

ABSTRACT

THE EFFECT OF SUWEG TUBER FLOUR (*Amorphophallus Paeoniifolius*) AND BAMBARA GROUNDNUT FLOUR (*Vigna Subterranean*) FORMULATION ON BLOOD GLUCOSE LEVELS AND ATHEROGENIC INDEX (Study on Sprague Dawley Diabetic Dyslipidemia Rats)

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One of the complications of Type 2 Diabetes Mellitus (T2DM) that increased prevalence was Atherosclerosis Cardiovascular Disease (ASCVD). A new parameter to measure ASCVD is the Atherogenic Index of Plasma (AIP). Consumption of foods high in fiber and antioxidants can lower blood glucose levels and lipid profiles. One of the food sources of fiber and antioxidants is the suweg tuber and bambara groundnut. This study aimed to analyze the effect of a formulation of suweg tuber flour and bambara groundnut flour on blood glucose levels and the atherogenic index in diabetic dyslipidemia rats. The research method was a pre-and post-test with a randomized control group design. This study used 30 male Sprague Dawley rats aged 8-10 weeks with a weight range of 150-200 grams. The rats were divided into five groups: K(-) diabetic dyslipidemia rats without treatment, K(+) diabetic dyslipidemia rats treated with atorvastatin, and groups P1, P2, and P3, which were diabetic dyslipidemia rats treated with a formulation of suweg tuber flour and bambara groundnut flour at 2.5 grams/200 g body weight/day, with the ratios of P1 (75%:25%), P2 (50%:50%), and P3 (25%:75%) for 14 days. Blood glucose levels were measured using the GOD-PAP method, and the atherogenic index was calculated using the formula $\log(\text{triglycerides}/\text{HDL})$. Data analysis was performed using One-Way ANOVA with post-hoc Tukey and Paired T-test. The results showed that group P1 experienced the highest reduction in blood glucose levels, 136.5 ± 6.6 mg/dl ($p=0.000$), and a decrease in the atherogenic index of 0.37 ± 0.03 ($p=0.000$). Meanwhile, group K(-) showed an increase in blood glucose levels of 1.7 ± 0.8 mg/dl and an increase in the atherogenic index of 0.02 ± 0.01 . In conclusion, the formulation of suweg tuber flour and bambara groundnut flour in the P1 ratio significantly reduced blood glucose levels and the atherogenic index.

Keywords: atherogenic index, bambara groundnut flour, blood glucose level, diabetic dyslipidemia, suweg tuber flour.

ABSTRAK

**PENGARUH PEMBERIAN FORMULASI TEPUNG UMBI SUWEG
(*Amorphophallus Paeoniifolius*) DAN TEPUNG KACANG BOGOR (*Vigna
Subterranea*) TERHADAP KADAR GLUKOSA DARAH DAN INDEKS
ATEROGENIK
(Studi pada Tikus *Sprague Dawley Diabetic Dyslipidemia*)**

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Salah satu komplikasi Diabetes Melitus Tipe 2 (DMT2) yang mengalami peningkatan prevalensi yaitu *Atherosclerosis Cardiovascular Disease* (ASCVD). Parameter baru untuk mengukur ASCVD, yaitu Indeks Aterogenik Plasma (AIP). Konsumsi makanan tinggi serat dan antioksidan dapat menurunkan kadar glukosa darah dan profil lipid. Salah satu bahan makanan sumber serat dan antioksidan yaitu umbi suweg dan kacang bogor. Tujuan penelitian ini yaitu menganalisis pengaruh formulasi tepung umbi suweg dan tepung kacang bogor terhadap kadar glukosa darah dan indeks aterogenik pada tikus *diabetic dyslipidemia*. Metode penelitian ini yaitu *pre and post-test with randomized control group design*. Penelitian ini menggunakan 30 ekor tikus Jantan *Sprague Dawley* usia 8-10 minggu dengan berat 150-200 gram. Tikus dibagi menjadi 5 kelompok yaitu K(-) tikus *diabetic dyslipidemia* tanpa perlakuan, K(+) tikus *diabetic dyslipidemia* yang diberi obat atorvastatin dan kelompok P1, P2, P3 yaitu tikus *diabetic dyslipidemia* yang diberi formulasi tepung umbi suweg dan tepung kacang bogor sebanyak 2,5 gram/200 gBB/hari dengan perbandingan P1 (75%:25%), P2 (50%:50%), dan P3 (25%:75%) selama 14 hari. Kadar GDP diperiksa dengan metode GOD-PAP, dan indeks aterogenik dengan rumus perhitungan $\log(\text{trigliserida}/\text{HDL})$. Analisis data menggunakan uji *One-Way ANOVA* dengan *post-hoc tukey* dan *Paired T-test*. Hasil menunjukkan bahwa kelompok P1 mengalami penurunan kadar GDP paling tinggi yaitu 136.5 ± 6.6 mg/dl ($p=0,000$) dan penurunan indeks aterogenik 0.37 ± 0.03 ($p=0,000$). Sedangkan kelompok K(-) mengalami peningkatan kadar GDP 1.7 ± 0.8 mg/dl dan indeks aterogenik 0.02 ± 0.01 . Kesimpulan yaitu formulasi tepung umbi suweg dan tepung kacang bogor P1 dapat menurunkan kadar glukosa darah dan indeks aterogenik paling signifikan.

Kata Kunci: indeks aterogenik, tepung kacang bogor, kadar glukosa darah, *diabetic dyslipidemia*, tepung umbi suweg.