

## ABSTRAK

PUJIANTO NUGROHO. Produk fermentasi rumen domba yang disuplementasi daun kelor (*Moringa oleifera*) diproteksi ekstrak buah mahkota dewa (*Phaleria macrocarpa*) dan biji pinang (*Areca catechu*. L). Penelitian bertujuan untuk mengetahui pengaruh pemberian suplementasi pakan daun kelor yang diproteksi tanin ekstrak buah mahkota dewa dan tanin ekstrak biji pinang terhadap produk fermentasi rumen domba. Penelitian menggunakan metode *experimental in vitro*, dilaksanakan di Laboratorium Ilmu Nutrisi dan Makanan ternak, menggunakan rancangan acak lengkap. Penelitian terdiri dari tiga perlakuan yaitu P<sub>0</sub> : (suplemenasi pakan menggunakan Daun kelor tanpa proteksi), P<sub>1</sub> : (suplementasi pakan menggunakan daun kelor yang diproteksi ekstrak buah mahkota dewa 0,75 % berdasarkan BK konsentrat), P<sub>2</sub> : (suplementasi pakan menggunakan daun kelor yang diproteksi ekstrak biji pinang 0,75 % berdasarkan BK Konsentrat). Setiap perlakuan diulang sebanyak enam kali, sehingga terdapat 18 unit percobaan. Peubah yang diamati yaitu konsentrasi VFA, N-NH<sub>3</sub> dan sintesis protein mikroba. Hasil penelitian menunjukkan perlakuan berpengaruh sangat nyata (P<0,01) terhadap konsentrasi VFA, Konsentrasi N-NH<sub>3</sub> dan sintesis protein mikroba. Hasil uji Beda Nyata Jujur (BNJ) menunjukkan bahwa konsentrasi VFA P<sub>0</sub> (226,33 ± 17,18 mM) lebih tinggi dari rata-rata konsentrasi P<sub>1</sub> dan P<sub>2</sub> (129,33 ± 10,55 mM), rata-rata konsentrasi VFA P<sub>2</sub> (158 ± 12,44 mM) lebih tinggi dari P<sub>1</sub> (100,67 ± 7,67mM). Hasil konsentrasi N-NH<sub>3</sub> P<sub>0</sub> (12 ± 2,11mM) lebih tinggi dari rata-rata konsentrasi N-NH<sub>3</sub> P<sub>1</sub> dan P<sub>2</sub> (8,05 ± 0,45mM), rata-rata konsentrasi N-NH<sub>3</sub> P<sub>2</sub> (9,37 ± 0,34mM) lebih tinggi dari konsentrasi N-NH<sub>3</sub> P<sub>1</sub> (6,73 ± 0,56 mM). Hasil sintesis protein mikroba P<sub>0</sub> (244,21 ± 47,47 mg/20 ml) lebih tinggi dari rata-rata sintesis protein mikroba P<sub>1</sub> dan P<sub>2</sub> (124,06 ± 25,10 mg/20 ml), Rataan sintesis protein mikroba P<sub>2</sub> (160,42 ± 33,65) lebih tinggi dari rata-rata sintesis protein mikroba P<sub>1</sub> (87,71 ± 16,56 mg/20 ml). Hasil penelitian menunjukkan bahwa proteksi suplemen pakan daun kelor menggunakan tanin ekstrak buah mahkota dewa dan biji pinang mampu menurunkan konsentrasi VFA, N-NH<sub>3</sub> dan Sintesis protein mikroba. Proteksi menggunakan tanin ekstrak buah mahkota dewa menghasilkan konsentrasi VFA, N-NH<sub>3</sub> dan SPM terendah.

Kata kunci : VFA, N-NH<sub>3</sub>, Sintesis Protein Mikroba, Daun kelor, Mahkota Dewa, Biji Pinang.

## ABSTRACT

PUJIAN TO NUGROHO. Rumen fermentation products of sheep that in supplementation of moringa leaf (*Moringa oleifera*) are protected by the mahkota dewa Extract (*Phaleria macrocarpa*) and betel nut extract (*Areca catechu*.L). This research a purpose to determine the effect of feed supplement moringa leaf that protected mahkota dewa extract and betel nut extact to rumen's fermentation of sheep products. Research using experimental method of *in vitro*, that held in laboratory of feed science and nutrition, used a Completely Randomized Design. The treatments consisted of three that are P0: (feed supplementation using Moringa leaves without protection), P1: (feed supplementation using Moringa leaves protected by 0.75% mahkota dewa extract based on Dry Matter (DM) concentrate), P2: (feed supplementation using Moringa leaves protected by 0.75% extract betel nut based on Dry Matter (DM) concentrate). Each treatment was repeated six times. The observed variables are concentration of VFA, N-NH<sub>3</sub> and microbial protein synthesis. The results of this research showed that the effect was very significant ( $P < 0.01$ ) on the VFA concentrations, N-NH<sub>3</sub> concentrations and microbial protein synthesis. The results of the Honestly Significant Different test (HSD) showed that the concentration of VFA P0 ( $226.33 \pm 17.18$  mM) was higher than the average concentration of P1 and P2 ( $129.33 \pm 10.55$  mM), the average concentration of VFA P2 ( $158 \pm 12.44$  mM) higher than P1 ( $100.67 \pm 7.67$  mM). The results of the concentration of N-NH<sub>3</sub> P0 ( $12 \pm 2.11$  mM) were higher than the average concentration of N-NH<sub>3</sub> P1 and P2 ( $8.05 \pm 0.45$  mM), the average concentration of N-NH<sub>3</sub> P2 ( $9.37 \pm 0.34$  mM) more high from the concentration of N-NH<sub>3</sub> P1 ( $6.73 \pm 0.56$  mM). The results of P0 microbial protein synthesis ( $244.21 \pm 47.47$  mg/20 ml) were higher than the average microbial protein synthesis P1 and P2 ( $124.06 \pm 25.10$  mg/20 ml), the higher P2 microbial protein synthesis ( $160.42 \pm 33.65$  mg/20 ml) higher from the average P1 microbial protein synthesis ( $87.71 \pm 16.56$  mg/20 ml). It was explained that the protection of supplements of Moringa leaves using tannin extracts of the mahkota dewa and betel nut could reduce the concentration of VFA, N-NH<sub>3</sub> and microbial protein synthesis. Protection using tannin extract from mahkota dewa produces the lowest concentration of VFA, N-NH<sub>3</sub> and SPM.

Keywords: Volatile Fatty Acid, N-Ammonia, Microbial Protein Synthesis, Moringa Leaves, *Phaleria macrocarpa*, Betel Nut.