

PENGARUH PENAMBAHAN INOKULUM MIKROBA YANG BERBEDA TERHADAP KUALITAS FERMENTASI EKSURETA AYAM SEBAGAI BAHAN PAKAN INKONVENSIONAL

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan inokulum yang berbeda terhadap kualitas fermentasi ekskreta ayam. Ekskreta ayam sebanyak 70% dan onggok sebanyak 30% difermentasikan selama 14 hari dengan penambahan inokulum yang berbeda, yaitu kontrol (CON), *Lactobacillus plantarum* strain FNCC 0026 (LP), mikroba *multi-purpose* menggunakan Saus Burger Pakan (SBP), dan *Bacillus cereus* strain LS2B (BC). Pada setiap perlakuan, aplikasi inokulum dilakukan sebesar 1×10^5 colony forming unit /g. Fermentasi dilakukan menggunakan 30 L *mini silo* dengan 3 replikasi untuk setiap perlakuan. Setelah 14 hari fermentasi, sampel sebanyak 500 g diambil untuk dianalisis laboratorium. Variabel yang diamati adalah kualitas kimia berupa analisis proksimat dan *gross energy*. Uji kualitas fermentasi berupa kadar pH, amonia, dan asam laktat. Uji kualitas fisik berupa warna, aroma, tekstur, dan ada tidaknya kontaminan. Data hasil penelitian ini dianalisis berdasarkan rancangan *one-way ANOVA* dan dilanjutkan dengan *Tukey test* apabila terdapat hasil yang signifikan. Hasil penelitian menunjukkan bahwa penambahan inokulum yang berbeda pada ekskreta ayam terfermentasi tidak memberikan perbedaan secara nyata terhadap kandungan bahan kering, protein kasar, dan serat kasar, serta kadar amonia fermentasi. Perlakuan SBP menghasilkan kandungan bahan organik dan *gross energy* yang lebih tinggi dari perlakuan CON ($P < 0,05$) dan menghasilkan kandungan lemak kasar lebih tinggi dari pada perlakuan LP dan BC ($P < 0,05$). Pada kualitas fermentasi, perlakuan LP, SBP, dan BC menghasilkan kadar asam laktat yang lebih tinggi dengan nilai pH yang lebih rendah dari perlakuan CON. Secara umum, perlakuan SBP menghasilkan komposisi kimia dan kualitas fermentasi terbaik. Berdasarkan hasil penelitian, dapat disimpulkan bahwa inokulum terbaik untuk meningkatkan kualitas fermentasi dan kualitas fisik ekskreta ayam terfermentasi adalah mikroba *multi-purpose* berupa SBP.

Kata kunci: *Bacillus cereus*, ekskreta ayam, fermentasi, *Lactobacillus plantarum*, mikroba *multi-purpose*.

THE EFFECT OF ADDING DIFFERENT MICROBIAL INOCULUM ON THE QUALITY OF FERMENTATION OF POULTRY MANURE AS UNCONVENTIONAL FEED INGREDIENT

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ABSTRACT

This study was aimed to determine the effect of different inoculum additions on the quality of poultry manure fermentation. Poultry manure as much as 70% and cassava waste as much as 30% fermented for 14 days with the addition of different inoculum, consisting of control (CON), *Lactobacillus plantarum* strain FNCC 0026 (LP), multi-purpose microbes using Saus Burger Pakan (SBP), and *Bacillus cereus* strain LS2B (BC). In each treatment, the inoculum application was carried out at 1×10^5 colony forming unit/g. Fermentation was carried out using a 30 L mini silo with 3 replications for each treatment. After 14 days of fermentation, a sample of 500 g was taken for laboratory analysis. The variables observed were chemical quality in the form of proximate analysis and gross energy. The fermentation quality test was in the form of pH, ammonia, and lactic acid levels. The physical quality test was in the form of color, aroma, texture, and the presence of contaminants. The data from this study were analyzed based on a one-way ANOVA design and continued with the Tukey test if there were significant results. The results showed that the addition of different inoculum to fermented poultry manure did not significantly affect the content of dry matter, crude protein, crude fiber, and fermentation ammonia levels. The SBP treatment resulted in higher organic matter and gross energy content than the CON treatment ($P < 0.05$), and the SBP treatment resulted in higher crude fat content than the LP and BC treatments ($P < 0.05$). In terms of fermentation quality, the LP, SBP, and BC treatments resulted in higher lactic acid levels with lower pH values than the CON treatment. Overall, the SBP treatment produced the best chemical composition and fermentation quality. Based on the result, it can be concluded that the best inoculum for improving the fermentation quality and physical quality of fermented chicken manure is multi-purpose microbes from SBP.

Keywords: *Bacillus cereus*, poultry manure, fermentation, *Lactobacillus plantarum*, microbial multi-purpose.