

**PENGARUH FERMENTASI DAN SUBSTITUSI TUMPI JAGUNG
TERHADAP KARAKTERISTIK FERMENTASI RUMEN DAN
KECERNAAN PAKAN KOMPLIT BERBASIS
RUMPUT PAKCHONG SECARA *IN VITRO***

Yahya Choirul Anam
21/476849/PT/08890

INTISARI

Penelitian ini bertujuan untuk mengkaji pengaruh fermentasi dan substitusi tumpi jagung terhadap karakteristik fermentasi rumen dan kecernaan pakan komplit berbasis rumput Pakchong secara *in vitro*. Materi yang digunakan adalah pakan komplit dengan empat kombinasi perlakuan: K0F0 (tanpa tumpi jagung, non-fermentasi), K0F1 (tanpa tumpi jagung, fermentasi), K1F0 (dengan tumpi jagung, non-fermentasi), dan K1F1 (dengan tumpi jagung, fermentasi). Formulasi berdasarkan bahan kering terdiri dari 80% rumput Pakchong dan 20% konsentrat (tanpa tumpi jagung) atau 70% rumput Pakchong, 20% konsentrat, dan 10% tumpi jagung (dengan tumpi jagung). Evaluasi dilakukan secara *in vitro* menggunakan cairan rumen sapi Bali berfistula dan larutan buffer *McDougall* selama 48 jam. Penelitian menggunakan Rancangan Acak Lengkap (RAL) faktorial 2×2 dengan analisis ragam (ANOVA). Faktor pertama adalah fermentasi dan faktor kedua adalah substitusi tumpi jagung. Fermentasi berpengaruh nyata ($P < 0,05$) terhadap penurunan kadar NH_3 dan rasio asetat:propionat, serta peningkatan propionat, tetapi tidak berpengaruh terhadap pH, total gas, total VFA, asetat, butir, valerat, iso valerat, KcBK, dan KcBO ($P > 0,05$). Substitusi tumpi jagung menurunkan total VFA dan valerat serta meningkatkan asetat dan rasio asetat:propionat ($P < 0,05$), namun tidak berpengaruh terhadap parameter lainnya ($P > 0,05$). Tidak terdapat interaksi antara kedua faktor ($P > 0,05$). Disimpulkan bahwa fermentasi meningkatkan efisiensi fermentasi rumen, sedangkan substitusi tumpi jagung mengubah pola fermentasi tanpa menurunkan kecernaan.

Kata kunci: Fermentasi, *In vitro*, Kecernaan, Pakchong, Tumpi jagung.

Influence of Fermentation and Corn Stover Substitution on In Vitro Rumen Fermentation Characteristics and Nutrient Digestibility of Pakchong Grass-Based Total Mixed Ration

Yahya Choirul Anam
21/476849/PT/08890

ABSTRACT

This study aimed to evaluate the effects of fermentation and corn stover substitution on rumen fermentation characteristics and digestibility of a Pakchong grass-based complete feed under in vitro conditions. The experimental feed consisted of four treatment combinations: K0F0 (without corn stover, non-fermented), K0F1 (without corn stover, fermented), K1F0 (with corn stover, non-fermented), and K1F1 (with corn stover, fermented). The formulations were prepared on a dry matter (DM) basis, consisting of 80% Pakchong grass and 20% concentrate for treatments without corn stover, and 70% Pakchong grass, 20% concentrate, and 10% corn stover for treatments with substitution. In vitro evaluation was conducted using rumen fluid collected from fistulated Bali cattle and McDougall's buffer solution, incubated for 48 hours. A Completely Randomized Design (CRD) in a 2×2 factorial arrangement was used, with fermentation as the first factor and corn stover substitution as the second. Data were analyzed using analysis of variance (ANOVA). Fermentation had a significant effect ($P<0.05$) by decreasing ammonia (NH_3) concentration and acetate:propionate ratio, while increasing the proportion of propionate. However, it did not significantly affect rumen pH, total gas production, total volatile fatty acids (VFA), acetate, butyrate, valerate, iso-valerate, dry matter digestibility (DMD), or organic matter digestibility (OMD) ($P>0.05$). Corn stover substitution significantly decreased total VFA and valerate, and increased the proportions of acetate and the acetate:propionate ratio ($P<0.05$), but had no effect on other measured parameters ($P>0.05$). No interaction was observed between the two factors for any of the variables analyzed ($P>0.05$). It can be concluded that fermentation improves rumen fermentation efficiency, while corn stover substitution alters the fermentation profile without reducing nutrient digestibility.

Keywords: Corn stover, Digestibility, Fermentation, *In vitro*, Pakchong.