

## EVALUASI DOSIS *Limosilactobacillus fermentum* TERHADAP KUALITAS SILASE HIJAUAN JAGUNG (*Zea mays* L.) DAN RUMPUT GAMA UMAMI (*Pennisetum purpureum* cv. GU) DENGAN ADITIF BERBEDA

### INTISARI

Muhammad Thoksyn Furqan B  
23/529789/PPT/01323

Penelitian ini bertujuan untuk mengevaluasi jenis aditif terbaik, menentukan dosis optimal *Limosilactobacillus fermentum*, serta mengkaji interaksi keduanya terhadap kualitas silase campuran hijauan jagung (*Zea mays* L.) dan rumput Gama Umami (*Pennisetum purpureum* cv. GU). Penelitian menggunakan rancangan acak lengkap pola faktorial 3×3 dengan faktor pertama berupa penambahan aditif (tanpa aditif, tepung galek 10%, dan dedak padi 10%), serta faktor kedua berupa level inokulum (0, 10<sup>3</sup>, dan 10<sup>5</sup> cfu/mL/g silase), masing-masing direplikasi sebanyak 5 kali. Silase dibuat dari hijauan jagung dan rumput GU yang dilayukan hingga kadar air <60%, dicacah 3–5 cm, kemudian dicampur dan diberi aditif serta inokulum sesuai perlakuan. Silase difermentasi selama 90 hari, kemudian dianalisis kualitas fisik (warna, aroma, tekstur dan keberadaan jamur), komposisi kimia (BK, BO, PK, SK, LK, dan BETN), karakteristik fermentasi (pH, NH<sub>3</sub>, asam laktat, asam asetat, asam propionat dan asam butirat), *Fleish score*, karakteristik mikroba (BAL), serta KcBK dan KcBO secara *in vitro*. Data yang diperoleh dianalisis menggunakan statistik *anova*. Kecuali kualitas fisik diuji secara deskriptif. Hasil penelitian menunjukkan bahwa tepung galek merupakan aditif paling efektif, ditandai dengan pH lebih rendah (3,42), *Fleish score* tertinggi (124), peningkatan BETN, kandungan SK terendah (22,3%), populasi BAL tinggi, serta nilai KcBK dan KcBO terbaik. Level inokulum 10<sup>3</sup> cfu/mL/g merupakan dosis optimal karena menghasilkan populasi BAL tertinggi (6,92 log 10 cfu/mL) dan fermentasi yang lebih efisien dibanding dosis lebih tinggi. Interaksi terbaik diperoleh pada kombinasi tepung galek dan inokulum 10<sup>3</sup> cfu/mL/g, yang memberikan kualitas fisik dan kimia silase paling baik serta fermentasi paling stabil. Kesimpulannya adalah penggunaan tepung galek dan inokulum *L. fermentum* 10<sup>3</sup> cfu/mL/g merupakan formula optimal dalam pembuatan silase campuran hijauan jagung dan rumput Gama Umami.

**Kata kunci:** Silase, Hijauan Jagung, Rumput Gama Umami, Dedak Padi, Tepung Galek, *Limosilactobacillus fermentum*.

**EVALUATION OF *Limosilactobacillus fermentum* DOSAGE ON THE QUALITY OF CORN FORAGE (*Zea mays* L.) AND GAMA UMAMI GRASS (*Pennisetum purpureum* cv. GU ) SILAGE WITH DIFFERENT ADDITIVES**

**ABSTRACT**

Muhammad Thoksyn Furqan B  
23/529789/PPT/01323

This study aimed to evaluate the most effective additive type, determine the optimal dose of *Limosilactobacillus fermentum*, and assess the interaction between these factors on the quality of mixed corn forage (*Zea mays* L.) and Gama Umami grass (*Pennisetum purpureum* cv. GU ) silage. The experiment used a 3×3 factorial Completely Randomized Design with three additive treatments (no additive, 10% cassava flour, and 10% rice bran) and three inoculant levels (0, 10<sup>3</sup>, and 10<sup>5</sup> cfu/mL/g of silage), each replicated five times. The silage was fermented for 90 days and subsequently evaluated for physical quality (color, aroma, texture, and mold presence), chemical composition (DM, OM, CP, CF, EE, and NFE), fermentation characteristics (pH, NH<sub>3</sub>, lactic acid, acetic acid, propionic acid, and butyric acid), Fleigh score, microbial characteristics (LAB population), and *in vitro* DMD and OMD. The data obtained were analyzed using ANOVA statistical procedures, except for the physical quality parameters, which were evaluated descriptively. The results showed that cassava flour was the most effective additive, indicated by lower pH (3.42), the highest Fleigh score (124), increased NFE, the lowest crude fiber content (22.3%), high LAB populations, and superior DM and OM digestibility. The inoculant level of 10<sup>3</sup> cfu/mL/g was identified as the optimal dose, producing the highest LAB population (6.92 log 10 cfu/mL) and more efficient fermentation than the higher dose. The best interaction occurred with the combination of cassava flour and 10<sup>3</sup> cfu/mL/g inoculant, yielding the best physical and chemical qualities and the most stable fermentation. In conclusion, the use of cassava flour and *L. fermentum* at 10<sup>3</sup> cfu/mL/g represents the optimal formulation for producing high-quality silage from mixed corn forage and Gama Umami grass.

**Keywords:** Silage, Corn Forage, Gama Umami Grass, Rice Bran, Cassava Flour, *Limosilactobacillus fermentum*.