

ABSTRAK

Chalis, Purna. 2014. "Biokonversi Jerami Padi Menggunakan Konsorsium *Phanerochaete chrysosporium* dan *Aspergillus niger*". Skripsi. Jurusan Biologi Fakultas Sains dan Teknologi Universitas Islam Negeri Sunan Gunung Djati Bandung.

Pemanfaatan jerami padi sebagai pakan ternak belum dapat dioptimalkan karena memiliki kandungan serat yang tinggi dan protein yang rendah. Proses fermentasi diperlukan agar jerami padi dapat dimanfaatkan dan membuat kualitas jerami padi menjadi lebih baik apabila dijadikan sebagai pakan ternak. Agen hayati yang memiliki kemampuan untuk mendegradasi serat salah satunya adalah *Phanerochaete chrysosporium* dan *Aspergillus niger* diketahui dapat menaikkan kadar protein. Kedua mikroorganisme ini digunakan dalam proses fermentasi sebagai konsorsium kapang. Penelitian ini bertujuan untuk merunkan kadar serat dan menaikkan kadar protein dari jerami padi yang difermentasi oleh konsorsium *Phanerochaete chrysosporium* dan *Aspergillus niger*. Data yang diperoleh dianalisis menggunakan ANAVA One Way beserta uji non parametrik Kruskal Wallis. Perlakuan yang digunakan adalah JFK₀ = jerami padi tidak diberi perlakuan (kontrol), JFK₁ = jerami padi + konsorsium *Phanerochaete chrysosporium* dan *Aspergillus niger* 10%, JFK₂ = jerami padi + urea 1,5% , JFK₃ = jerami padi + konsorsium *Phanerochaete chrysosporium* dan *Aspergillus niger* 10% + urea 1,5% dengan lama inkubasi selama 8 hari. Parameter yang diamati adalah kadar serat dan protein sesudah dan sebelum proses inkubasi, uji organoleptik meliputi bau, warna, dan tekstur. Hasil penelitian menunjukkan tidak adanya pengaruh kenaikan kadar protein sedangkan pada kadar serat perlakuan JFK₁ merupakan perlakuan terbaik dalam menurunkan kadar serat dari jerami padi yaitu sebesar 15,97% setelah masa inkubasi selama 8 hari. Uji organoleptik sebelum dan setelah proses inkubasi memiliki pengaruh terhadap jerami padi. Pengaruh tersebut meliputi perubahan bau yang semakin asam, warna yang lebih pekat dan tekstur yang lebih halus.

Kata Kunci: *Aspergillus niger*, Fermentasi, Jerami Padi, Organoleptik, *Phanerochaete chrysosporium*.

ABSTRACT

Chalis, Purna. 2014. "Bioconversion of Rice Straw Using Consortium *Phanerochaete chrysosporium* and *Aspergillus niger*". Thesis. Department of Biology. Faculty of Science and Technology. Islamic State University Sunan Gunung Djati. Bandung.

Utilization of rice straw as cattle feed still can not be optimized because it has a high fiber and low protein in their composition. In order that rice straw can be used, some process of fermentation is required to make the quality of rice straw better than before when its used as animal feed. Biological agents that have the ability to degrade the fiber is *Phanerochaete chrysosporium* and *Aspergillus niger* which has been known to increase the protein. Both of these microorganisms will be used in the fermentation process as a consortium of fungi. This study aims to lowering a fiber level and increase the protein level from the rice straw that fermented by consortium *Phanerochaete chrysosporium* and *Aspergillus niger*. This research was conducted with an experimental method and using One Way ANOVA analysis and non-parametric Kruskal-Wallis test. The used treatments are JFK₀ = rice straw untreated (control), JFK₁ = rice straw + consortium *Phanerochaete chrysosporium* and *Aspergillus niger* 10%, JFK₂ = rice straw + urea 1.5%, JFK₃ = rice straw + consortium *Phanerochaete chrysosporium* and *Aspergillus niger* 10% + urea 1.5% with long incubation for 8 days. The parameters measured were the levels of fiber and protein before and after the incubation process, organoleptic tests include odor, color, and texture. Based on the results, the effect of treatment on the protein levels were not significantly different, while the fiber content JFK₁ treatment is the best treatment in reducing the fiber content of rice straw which resulted 15.97% and the lowest is in treatment JFK₂ that resulted 14.67% after incubation for 8 days. The organoleptic test before and after fermentation process also has an influence. The smell will become sour, the color will becomes more darker and the texture becomes more smoother.

Keyword: *Aspergillus niger*, Fermentation, Rice Straw, Organoleptic, *Phanerochaete chrysosporium*.



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