

**ANALISIS KADAR GULA PEREDUKSI PADA TEPUNG DAN TEPUNG
MODIFIKASI UMBI GADUNG (*Dioscorea hispida* Dennst) MENGGUNAKAN
METODE KOLORIMETRI**

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ABSTRAK

Umbi gadung (*Dioscorea hispida* Dennst.) merupakan umbi yang tumbuh liar di hutan-hutan dan banyak tersedia di Indonesia. Pemanfaatan umbi gadung masih sangat terbatas. Tanaman umbi-umbian lokal ini mengandung karbohidrat tinggi. Sehingga perlu dilakukan modifikasi untuk mendapatkan produk berupa tepung yang rendah gula melalui fermentasi alami dan fermentasi bakteri asam laktat (*Lactobacillus plantarum*). Tujuan dari penelitian ini untuk mengetahui perbedaan kadar gula pereduksi, kadar air, dan kadar abu dari tepung umbi gadung setelah penambahan bakteri asam laktat (*Lactobacillus plantarum*). Pada penelitian ini, analisis karbohidrat dilakukan secara kuantitatif dengan menggunakan metode spektrofotometri sinar tampak dengan penambahan pereaksi Somogyi-Nelson sebagai pembentuk kompleks berwarna. Hasil validasi metode analisis meliputi linieritas dengan nilai $r=0.997$, $BD=1,26 \mu\text{g/mL}$, $BK=4,20 \mu\text{g/mL}$, %perolehan kembali=87-99%, dan %RSD=<2%. Hasil analisis kandungan gula pereduksi pada sampel menunjukkan perbedaan, pada tepung murni 8,87%, tepung fermentasi alami 5,88%, tepung fermentasi bakteri 2,02%. Kadar air pada tepung murni 7,93%, tepung fermentasi alami 8,08% dan tepung fermentasi bakteri 5,73%. Kadar abu pada tepung murni 0,82 %, tepung fermentasi alami 1,10% dan tepung fermentasi bakteri 1,63%. Melalui fermentasi bakteri *Lactobacillus plantarum* dapat menurunkan kadar gula pereduksi sebesar 77,23%.

Kata Kunci : Umbi gadung, karbohidrat, Somogyi-Nelson, *Lactobacillus plantarum*, Spektrofotometri sinar tampak

***Analysis of Reducing Sugar Levels in Flour and Modified Flour of Gadung Tuber
(Dioscorea hispida Dennst) Using the Colorimetric Method***

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ABSTRACT

Gadung (Dioscorea hispida Dennst.) is a tuber that grows wild in forests and is widely available in Indonesia. The utilization of gadung tubers is still very limited. This local tuber plant contains high carbohydrates. So it is necessary to modify it to get a product in the form of flour that is low in sugar through natural fermentation and fermentation of lactic acid bacteria (Lactobacillus plantarum). The purpose of this study was to determine the differences in reducing sugar content, moisture content, and ash content of gadung tuber flour after the addition of lactic acid bacteria (Lactobacillus plantarum). In this study, carbohydrate analysis was carried out quantitatively using the visible light spectrophotometric method with the addition of Somogyi-Nelson reagent as a color complex. The validation results of the analysis method include linearity with a value of $r=0.997$, $BD=1.26 \mu\text{g/mL}$, $BK=4.20 \mu\text{g/mL}$, $\%recovery=87-99\%$, and $\%RSD=<2\%$. The results of the analysis of reducing sugar content in the samples showed differences, in pure flour 8.87%, natural fermented flour 5.88%, bacterial fermented flour 2.02%. Moisture content in pure flour was 7.93%, natural fermented flour was 8.08% and bacterial fermented flour was 5.73%. Ash content in pure flour was 0.82%, natural fermented flour was 1.10% and bacterial fermented flour was 1.63%. Through the fermentation of Lactobacillus plantarum bacteria can reduce the reducing sugar content by 77.23%.

Keywords: *Dioscorea hispida Dennts, carbohydrates, Somogyi-Nelson, Lactobacillus plantarum, UV-VIS spectrophotometry.*