

The Physical Characteristics of Buff Banded Rail (*Gallirallus Philippensis*) Meat at the Extrem Minahasa Market

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Abstrac

Considering the interest of the Minahasa community in processed meat from the Buff Banded Rail (*Gallirallus Philippensis*), locally known as "burung weris," to fulfill their consumption of protein outside of conventional livestock, it is necessary to understand the physical characteristics of the burung weris carcass to explore and evaluate basic information to support burung weris farming efforts as a meat-producing livestock. This, in turn, is expected to contribute to the diversification of meat processing.

The research method used was exploratory and observational techniques. Samples were obtained from three extreme markets in Minahasa to observe carcass percentage, carcass and fat color, water binding capacity, and pH (20 samples for each extreme market, totaling 60 samples for three extreme markets). The data obtained were analyzed descriptively.

The carcass of burung weris percentage was 65.85%, indicating significant potential for development as meat-producing livestock. The meat color and fat of burung weris have carcass characteristics different from domesticated livestock. The physical characteristics of burung weris meat in some extreme markets in Minahasa based on pH ranged from 6.54 to 6.59, and water binding capacity ranged from 69.71% to 72.5%. The quality of burung weris meat in traditional markets can be considered good because the pH and water binding capacity values are still within the normal range.

Keywords: Burung weris, Physical characteristics

INTRODUCTION

Buff Banded Rail (*Gallirallus Philippensis*) in Minahasa is known as the "weris" bird. The Manado and Minahasa communities have been consuming weris bird meat for a long time during celebrations of successful harvests, weddings, and other festivities. During these celebrations, people prefer weris bird meat over chicken meat because it has a sweet, fibrous taste and is less fatty than chicken. The local dish served at these events is called "weris garo rica-rica."

One of the major issues in the world today is the degradation of natural resources, leading to limited food sources for humans. In this regard, efforts are needed to address the issue of food provision and nutrition, which is closely related to the need for animal protein, especially for the current and future population of Indonesia. Currently, the demand for meat is met by imported meat with limited substitution of local meat.

Facing the situation of meat demand and supply as a source of animal protein, there is a need for new sources of supply from wild animals with high protein content for domestication. In tropical regions (including Indonesia), animals are natural resources that need to be utilized to improve community welfare through the development of food diversification towards improving the nutritional value of the population. Many animals in Indonesia are still wild, and if cultivated,

they would be quite potential livestock contributors as a source of high-nutrient meat for human consumption.

Considering the interest of the Minahasa communities in processed meat burung weris and its contribution to fulfilling meat consumption as a protein source outside conventional livestock for the Minahasa community, it is necessary to understand the characteristics of weris bird carcasses and their quality as a resource and food security for the people in the Minahasa region and its surroundings. This research focuses on the physical characteristics of weris bird carcasses to explore and examine basic information to support weris bird farming efforts as meat-producing livestock, which is expected to lead to the diversification of meat processing. Therefore, this research is deemed necessary.

MATERIALS AND METHODS

Samples were obtained from three extreme markets located in Minahasa to observe carcass percentage, carcass color, fat color, pH, and water holding capacity (20 samples for each extreme market, totaling 60 samples for three extreme markets). The sampling technique used was purposive sampling, considering the extreme markets. Slaughtering was performed by cutting at the neck. Skinning was carried out by making an incision from the neck to the anus, the skin was removed from the ventral side of the abdomen and chest towards the dorsal side and then towards the posterior. Subsequently, viscera removal was done by cutting the abdomen wall to the chest.

Physical Quality

PH measurement was carried out using a meat pH meter (Hanna, USA). The cathode was calibrated, then inserted into the sample and left until the number displayed on the digital measurement did not change anymore. The pH meter cathode was rinsed with distilled water and dried before reuse (AOAC, 2005). Measurement of water activity (aw) value was done using an aw meter (Novasina Ms-1).

Parameters observed for carcass physical quality according to SNI 3924:2009 are:

- Carcass Percentage
Carcass percentage was obtained by dividing carcass weight by live weight and multiplying by 100, or can be written with the following formula: Carcass Percentage (%) = $a/b \times 100$ Where: a = carcass weight (g) b = live weight (g)
- Meat Color
- Fat Color
- Meat pH
- Water Holding Capacity

Physical analyzed variance with a completely randomized design of one-way, if there are differences between three locations at a confidence interval of 95%, then proceed with the Duncan's New Multiple Range Test (DMRT) method (Gaspersz, 1991). Data that do not meet statistical rules are described descriptively.

RESULTS AND DISCUSSION

The extreme market conditions in Minahasa generally consist of open kiosks or stalls. The layout of the traders is not well-organized, with most of them selling daily necessities such as fish, fruits, vegetables, eggs, and meat all mixed together. Sellers of cuscus meat usually transport their goods from home to the market using motorcycles or pickup trucks by placing the cuscus in plastic bags or sacks for easier transportation. Then they place their merchandise directly on the table

without using refrigeration or ice boxes for handling after slaughter, thus storing cuscus meat at room temperature in an open area. The selling place conditions in the Minahasa extreme market generally only consist of wooden or ceramic tables, making them prone to contamination and unhygienic. There is no specific place for traders in the extreme market, which leads to a lack of quality in the cuscus meat.

Carcass Percentage

The carcass percentage produced was measured by measuring the body parts that produce meat, as shown in Table 1.

Table 1. Carcass percentage of burung weris and some other animal species

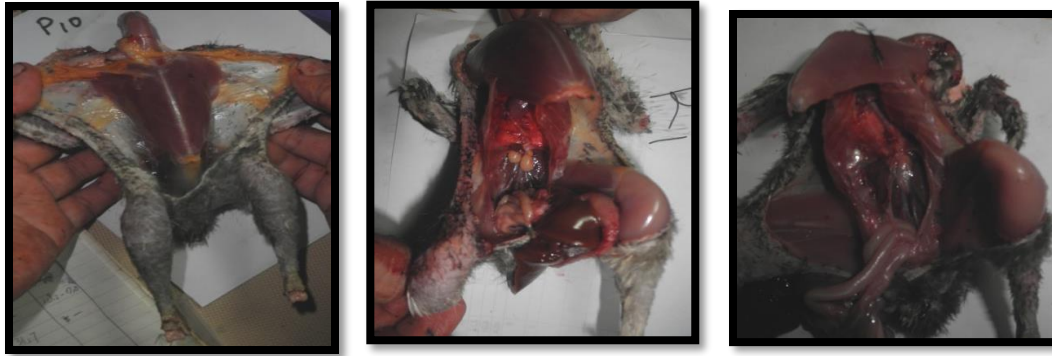
Species	Rataan (%)
Pig ⁵⁾	72.00
Broiler ⁶⁾	71.25
Ayam kampung ⁷⁾	69
Burung weris	65.85

1)Boogs et al. (1998); 2)Rose (1997); 3) Iskandar (2007)

Observations show that the carcass percentage of Burung weris (65.85%) is higher compared to other livestock, but when compared to the carcass percentage of broiler chickens and pigs, it is lower. This suggests that cuscus is very potential as an alternative meat-producing animal. According to Wiliamson & Payne (1993), wild animals generally produce higher carcass percentages compared to conventional livestock.

Meat Color and Fat of Burung weris

Burung weris meat has a slightly reddish color compared to chicken meat with very little fat content. The average fat content in 3 extreme markets in Minahasa ranges from 1.2g to 1.7g (Figure 1). The appearance of an animal's carcass is influenced by genetic and environmental factors or their interaction (Milocevic et al., 2015). Furthermore, Soeparno (1992) stated that livestock breeds can produce carcasses with their own characteristics, indicating that cuscus has carcass characteristics different from other wild animals or domesticated livestock. This confirms that the high or low carcass percentage produced is influenced by several factors, including fattening, quality, and quantity of consumed feed, as well as the weight of its viseral organs. The ability of livestock to utilize more feed energy will result in larger fat deposition in the carcass. Fat deposition can be subcutaneous fat, visceral fat, intermuscular fat, and abdominal fat. These fat parts can cause differences in muscle growth and affect the composition of animal carcasses, including differences in carcass percentage between animals.



Picture 1. Performance meat colour and fat burung weris

pH and water activity (a_w) values are important indicators in assessing the physical quality of meat. Both indicators are closely related to the presence of microbes in the meat, thus determining its shelf life and quality. The quality assessment results of whistling duck meat in this study are presented in Table 1. The pH values of whistling duck meat from the three markets show no significant difference ($P > 0.05$). The pH range of the meat from these three markets is 6.54-6.59. The physical quality of whistling duck meat in three different traditional market locations

Parameter	Market A	Market B	Market C
pH	6.25 ± 0.21	6.00 ± 0.18	6.37 ± 0.26
a_w	0.84 ± 0.3	0.85 ± 0.3	0.85 ± 0.2

According to Van Laack et al. (2000), the pH range of meat is 5.96-6.07, and the research results of Prayitno and Suryanto (2012) indicate that untreated broiler chicken meat has a pH range of 6.11-6.25. The research results of Suradi (2008) show that chicken meat has a pH of 6.31 immediately after slaughter, then decreases with the length of time after slaughter, namely 2, 4, 6, 8, 10, and 12 hours with pH values of 6.24; 6.16; 6.10; 6.02; 5.96 and 5.82 respectively. Referring to these research results, the whistling duck meat from the three markets has a pH range that is still acceptable for consumption.

Water Binding Capacity According to Soeparno (2009), water binding capacity is influenced by factors such as muscle location, age, feed (e.g., feed additives), transportation, temperature, humidity, gender, health, treatment before slaughter, and intramuscular fat. Based on the data obtained, most of the whistling ducks in the extreme markets in Minahasa come from catchers in the same area as the location of the extreme markets, so it is highly likely that the feed consumed by these whistling ducks is relatively the same. In addition, other factors include the handling of whistling ducks during transportation, and the hot and humid conditions of the market cause water binding capacity to vary within a short range. From Table 2, it is known that the water binding capacity values of whistling duck meat range from 69.71% - 72.5%. These water binding capacity values are within the normal range. The high water binding capacity values of whistling duck meat in this study can also be attributed to the meat being still fresh.

Conclusion

The physical quality of bushmeat sold in several extreme markets in Minahasa is still within the normal range, making it safe for consumption.

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