

PENGARUH PEMBERIAN EKSTRAK UBI JALAR UNGU (*Ipomoea batatas (L.) Lam.*) TERHADAP KADAR GLUKOSA DARAH DAN MALONDIALDEHID (MDA) HEPAR TIKUS HIPERGLIKEMIA YANG DIINDUKSI ALOKSAN



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PENGARUH PEMBERIAN EKSTRAK UBI JALAR UNGU (*Ipomoea batatas* (L.) Lam.) TERHADAP KADAR GLUKOSA DARAH DAN MALONDIALDEHID (MDA) HEPAR TIKUS HIPERGLIKEMIA YANG DIINDUKSI ALOKSAN

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ABSTRAK

Ubi jalar ungu (*Ipomoea batatas* (L.) Lam.) merupakan pangan sehat yang mengandung senyawa antioksidan berupa antosianin, asam fenolat, vitamin A, C, dan E. Antioksidan dapat meredam kerusakan oksidatif pada mitokondria sel beta pankreas melalui penangkapan radikal bebas sehingga terjadi peningkatan sekresi insulin dan penurunan stres oksidatif pada penderita DM.

Penelitian ini merupakan *true experimental* dengan *post-test only control group design*. Sebanyak 24 ekor tikus dibagi menjadi empat kelompok yaitu kontrol negatif (K-), kontrol positif (K+), perlakuan 1 (P1), dan perlakuan 2 (P2). Kelompok K- merupakan kelompok normal yang hanya diberikan pakan standar. Kelompok K+ hanya diinduksi aloksan saja untuk menimbulkan efek hiperglikemia. Kelompok P1 dan P2 diinduksi aloksan dan diberikan ekstrak ubi jalar ungu dosis 150 mg/kgBB untuk P1 dan 200 mg/kgBB untuk P2 selama 21 hari. Kadar glukosa darah diukur dengan metode *Glucose Oxidase – Peroxidase Aminoantypirin* (GOD-PAP) dan kadar MDA hepar diukur dengan metode *Thiobarbituric Acid Reactive Substances* (TBARS). Analisis data menggunakan *One way ANOVA* dan *Post Hoc Test* dengan *Least Significant Differences* (LSD).

Rerata kadar glukosa darah setelah 21 hari pada kelompok K-, K+, P1, dan P2 adalah 104,64 mg/dl, 345,92 mg/dl, 150,4 mg/dl, dan 129,42 mg/dl. Terdapat perbedaan signifikan antara kelompok P1 dan P2 dengan kelompok K+ dengan nilai $p = 0,000$. Rerata kadar MDA hepar pada kelompok K-, K+, P1, dan P2 adalah 6,92 nmol/mg, 10,99 nmol/mg, 9,55 nmol/mg, dan 8,84 nmol/mg. Terdapat adanya perbedaan yang signifikan antara kelompok P1 dibandingkan K- dan K+ dengan nilai $p = 0,001$ dan $p = 0,034$, kelompok P2 dibandingkan K- dan K+ dengan nilai $p = 0,007$ dan $p = 0,003$.

Kesimpulan penelitian ini adalah ekstrak ubi jalar ungu berpengaruh dalam menurunkan kadar glukosa darah dan MDA hepar tikus hiperglikemia yang diinduksi aloksan.

Kata kunci : aloksan, ekstrak ubi jalar ungu, glukosa darah, MDA hepar

THE EFFECT OF PURPLE SWEET POTATO EXTRACT (*Ipomoea batatas* (L.) Lam.) ON THE LEVEL OF BLOOD GLUCOSE AND MDA IN LIVER TISSUES OF HYPERGLICEMIC RATS INDUCED BY ALLOXAN

By
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ABSTRACT

Purple sweet potato (*Ipomoea batatas* (L.) Lam.) is a healthy food that contains antioxidant compounds such as anthocyanin, phenolic acid, vitamin A, C, and E. Antioxidant can suppress oxidative damage of mitochondria in pancreatic beta cell by scavenging free radical therefore causes increasing in insulin secretion and decreasing in oxidative stress in diabetic patients.

This study was true experimental with post-test only control group design. A total of 24 rats were divided into 4 groups, namely negative control (K-), positive control (K+), treatment 1 (P1), and treatment 2 (P2). The K- group was a normal group that only given standard feed. The K + group were induced by alloxan only to cause the effects of hyperglycemia. P1 and P2 group were induced by alloxan and given purple sweet potato extract dose of 150 mg/kgBB and 200 mg/kgBB for 21 days. The level of blood glucose was measured by Glucose Oxidase-Peroxidase Aminoantypirin (GOD-PAP) method and the level of MDA in liver tissues was measured by the Thiobarbituric Acid Reactive Substances (TBARS) method. Data was analyzed using one way ANOVA and Post Hoc Test with Least Significant Differences (LSD).

The mean of blood glucose levels in K-, K+, P1, and P2 group were 104,64 mg/dl, 345,92 mg/dl, 150,4 mg/dl, and 129,42 mg /dl. There were significant differences between P1 and P2 with K+ group with p value = 0,000. The mean of MDA levels in liver tissue in K-, K+, P1, and P2 group were 6,92 nmol/mg, 10,99 nmol/mg, 9,55 nmol/mg, and 8.84 nmol/mg. There were significant difference between P1 group with the K- and K+ group with p value = 0.001 and 0,034, P2 compared to K- and K+ group with p value = 0.007 and p = 0,003.

The conclusion of this study is purple sweet potato extract can reduce the level of blood glucose and MDA in liver tissues.

Keywords: alloxan, purple sweet potato extract, blood glucose, MDA in liver tissues