PENGARUH UMUR RUMPUT GAJAH GAMA UMAMI (*Pennisetum purpureum* cv. (GU)) DAN LAMA INKUBASI JAMUR *Phanerochaete chrysosporium* TERHADAP SIFAT KIMIA DAN GULA PEREDUKSI

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INTISARI

Rumput gajah gama umami (*Pennisetum purpureum* cv. (GU)) merupakan salah satu tanaman hasil pemuliaan oleh Fakultas Peternakan Universitas Gadjah Mada yang memiliki produktivitas lebih tinggi dibandingkan rumput gajah tanpa pemuliaan. Rumput gajah umumnya ditanam sebagai tanaman bawah pada sistem agroforestri. Rumput gajah gama umami berpotensi dapat dimanfaatkan sebagai energi biomassa salah satunya bioetanol. Dalam pembuatan bioetanol, selulosa dari rumput gajah gama umami harus dibersihkan terlebih dahulu dari lignin (delignifikasi), salah satu metodenya dengan penggunaan jamur *Phanerochaete chrysosporium.* Penelitian ini bertujuan untuk mengetahui pengaruh umur rumput dan lama inkubasi jamur *P. chrysosporium* terhadap sifat kimia dan gula pereduksi batang rumput gajah gama umami.

Penelitian ini menggunakan dua faktor, yaitu umur rumput (60, 100, dan 140 hari) dan lama inkubasi jamur (10, 20, dan 30 hari) sehingga diperoleh 9 perlakuan dengan 3 kali ulangan, Penelitian ini dilakukan dengan mengamati sifat kimia yang meliputi kadar ekstraktif etanol-toluen, ekstraktif terlarut air panas, abu, nilai pH, holoselulosa, α-selulosa, hemiselulosa, Klason-lignin, dan lignin terlarut asam serta mengamati gula pereduksi yang meliputi kadar gula pereduksi dan laju hidrolisis. Hasil pengujian sifat kimia dan gula pereduksi dianalisis dengan metode analisis keragaman (ANOVA), kemudian dilanjut uji Tukey HSD (*Honestly Significant Difference*).

Hasil penelitian menunjukkan bahwa interaksi antar faktor memberikan pengaruh nyata terhadap sifat kimia dan gula pereduksi batang rumput gajah gama umami. Interaksi antara umur rumput dan lama inkubasi jamur mempengaruhi kadar ekstraktif etanol-toluen, ekstraktif terlarut air panas, holoselulosa, α-selulosa, gula pereduksi dan laju hidrolisis. Perlakuan terbaik berdasarkan penelitian ini adalah dengan menggunakan umur rumput gajah 140 hari dan lama inkubasi jamur selama 20 hari.

Kata Kunci: rumput gajah gama umami, *Phanerochaete chrysosporium*, sifat kimia, gula pereduksi, bioetanol

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THE EFFECT OF GAMA UMAMI NAPIER GRASS (*Pennisetum purpureum* cv. (GU)) AGE AND *Phanerochaete chrysosporium* FUNGUS INCUBATION PERIOD ON CHEMICAL PROPERTIES AND REDUCING SUGAR

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ABSTRACT

Gama umami napier grass (*Pennisetum purpureum* cv. (GU)) is one of the plants mutated by the Faculty of Animal Science, Gadjah Mada University which has higher productivity than regular napier grass. Napier grass is generally grown as an understorey in agroforestry systems. Gama umami napier grass has the potential to be used as biomass energy, for example bioethanol. In the making of bioethanol, cellulose from gama umami napier grass must be cleaned from lignin, one of the methods is the use of the fungus *Phanerochaete chrysosporium.* This study aimed to determine the effect of grass age and incubation period of *Phanerochaete chrysosporium* fungus on the chemical properties and reducing sugar of gama umami napier grass.

This study using two factors, namely age of the grass (60, 100, and 140 days) and the incubation period of the fungus (10, 20, and 30 days), so that obtained 9 treatments with 3 repetitions. This study was conducted by observing the chemical properties which include the content of ethanol-toluen extractive, hot water-soluble extractive, ash, pH value, holocellulose, α-cellulose, hemicellulose, Klason-lignin, and acid-soluble lignin also observing reducing sugar which include reducing sugar content and hydrolysis rate. The result was analyzed by the method of variance (ANOVA), and then continued with the Tukey HSD (Honestly Significant Difference) test.

The result showed that interaction between factors had a significant effect on the chemical properties and reducing sugar of gama umami napier grass stem. The interaction between the grass age and the fungus incubation period affected the content of ethanol-toluen extractive, hot water-soluble extractive, holocellulose, α-cellulose, reducing sugar content and hydrolysis rate. The best treatment in this study was to use the age of the elephant grass 140 days and the incubation period of the fungus for 20 days.

Keywords: gama umami napier grass, *Phanerochaete chrysosporium,* chemical properties, reducing sugar, bioethanol

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