

Penggunaan Mikroba *Multi-purpose* dan Umur Potong Berbeda Terhadap Kandungan Nutrien, Kecernaan *In Vitro*, dan Karakteristik Fermentasi Rumen Silase Rumput Gama Umami

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INTISARI

Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh penggunaan mikroba *multi-purpose* dan umur potong rumput yang berbeda terhadap kandungan nutrien, kecernaan *in vitro*, dan karakteristik fermentasi rumen dari silase rumput Gama Umami (*Pennisetum purpureum* cv. GU). Penelitian ini menggunakan rancangan percobaan faktorial 2 x 2 dengan faktor pertama yaitu umur potong rumput Gama Umami (30 hari dan 60 hari) dan faktor kedua yaitu dengan dan tanpa penggunaan mikroba *multi-purpose* (Saus Burger Pakan, SBP[®]) pada silase. Fermentasi silase dilakukan selama 21 hari dengan menggunakan tong silo kapasitas 30 L. Silase diuji kandungan kualitas nutrien meliputi bahan kering (BK), bahan organik (BO), protein kasar (PK), lemak kasar (LK), *acid detergent fiber* (ADF), *neutral detergent fiber* (NDF). Selanjutnya, pengujian secara *in vitro* dilakukan menggunakan metode Tilley and Terry, dan diukur kandungan kecernaan nutrien silase meliputi kecernaan BK (KcBK) dan kecernaan BO (KcBO). Selanjutnya juga dilakukan pengukuran karakteristik fermentasi rumen meliputi pH cairan rumen, kadar amonia (NH₃), dan total *volatile fatty acid* (VFA), kadar asetat, propionat, dan butirrat. Hasil penelitian menunjukkan bahwa pemotongan rumput umur 60 hari secara nyata meningkatkan kandungan BK, LK, dan NDF ($P < 0,05$) silase tetapi menurunkan kandungan BO dan PK ($P < 0,05$) dibandingkan dengan pemotongan rumput umur 30 hari. Penggunaan mikroba *multi-purpose* secara nyata meningkatkan kandungan BK dan LK ($P < 0,05$) silase serta menurunkan kandungan ADF dan NDF ($P < 0,05$). Interaksi antara kedua faktor memberikan pengaruh yang nyata terhadap kandungan BK ($P < 0,05$). Perbedaan umur potong rumput maupun penggunaan mikroba *multi-purpose* tidak memberikan pengaruh yang nyata terhadap KcBK, KcBO, pH, dan total VFA, asetat, propionat maupun butirrat ($P > 0,05$), namun umur rumput 30 hari meningkatkan kadar NH₃ dalam rumen ($P < 0,05$). Kesimpulan dari penelitian ini yaitu pemotongan rumput Gama Umami umur 30 hari dan penggunaan mikroba *multi-purpose* menghasilkan kualitas nutrien yang optimal.

Kata kunci: Gama Umami, Kecernaan, Kualitas Nutrien, Mikroba *multi-purpose*, Silase, Umur Potong

The Using of Multi-purpose Microbial and Different Cutting Ages on the Nutrient Quality, In Vitro Digestibility, and Rumen Fermentation Characteristics of Gama Umami Grass Silage.

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ABSTRACT

This study aims to determine the effect of using multi-purpose microbes and different cutting ages of Gama Umami grass (*Pennisetum purpureum* cv. GU) on nutrient content, *in vitro* digestibility, and rumen fermentation characteristics of grass silage. This study employed a 2x2 factorial experimental design, with the first factor being the cutting age of Gama Umami grass (30 days and 60 days), and the second factor being the use and non-use of multi-purpose microbes (Saus Burger Pakan, SBP®) in the silage. The fermentation of the silage was conducted for 21 days using a 30 L fermentation drum. The silage was analyzed for nutrient quality, including dry matter (DM), organic matter (OM), crude protein (CP), ether extract (EE), acid detergent fiber (ADF), and neutral detergent fiber (NDF). Subsequently, *in vitro* testing was performed using the Tilley and Terry method to measure nutrient digestibility, including digestibility of DM (DMD) and OM (OMD). Additionally, rumen fermentation characteristics were measured, including rumen fluid pH, ammonia (NH₃) concentration, and total volatile fatty acids (VFA), as well as the concentrations of acetate, propionate, and butyrate. The results showed that cutting ages at 60 days significantly increased the DM, EE, and NDF content ($P < 0.05$) of the silage but decreased the OM and CP content ($P < 0.05$) compared to cutting ages at 30 days. The use of multi-purpose microbes significantly increased the DM and CF content ($P < 0.05$) of the silage and decreased the ADF and NDF content ($P < 0.05$). The interaction between the two factors had a significant effect on DM content ($P < 0.05$). However, differences in cutting age and the use of multi-purpose microbes did not significantly affect DMD, OMD, pH, total VFA, acetate, propionate, or butyrate ($P > 0.05$). Notably, cutting ages at 30 days increased the NH₃ concentration in the rumen ($P < 0.05$). In conclusion, cutting ages Gama Umami grass at 30 days and using multi-purpose microbes results in optimal nutrient quality.

(Keywords: Silage, Gama Umami, Multi-purpose microbes, Cutting time, Nutrient quality, Digestibility)