H₂O₂)

3%. Then it was leave for 20 minutes at room temperature. The results of dark blue indicated the blood in the carcass was drained perfectly. On the other hand, when the results turn green and cloudy, it means the bleeding was not perfectly drained.

Results and Discussion

The results of this study show that all samples were observed with perfect bleeding during the slaughtering process. The perfect bleeding is marked by a change in malachite green to dark blue color. The results of the test can be seen in Table 1.

Table 1. Results of the malachite green test on carcass samples of discarded laying hens sold in traditional markets in Banda Aceh

Market	Malachite green test			
	Positive		Negative	
	Amount	%	Amount	%
Peunayong	3	100	0	0
Ule kareng	3	100	0	0
Seutui	3	100	0	0

Table 1 indicates that the results of the malachite green test on all carcass samples of discarded laying hens sold at the Peunayong, Ule Kareng, and Setui markets in Banda Aceh showed positive results for perfect bleeding. The meat sample that still contains a certain amount of blood will have the hemoglobin (Hb) residue that can be detected through the malachite green test.

The malachite green solution competes with Hb to bind oxygen because Hb has a higher affinity than malachite green so Hb will bind oxygen first. Imperfect bleeding can be seen when the mixed solution of meat extract, H₂O₂ 3%, and malachite green turns green and cloudy, while the positive result (perfect bleeding) occurs if the solution is clear blue (Sulasmi, 2012) (Figures 1 and 2).



Figure 1. A change in the color of the solution to blue indicated positive results for all samples

Based on the results, it can be seen that the slaughtering process in discarded laying hens has been appropriately conducted. Several factors, including

adequate rest before slaughter, likely support this. The chickens were also healthy and did not experience stress during the slaughter period. The carcasses are perfectly

bleeding after being slaughtered and are ready to be sold on the market to customers.

Generally, the slaughtering process of poultry in Banda Aceh traditional markets is carried out directly. After slaughtering, the chicken is placed in a vat (container) to wait for the bleeding to perfect for about five minutes. The carcass was soaked in a container filled with hot water, followed by the hair removal process using a hair removal machine (Delfita, 2013). After that, the carcass is washed and displayed on the racks.

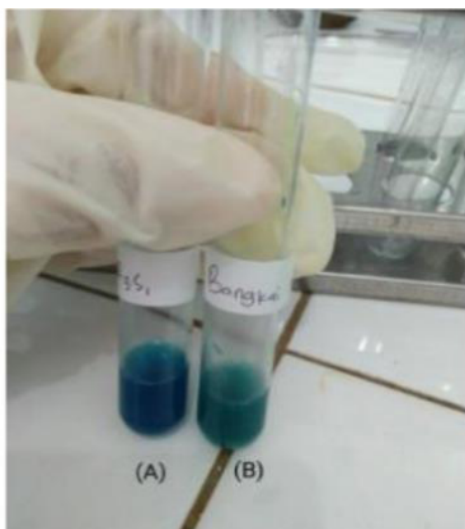


Figure 2. Positive control and negative control of the MG test solution. (A) Blue as a positive control means perfect blood drain, (B) Green as a negative control means imperfect blood drain.

The discarded laying hens sold in the Banda Aceh traditional markets mainly originated from North Sumatra province. Therefore, after long transportation, the chickens should rest for up to 2 days to avoid stress.

Slaughtering procedures at traditional markets in Banda Aceh, especially conducted in the three chosen traditional markets in this research, have followed Islamic law's provisions and rules. In Islamic law, the slaughtering should be done by an adult Muslim at least over 18 years old, physically and mentally healthy, and understands slaughter procedures according to Islamic rules. They should use sharp equipment to make sure the procedure is done as quickly as possible in a single cut

of the throat. The animals should also be properly restrained and face the city of Mecca (the Qibla) while praising God (reciting Basmallah) (Indriati et al., 2021). The consumption level of chicken meat from discarded laying hens is increasing in Banda Aceh. The meat can also be processed into a variety of menus. For instance, it can be the main ingredient in making chicken meatballs (Hanifah et al., 2020). The nutritional contents are as good as broiler chicken meat, consisting of 22.93% protein and 1.49% fat (Marwansyah et al., 2019).

This study also used questionnaires to collect people's perspectives towards discarded laying hens. The correspondents were ten housewives that being interviewed while they were buying the chickens. The results showed that 7 out of 10 housewives stated that compared to broiler chicken, the discarded laying hen was preferable (Table 2). Generally, the price is usually lower, and the meat is more textured and not easily overcooked. It is also more in protein content with less fat (Mardhika et al., 2020).

Table 2. The level of interest of consumer to discarded laying hen's carcasses

Consumer identity	Choice
Housewife 1	High
Housewife 2	High
Housewife 3	High
Housewife 4	Low
Housewife 5	Low
Housewife 6	High
Housewife 7	Low
Housewife 8	High
Housewife 9	High
Housewife 10	High

Imperfect bleeding in slaughtered chickens can be caused by a lack of rest and excessive stress on the chickens. If the blood does not come out perfectly, then the decomposition process will occur quickly and result in a decrease in the quality of the meat. This can happen because blood is a good medium for the development and growth of microorganisms (Ulfa et al., 2019).

Conclusion

Based on the results of this study, it can be concluded that the slaughtering process of discarded laying hen's carcasses originating from traditional markets in Banda Aceh was perfectly blood drained.

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