THESIS

THE EFFECT OF SUWEG TUBER FLOUR (*Amorphophallus paeoniifolius*) AND BAMBARA GROUNDNUT FLOUR (*Vigna subterranea*) FORMULATION ON HDL AND LDL LEVELS (Study on Sprague Dawley Diabetic Dyslipidemia Rats)

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PONOROGO

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APPROVAL SHEET

THESIS DEFENCE

It is hereby stated that the thesis with the title:

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It has been reviewed and recommended to meet scientific standards, in terms of both scope and quality.

It has been approved to presented on: **Wednesday, 19 February 2025**

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ABSTRAK

PENGARUH PEMBERIAN FORMULASI TEPUNG UMBI SUWEG (*Amorphophallus paeoniifolius*) DAN TEPUNG KACANG BOGOR (*Vigna subterranea*) TERHADAP KADAR HDL DAN LDL (Studi pada Tikus *Sprague Dawley Diabetic Dyslipidemia*)

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Diabetic dyslipidemia merupakan kelainan metabolik yang umum terjadi pada penderita diabetes melitus, ditandai dengan penurunan kadar HDL dan peningkatan kadar LDL. Salah satu pencegahan yang dapat dilakukan adalah melalui peningkatan asupan serat, yang memiliki peran dalam memperbaiki profil lipid. Umbi suweg dan kacang bogor merupakan sumber pangan lokal yang kaya akan serat dan berpotensi dimanfaatkan untuk perbaikan kadar lipid darah. Penelitian ini bertujuan untuk menganalisis pengaruh pemberian formulasi tepung umbi suweg (*Amorphophallus paeoniifolius*) dan tepung kacang bogor (*Vigna subterranea*) terhadap kadar HDL dan LDL tikus *diabetic dyslipidemia.* Penelitian ini menggunakan *true eksperimental* dengan rancangan *randomized pre-test and post-test controlled group design*. Subyek penelitian berjumlah 30 ekor tikus jantan *Sprague-Dawley* yang dibagi secara acak menjadi 5 kelompok yaitu kelompok kontrol negatif (K-), kelompok kontrol positif (K+) diberi obat atorvastatin (0,36 mg/ 200 gBB/ hari), serta kelompok perlakuan (F1, F2, dan F3) diberi formulasi tepung umbi suweg dan tepung kacang bogor dengan rasio (75%:25%, 50%:50%, 25%:75%). Analisis data menggunakan uji normalitas *Saphiro Wilk, Paired T-Test*, uji homogenitas, *One Way Anova* dilanjut *Post Hoc Tukey test.* Hasil penelitian menunjukkan bahwa terdapat pengaruh signifikan setelah intervensi ($p<0,05$). Kelompok F1 menunjukkan rerata kadar HDL tertinggi (77,2 ± 2,0 mg/dL) dan rerata kadar LDL terendah (27,0 ± 1,5 mg/dL) dibandingkan dengan kelompok lainnya. Analisis statistik menunjukkan perbedaan signifikan antarkelompok dengan nilai *p-value* HDL= 0,000 dan LDL= 0,000. Kesimpulan penelitian ini adalah bahwa formulasi tepung umbi suweg dan tepung kacang bogor efektif meningkatkan kadar HDL dan menurunkan kadar LDL pada tikus *diabetic dyslipidemia,* dengan formulasi paling efektif yaitu F1.

Kata Kunci: *Diabetic Dyslipidemia,* HDL, LDL, Umbi Suweg, Kacang Bogor.

ABSTRACT

THE EFFECT OF SUWEG TUBER FLOUR (*Amorphophallus paeoniifolius*) AND BAMBARA GROUNDNUT FLOUR (*Vigna subterranea*) FORMULATION ON HDL AND LDL LEVELS
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Diabetic dyslipidemia was common metabolic disorder in individuals with diabetes mellitus, characterized by decreased HDL levels and increased LDL levels. One of the preventive measures that can be taken is increasing fiber intake, which plays a role in improving the lipid profile. Suweg tuber flour (*Amorphophallus paeoniifolius*) and bambara groundnut flour (*Vigna subterranea*) were local food sources rich in fiber and can improve blood lipid levels. This study aims to analyze the effect of a formulation of suweg tuber flour and bambara groundnut flour on HDL and LDL levels in diabetic dyslipidemia rats. The research a true experimental design with a randomized pre-test and post-test controlled group design. The study subjects consisted of 30 male Sprague-Dawley rats, randomly divided into five groups: a negative control group (K-), a positive control group (K+) given atorvastatin (0.36 mg/200 g body weight/day), and three treatment groups (F1, F2, and F3) given formulations of suweg tuber flour and bambara groundnut flour with ratios (75%:25%, 50%:50%, and 25%:75%), respectively. Data analysis was conducted using the Shapiro-Wilk normality test, paired t-test, homogeneity test, and one-way ANOVA, followed by the Post Hoc Tukey test. The results showed a significant effect after the intervention ($p<0.05$). The F1 group exhibited the highest mean HDL level (77.2 ± 2.0 mg/dL) and the lowest mean LDL level (27.0 ± 1.5 mg/dL) compared to the other groups. Statistical analysis indicated significant differences between groups with p-values for HDL and LDL equal to 0.000. This study concludes that suweg tuber flour and bambara groundnut flour effectively increase HDL levels and reduce LDL levels in diabetic dyslipidemia rats, with the most effective formulation being F1.

Keywords: Diabetic Dyslipidemia, HDL, LDL, Suweg Tuber, Bambara Groundnut

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Ponorogo, 29 January 2025

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I sincerely declare that the research contained in this thesis is my work and does not belong to anyone else. This thesis has never been published, except for some parts with original references.

If in the future it is found that this work is plagiarism, I am ready to be given administrative and academic sanctions.

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