



UNIVERSITI PUTRA MALAYSIA

***NUTRITIONAL RELATED BLOOD COMPOSITION OF GOATS
SUPPLEMENTED WITH DIFFERENT LEVEL OF SOY WASTE***

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CERTIFICATION

It is hereby certified that we have read this project entitled “Nutritional Blood Related Composition of Goats Fed with Different Level of Energy”, by Makhzumi Noor bin Hassan and in our opinion it is satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the course VPD 4999- Project.

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DEDICATION

I dedicate this thesis to:

My dearest Family

HASSAN ISMAIL

LIZA MOHD NOR

HENI EZZAWINA

IZNEE REHANNA

MUHAMMAD NUEIM

My supervisor

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ABSTRAK

Abstrakdaripadakertasprojek yang
dikemukakankepadaFakultiPerubatanVeterinaruntukmemenuhisebahagiandaripada
keperluankursus
VPD 4999 – Projek.

PROFIL DARAH BERKAITAN NUTRITIONAL DALAM KAWANAN KAMBING YANG DIBERIKAN MAKANAN TAMBAHAN (SISA SOYA) DENGAN TAHAP YANG BERBEZA

Oleh

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2018

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Ketersediaan produk sampingan pertanian menampakkan kelebihan untuk digunakan sebagai makanan haiwan. Sisa soya adalah salah satu produk sampingan pertanian yang banyak termasuk dalam diet kambing. Disebabkan ketersediaan dan harga murah sisa soya, bersama-sama dengan nilai pemakanan, ia boleh mengurangkan jumlah

kos makanan, serta menyokong dan menyumbang kepada kesihatan kambing. Walau bagaimanapun, terdapat kajian yang terhad mengenai kesan suplemen sisa soya untuk meningkatkan prestasi kesihatan kambing. Oleh itu, kajian ini dijalankan untuk membandingkan kesan suplemen sisa soya dan kesannya terhadap profil darah yang berkaitan dengan pemakanan dalam kambing. Lapan belas kambing betina Boer kacuk kambing dewasa telah dipilih dan disusun dalam tiga kumpulan yang berlainan ($n = 6$) dan ditugaskan mengikut rumusan makanan mereka (Kawalan; tiada suplemen sampah soya, SW 10; ditambah dengan 10% sisa soya dan SW 20; 20% sisa soya). Sampel darah telah diambil sebelum dan selepas tiga minggu suplemen sisa soya. Sampel kemudian dianalisis untuk parameter terpilih (kalsium, protein total, glukosa, kolesterol dan komposisi asid lemak). Analisis proksimat makanan tambahan sisa suplemen telah dilakukan dan menunjukkan perbezaan yang ketara antara protein kasar, serat kasar dan bahan kering berbanding dengan kumpulan kawalan. Kadar glukosa, jumlah protein, kalsium dan kolesterol dalam serum dari SW 10 dan SW 20 menunjukkan bahawa ia lebih tinggi daripada kumpulan kawalan. Analisis asid lemak makanan dan serum menunjukkan asid lemak tidak tepu lebih tinggi daripada asid lemak tepu untuk kumpulan tambahan sisa tambahan berbanding dengan kawalan. Secara keseluruhan, kumpulan SW 20 menunjukkan nilai tertinggi pada semua parameter darah yang dianalisis dalam kajian ini. Oleh itu, kajian ini menunjukkan bahawa tahap berlainan suplemen sisa soya memberi kesan kepada profil darah tertentu yang berkhasiat dalam kambing.



Kata kunci: Kambing Pembiak, Profil Darah, Analisis Proksi, Asid Lemak

ABSTRACT

Abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfillment for the course VPD 4999 –Project

NUTRITIONAL RELATED BLOOD PROFILE IN GOATS SUPPLEMENTED WITH DIFFERENT LEVEL OF SOY WASTE

By

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The availability of agricultural by-products seems promising to be used as animal feed. Soy waste is one of the agricultural by-products which is extensively included in diets of goat. Due to the availability and cheap price of soy waste, along with its nutritional value, it may decrease the total cost of feed, as well as supporting and contributing to the goat's health. However, there are limited studies on the effect of soy waste supplementation on enhancing the health performance of goats. Thus, this study

was conducted to compare the effect of supplementation of soy waste and its effect on nutritional related blood profile in breeder goats. Eighteen female Boer cross adult goats were chosen and arranged into three different groups ($n = 6$) and assigned according to their feed formulation (Control; no supplementation of soy waste, SW 10; supplemented with 10% soy waste and SW 20; supplemented with 20% soy waste). Blood sample was taken before and after three weeks of soy waste supplementation. The samples were then analysed for selected parameters (calcium, total protein, glucose, cholesterol and fatty acid composition). Proximate analysis of soy waste supplemented feed was done and revealed significant different between crude protein, crude fiber and dry matter as compared to the control group. Glucose, total protein, calcium and cholesterol level in serum from SW 10 and SW 20 showed that it is higher than the control group. Fatty acid analysis of feed and serum showed unsaturated fatty acid was significantly higher than saturated fatty acid for soy waste supplemented groups as compared to the control. Overall, group SW 20 shows the highest value of all blood parameters analysed in this study. Thus, this study indicates that different level of soy waste supplementation affects certain nutritional related blood profile in goat.

Keywords: Breeder Goats, Blood Profile, Proximate Analysis, Fatty Acid



1.0 INTRODUCTION

The largest source of protein for Malaysians is from the livestock. Thus, it is an essential industry for the population of Malaysia (Fadhilah, 2015). Nowadays, with the high increase in both the human population and consumption of livestock, the ruminant sector in particular, is still in inadequacy to meet the increasing demand of the population (Livestock Statistics, Department of Veterinary Services, 2009). Among the livestock, small ruminant is the fourth major livestock after swine, chicken and cattle (Ministry of Agriculture, 2011). In 2011, the total population of goats in Malaysia was 580,271 heads, which was an increment of 34,590 from year 2010 (Livestock Statistics, Department of Veterinary Services, 2011). The highest increase from year 2010 to year 2011 can be seen in Selangor (increment of 8,691 heads) followed by Johor (increment of 5,889 heads). This could be due to the interest of the farmers towards fast turnover rate from goat production. Small ruminant farming plays a vital role in the development of economy, as well as improving the livelihood of the farmers, and the contribution made by the small ruminant industry to the livestock production level in Malaysia is becoming more valuable and essential (Norhafizah, 2016). Some of the problems which arise in small ruminant farming in Malaysia includes breed, stock, feed price, price of meat, farmer's skills and management, as well as the capital needed to start off, thus it is the government's role in providing subsidy, training and services to these small-scaled farmers.

Proper nutrition should be made available to the livestock, according to their individual stages of production, but to a high number of small-scale farmers, balanced nutrition is of a least of concern, because of the presence of extra increase in cost such as the feed cost, presence of labor problems and issue of time. As made known, physiological function is highly affected by poor nutrition, which will ultimately lead to a decrease in performance of the said animal. The livestock's diet should be architected to support optimal production, but at the same time economical, so that it will not add to the cost of rearing to the farmers (Komala et al. 2011).

Examination of blood is not only valuable to grade and monitor the health of animal, but is also valuable for the nutritional status of animal (Waziri et al. 2010). According to Daramola et al. (2005), analysis of biochemical properties such as glucose, total protein, blood urea nitrogen, creatinine and cholesterol is important in investigating multiple nutritional, pathological and metabolic disorders in goats.

Thus, objectives of this study were to assess the nutrient composition of feed with different level of soy waste supplementation and to assess nutritional related blood composition such as Calcium, Total Protein, Glucose, Cholesterol, and Fatty Acid. The hypothesis is that different level of soy waste supplementation in feed will affect the nutritional related blood composition in goat.

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