PENGARUH LEVEL PROTEIN KONSENTRAT DENGAN *FERMENTED MOTHER LIQUOR* PADA DUA PAKAN BASAL BERBEDA TERHADAP PARAMETER FERMENTASI RUMEN SECARA *IN VITRO*

Sofi Awaliyatul Mukaromah

22/504823/PT/09478

INTISARI

Fermentasi rumen merupakan proses penting dalam menentukan efisiensi pemanfaatan protein dan energi pada ternak ruminansia. Penelitian ini bertujuan mengevaluasi pengaruh perbedaan level protein konsentrat yang ditambahkan *Fermented Mother Liquor* (FML) dan dua jenis pakan basal terhadap karakteristik fermentasi rumen sapi bali secara *in vitro*. Penelitian menggunakan rancangan faktorial 2×2 dengan dua level protein konsentrat (rendah dan tinggi) dan dua pakan basal, yaitu rumput gajah (*Pennisetum purpureum*) dan jerami padi (*Oryza sativa*). Fermentasi dilakukan secara *in vitro* menggunakan metode produksi gas Menke dan Steingass dengan cairan rumen sebagai inokulum. Parameter yang diamati meliputi pH, konsentrasi NH_3, protein mikroba, populasi protozoa, produksi metan, dan total VFA. Hasil penelitian menunjukkan bahwa penggunaan level protein konsentrat tidak berpengaruh terhadap pH, NH_3, populasi protozoa, produksi metan, dan total VFA, tetapi meningkatkan sintesis protein mikroba pada konsentrat level protein tinggi (P=0,043). Penggunaan pakan basal berpengaruh nyata terhadap populasi protozoa (P=0,007) dan produksi metan (P=0,021). Interaksi antara level protein dan pakan basal tidak berpengaruh nyata terhadap sebagian besar parameter fermentasi, kecuali protein mikroba (P=0,009). Secara keseluruhan, dapat disimpulkan bahwa interaksi antara level protein konsentrat dan jenis pakan basal tidak mengganggu stabilitas parameter fermentasi rumen sapi bali secara *in vitro*, tetapi kombinasi konsentrat FML level protein tinggi dan jerami padi mampu meningkatkan sintesis protein mikroba sebagai respon positif terhadap keseimbangan sumber nitrogen dan energi.

Kata kunci: konsentrat, *Fermented Mother Liquor* (FML), level protein, parameter fermentasi

THE EFFECT OF PROTEIN CONCENTRATE LEVELS WITH FERMENTED MOTHER LIQUOR IN TWO DIFFERENT BASAL DIETS ON RUMEN FERMENTATION PARAMETERS IN VITRO

Sofi Awaliyatul Mukaromah

22/504823/PT/09478

ABSTRACT

Rumen fermentation is an important process in determining the efficiency of protein and energy utilization in ruminant livestock. This study aims to evaluate the effect of different levels of concentrate protein supplemented with Fermented Mother Liquor (FML) and two types of basal feed on the rumen fermentation characteristics of Bali cattle in vitro. The study used a 2×2 factorial design with two levels of concentrate protein (low and high) and two basal feeds, namely elephant grass (Pennisetum purpureum) and rice straw (Oryza sativa). Fermentation was carried out in vitro using the Menke and Steingass gas production method with rumen fluid as the inoculum. The parameters observed included pH, NH_3 concentration, microbial protein, protozoa population, methane production, and total VFA. The results showed that the use of concentrate protein levels had no effect on pH, NH_3, protozoa population, methane production, and total VFA, but increased microbial protein synthesis at the high level protein concentrate FML (P=0.043). The use of basal feed had a significant effect on protozoa population (P=0.007) and methane production (P=0.021). The interaction between protein level and basal feed had no significant effect on most fermentation parameters, except microbial protein (P=0.009). Overall, it can be concluded that the interaction between concentrate protein level and basal feed type did not disrupt the stability of Bali cattle rumen fermentation parameters in vitro, but the combination of high level protein concentrate FML and rice straw was able to increase microbial protein synthesis as a positive response to the balance of nitrogen and energy sources.

***Keywords**: concentrate, Fermented Mother Liquor (FML), protein level, fermentation parameters*