

PROCEEDINGS



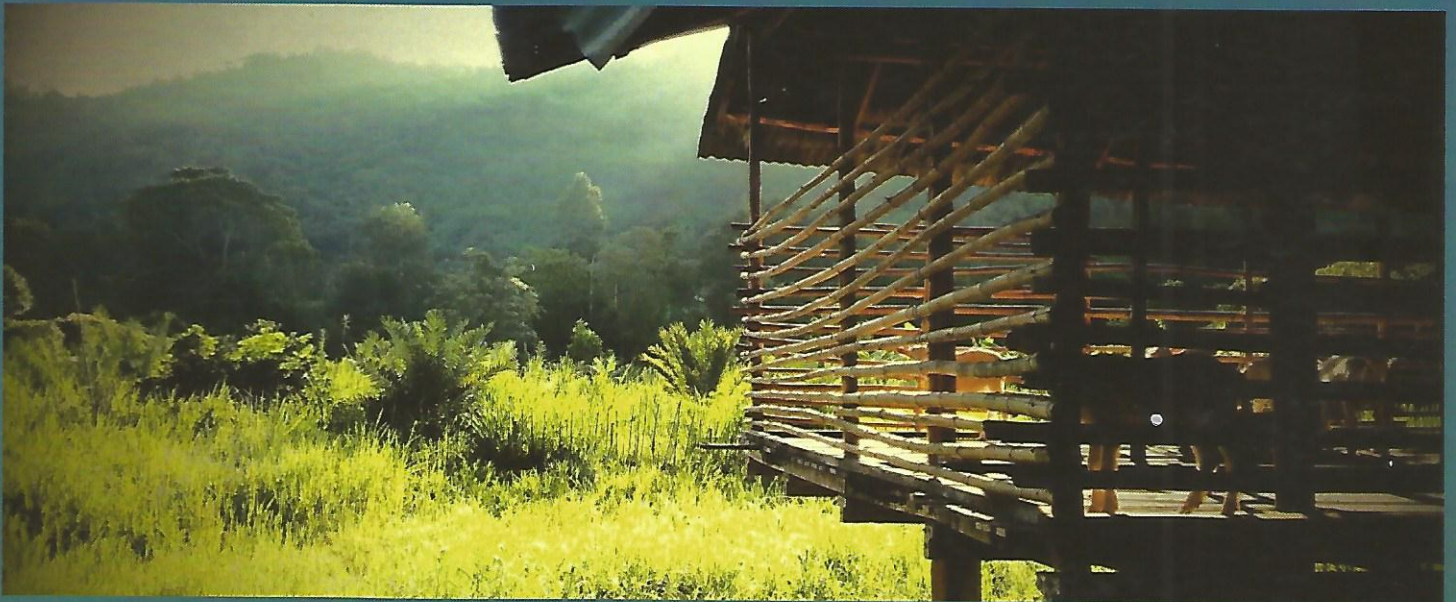
5th

SAADC 2015

The 5th International Conference on
Sustainable Animal Agriculture for Developing Countries

**“CLIMATE SMART SUSTAINABLE ANIMAL AGRICULTURE FOR FOOD SECURITY
AND LIVELIHOOD IMPROVEMENT IN THE DEVELOPING COUNTRIES”**

October 27-30, 2015, Dusit Thani Pattaya Hotel, THAILAND



Jointly organized by



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Nutrition, fatty acid and cholesterol content of Garut lamb meat at different ages fed with diet containing mungbean sprouts waste

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Abstract

Garut lambs from two different ages, under five month old up to eight months old used for meat production, were fed a concentrate diet containing mungbean waste. The effect of different ages on nutrition, fatty acid composition, and cholesterol content were measured. After fattened about 3 months in individual cage, a total of six male lambs (3 lambs under five month old and 3 lambs up to eight month old) were slaughtered. Lambs meat was taken from *Longissimusthoracis et lumborum*. Nutrition content of lamb meat was quantified by proximate analysis. Fatty acid composition and cholesterol content were analyzed by gas chromatography. Analysis of variance was used to compare differences of age effect on nutrition, fatty acid composition, and cholesterol content. The different ages in this study had no significant effect on nutrition content, fatty acid composition, and cholesterol content ($P > 0.05$). The total of SFA was higher than USFA in garut lamb meat.

Keywords: nutrition, fatty acid, cholesterol, lamb meat, mungbean sprouts waste

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Introduction

The lamb meat is one kind of meats that consumed by community in Indonesia. Indonesian people like the lamb meat because of its typical aroma (*muttony*). However, they also afraid to consume lamb meat because the fat and cholesterol of lamb meat were considered to trigger hypertension and coronary heart disease. The content of nutrient, cholesterol and fatty acid composition of meat were determined by the animal species, age, sex, and animal feed (Romans et al., 1994; Salvatori et al., 2004). So the aim of this experiment was to evaluate the nutrition and fatty acid composition and cholesterol content of garut lamb meat at different ages fed with diet containing mungbean sprouts waste.

Materials and Methods

Six male of garut growing lambs (three lambs two month old and three lambs up to eight month old), were used in this experiment. The animals were fattened with complete ration pellet containing 30% of mungbean sprouts waste (87.7% dry matter, 16.7% crude protein, 24.5% fiber, 3.7% extract ether and 72.2% total digestible nutrient). After fattened about 3 months in individual cage, a total of animals were slaughtered. Lambs meat was taken from *Longissimus thoracis et lumborum*. Nutrition content of lamb meat was quantified by proximate analysis. Fatty acid composition and cholesterol content were analyzed by gas chromatography. Analysis

of variance was used to compare differences of age effect on nutrition, fatty acid composition, and cholesterol content.

Results and Discussion

Nutrition content (moisture, ash, protein, fat and carbohydrate) of lamb meat were not significantly different between ages (Table 1). The average of moisture and protein of this study was 70.25 and 21.08%, and they were lower than the result study of Williams (2007), which respectively amounted to 72.90 and 21.90%. However the fat in this study was higher than its study (5.62% and 4.70%).

Table 1. Nutrition content of meat of five and eleven month old garut lamb.

Variables	5 month	11 month	Average
Moisture	69.17 ± 3.17	71.33 ± 4.09	70.25 ± 3.63
Ash	1.88 ± 1.63	1.13 ± 0.19	1.50 ± 0.91
Protein	20.19 ± 2.07	21.9 ± 0.68	21.08 ± 1.37
Fat	5.74 ± 1.12	5.50 ± 3.60	5.62 ± 2.36
Carbohydrate	0.05 ± 0.01	0.05 ± 0.01	0.05 ± 0.01

The fatty acid composition of five month old to eleven month old garut lamb which fed by a diet containing mungbean waste was not significant different. Saturated fatty acid (SFA) which identified by this study from the highest to the lowest were palmitic acid (C16:0), stearic acid (C18:0), myristic acid (C14:0), lauric acid (C12:0), caprylic acid (C8:0), and capric acid (C10:0). Unsaturated fatty acid (USFA) which identified by this study from the highest to the lowest were oleic acid (C18:1), linoleic acid (C18:2) and linolenat acid (C18:3) (Figure 1).

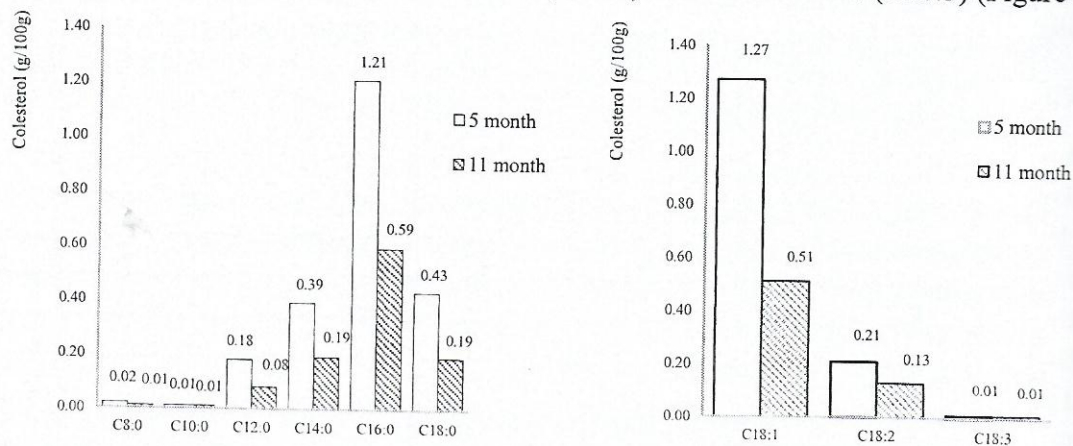


Figure 1. Fatty acid composition of garut lamb meat at different ages

Average of SFA total (palmitic acid, stearic acid, myristic acid, lauric acid, caprylic acid, and capric acid) from five month old and eleven month old lamb meat was 1.485 g/100 g lean meat and the average of USFA (oleic acid, linoleic acid, and linolenat acid) was 1.070 g/100 g lean meat. This result was lower than Williams 2007 that found out the average of SFA was 1.730 g/100 g lean meat and USFA was 2.388 g/100 g lean meat. The total of SFA was higher than USFA in garut lamb.

The age of lamb did not give any effect on lamb meat cholesterol. Average of garut lamb meat cholesterol in five month old and eleven month old lamb was 65.47 ± 22.25 and 71.30 ± 29.90 mg/100 g (the average was 68.38 ± 26.07 mg/100 g) (Figure 2). The cholesterol in garut lamb was higher than the result from William (2007) that found out the average was 66.00 mg/100 g lean meat.

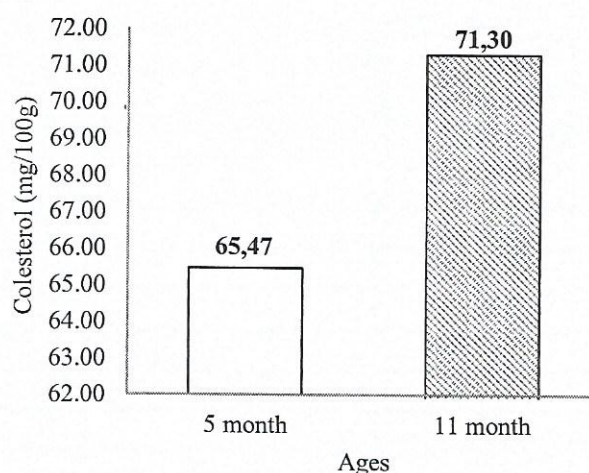


Figure 2. Cholesterol content of garut lamb meat at different ages.

Conclusion

It was concluded that there were no significant effect of different ages on nutrition and cholesterol content and fatty acid composition of garut lamb meat which fed by a diet containing mungbean sprouts waste. The total of SFA was higher than USFA in garut lamb meat.

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