

ABSTRACT

STUDY OF THE UTILIZATION OF *Aspergillus niger* AS A FERMENTATION STARTER IN AN EFFORT TO INCREASE PROTEIN CONTENT IN CASSAVA ONGGOK

By

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Cassava onggok is a solid waste from cassava factory production which has a high carbohydrate content so it has the potential to be processed into livestock feed. The addition of *Aspergillus niger* as a fermentation starter is expected to increase the protein content in cassava piles. The aim of this research is to find out the best fermentation formula for increasing protein levels. This research was structured in a non-factorial Complete Randomized Group Design (RAKL) with two replications and 6 treatment combinations, namely A1L1, A1L2, A2L1, A2L2, A3L1, and A3L2. A is the concentration level of *Aspergillus niger* (A1: 2%, A2: 4%, A3: 6%) based on the number of fermented cassava piles. L is the length of time for fermentation (L1: 4 days, L2: 7 days). Fermentation data was tested to see the increase in protein content. Data analysis was carried out using two-way ANOVA statistical analysis by comparing fermentation data for each treatment. The analysis was continued with the Duncan's difference test. The results of the study showed that all data parameters were homogeneous, and the analysis of variance test showed that there were very significant differences between treatments at a significance level of 5%. The best response was obtained in A3L2 treatment with *Aspergillus niger* concentrations of up to 6% for 7 days, an average of 21.94% was obtained.

Key words: Cassava pile, *Aspergillus niger*, animal feed.

ABSTRAK

KAJIAN PEMANFAATAN *Aspergillus niger* SEBAGAI STARTER FERMENTASI DALAM UPAYA MENINGKATKAN KANDUNGAN PROTEIN PADA ONGGOK SINGKONG

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Onggok singkong merupakan limbah padat dari hasil produksi pabrik singkong yang memiliki kandungan karbohidrat yang tinggi sehingga berpotensi untuk diolah menjadi pakan hewan ternak. Penambahan *Aspergillus niger* sebagai starter fermentasi diharapkan mampu menaikkan kadar protein pada onggok singkong. Tujuan penelitian ini untuk mengetahui formula fermentasi terbaik dalam meningkatkan kadar protein. Penelitian ini disusun dalam Rancangan Acak Kelompok Lengkap (RAKL) non faktorial dengan dua kali ulangan dan 6 kombinasi perlakuan yaitu A1L1, A1L2, A2L1, A2L2, A3L1, dan A3L2. A merupakan kadar konsentrasi *Aspergillus niger* (A1: 2%, A2: 4%, A3: 6%) berdasarkan jumlah onggok singkong yang difermentasi. L merupakan lama waktu fermentasi (L1: 4 hari, L2: 7 hari). Pengujian dilakukan untuk melihat peningkatan kadar protein. Analisis data dengan analisis statistik Anova dua arah (*Two Way Anova*) dengan membandingkan data hasil fermentasi pada setiap perlakuan. Uji lanjut menggunakan uji beda *Duncan*. Hasil penelitian menunjukkan bahwa semua parameter data adalah homogen, dan uji analisis ragam menunjukkan adanya perbedaan sangat nyata antara perlakuan pada taraf signifikansi 5%. Data terbaik didapatkan pada perlakuan A3L2 dengan konsentrasi *Aspergillus niger* hingga 6% selama 7 hari diperoleh rata-rata 21,94%.

Kata kunci : onggok singkong, *Aspergillus niger*, pakan ternak.