Physiological Status, Blood Profile and Body Composition of Sheep Fed with Ca-Saponified Lemuru Oil Coated by Herbs

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ABSTRACT

Indonesia is one of humid-tropical country with average daily temperature range from 22 - 35^{o}C with relative humidity around 85%. In this condition, animal has problem with body thermoregulation and utilization of energy budget. To solve the problem, nutritionist tries to reduce *heat increment* trough feeding management. This study was aimed to evaluate physiological status, blood profile and body composition of sheep fed with ca-saponified lemuru oil coated by herbs. Twenty thick tail sheep (av. BW 23 kg) were used in this experiment. The average room temperature during experiment was 22–33^{o}C with 83–92% relative humidity. All animals fed with concentrate contained 3% ca-saponified lemuru oil and king grass (1:1) *ad libitum*. Treatments were control diet without ca-saponified lemuru oil (R1); ca-saponified lemuru oil coated by curcumae (R2); ca-saponified lemuru oil coated by ginger (R3); ca-saponified lemuru oil coated by *Eugenia polyantha* (R4) and ca-saponified lemuru oil coated by *Pluchea indica* Less (R5). Design of this experiment was completely randomized design with four replications of each. The parameters observed were respiration rate, heart rate and body temperature, while from the blood profile were erythrocyte, haemoglobin, PCV, leucocytes and it differentiations. Using Urea space technique the body composition (body water, protein and fat) were calculated. Result showed that thick tail sheep reared in high temperature room fed with ca-saponified lemuru oil coated by herbs had not significance difference on body temperature, heart rate and respiration rate in all treatments. There was tendency to increase heart rate and respiration rate in the afternoon caused by environment temperature and the activity. The percentage of body composition was same in all treatments, but for total body fat and energy retained in treatments were lower than control. The parameters of blood profile showed that total leucocytes, netrophil and lymphocytes were significantly increased in herb treatments compared to control. It is concluded that supplementation of 3% ca-saponified lemuru oil coated by herb (curcuma, ginger, *Eugenia polyantha* and *Pluchea indica*) in thick tail sheep had better immune respond (higher leucocytes, lymphocytes and netrophil) and lower total body fat and energy retained.

Key words: Ca-saponified, lemuru oil, herbs, curcuma, leucocytes

INTRODUCTION

Lamb meat has high cholesterol which caused metabolic syndrome disease (atherosclerosis). This situation reduces demand of this product. On the other hand, sheep is one of favorite animal and usually reared as a saving animal. It is important to manage system in order to get good quality of meat without reduce the productivity. Feeding management can solve the problem through manipulation rumen fermentation. It was reported that meat cholesterol in sheep (80 mg%) was higher than in beef (74 mg%) and chicken broiler (73 mg%). Composition of lamb meat contained 18.6% protein, 12.94% of fat and 0.07% of cholesterol (Nutrition Glossary, 2005). Ruminant meat contains high saturated fatty acids (laurate, myristate, andpalmitate) that caused high cholesterol in the plasma (Grande, 1975).

Polyunsaturated fatty acids (PUFA) omega-3, in the fish oil can reduce risk of atherosclerosis (Iger, 2003). Substitution polysaturated fatty acid with polyunsaturated fatty acid could reduce total cholesterol, include LDL-cholesterol (Marsic and Yodice, 1992). Source PUFA, which high omega-3 is lemuru oil from lemuru fish.

Fat has higher energy content compared to carbohydrate and protein. As a feedstuff, fat resulted low heat increment in metabolism, so it is good add in animal ration of the tropical country to reduce heat stress. Specific problem in