

ABSTRAK

PENGARUH PEMBERIAN EKSTRAK ETANOL LADA HITAM (*Piper nigrum L*) TERHADAP KADAR GULA DARAH DAN JUMLAH SPERMATOGONIA MODEL DIABETES TIKUS PUTIH JANTAN (*Rattus norvegicus*) GALUR *Sprague Dawley*

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Latar Belakang: Diabetes melitus yang tidak ditangani dengan baik dapat mengakibatkan infertilitas. Kandungan piperin yang terdapat di dalam lada hitam dapat membantu dalam kualitas proses spermatogenesis dan kadar gula darah. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian ekstrak etanol lada hitam (*Piper nigrum L*) terhadap kadar gula darah dan jumlah spermatogonia model diabetes tikus putih jantan (*Rattus norvegicus*) galur *Sprague dawley*.

Metode: Penelitian menggunakan *Posttest-only Randomized Control Group* pada tikus sebanyak 24 ekor yang terbagi menjadi 4 kelompok. Semua kelompok di induksi aloksan 150 mg/kgBB kecuali pada KN. P1 dan P2 diberikan ekstrak etanol lada hitam 122,5 mg/kgBB dan 245 mg/kgBB. Dilakukan pengecekan kadar gula darah menggunakan Easy Touch Glucose dengan batas normal 50-135 mg/dL. Jumlah spermatogonia dihitung menggunakan alat bantuan yaitu ImageJ. Data dianalisis menggunakan uji normalitas *Shapiro-Wilk* dan uji homogenitas, dilanjutkan dengan uji non parametrik *Kruskal Wallis* dan uji *Pos Hoc*

Hasil: Hasil statistik kadar gula darah didapatkan data terdistribusi normal yaitu $p > 0,05$, data tidak homogen $p < 0,05$, hasil uji *Kruskal-Wallis* didapatkan hasil yang bermakna dan dilanjutkan uji *Pos Hoc* didapatkan hasil bermakna pada P2 dan K-. Jumlah spermatogonia didapatkan data terdistribusi normal yaitu $p > 0,05$, data tidak homogen $p < 0,05$. Hasil uji *Kruskal-Wallis* yang bermakna yaitu $p < 0,05$ dan dilanjutkan uji *Pos Hoc* didapatkan hasil bermakna pada P2 dan P1.

Simpulan: Terdapat penurunan kadar gula darah pada pemberian ekstrak etanol lada hitam (*P. nigrum L*) model diabetes tikus putih Jantan (*R. norvegicus*) galur *Sprague dawley*. Namun, tidak terdapat pengaruh pemberian ekstrak etanol lada hitam (*P. nigrum L*) terhadap jumlah spermatogonia model diabetes tikus putih Jantan (*R. norvegicus*) galur *Sprague dawley*.

Kata Kunci: Diabetes melitus, *Piper nigrum L*, *Rattus norvegicus*.

ABSTRACT

THE EFFECT OF GIVING BLACK PEPPER ETHANOL EXTRACT (*Piper nigrum L*) ON BLOOD SUGAR LEVELS AND SPERMATOGONIA COUNT OF DIABETES MODEL MALE WHITE RATS (*Rattus norvegicus*) Sprague Dawley STRAIN

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Background: Diabetes mellitus that is not treated properly can result in infertility. The piperine content in black pepper can help in the quality of the spermatogenesis process and blood sugar levels. This study aims to determine the effect of administering ethanol extract of black pepper (*Piper nigrum L*) on blood sugar levels and the number of spermatogonia in a model of diabetes in male white rats (*Rattus norvegicus*) of the *Sprague dawley* strain.

Methods: The study used a Posttest-only Randomized Control Group on 24 mice divided into 4 groups. All groups were induced with alloxan 150 mg/kgBW except KN. P1 and P2 were given black pepper ethanol extract 122.5 mg, kgBW and 245 mg/kgBW. Blood sugar levels were checked using Easy Touch Glucose with a normal limit of 50-135 mg/dL. The number of spermatogonia was counted using the tool ImageJ. Data were analyzed using the Shapiro-Wilk normality test and homogeneity test, followed by the Kruskal Wallis non-parametric test and the Post Hoc test.

Result: The statistical results of blood sugar levels showed that the data was normally distributed, namely $p > 0.05$, the data was not homogeneous, $p < 0.05$, the results of the Kruskal-Wallis test showed significant results and continued with the Post Hoc test, the results were significant for P2 and K-. The data obtained for the number of spermatogonia were normally distributed, namely $p > 0.05$, the data was not homogeneous, $p < 0.05$. The results of the Kruskal-Wallis test were significant, namely $p < 0.05$ and continued with the Post Hoc test, significant results were obtained at P2 and P1.

Conclusion: There is a decrease in blood sugar levels when given ethanol extract of black pepper (*P. nigrum L*) in the diabetes model of male white rats (*R. norvegicus*) of the *Sprague dawley* strain. However, there is no effect of giving ethanol extract of black pepper (*P. nigrum L*) on the number of spermatogonia in the diabetes model of male white rats (*R. norvegicus*) of the *Sprague dawley* strain.

Keyword: diabetes mellitus, *Piper nigrum L*, *Rattus norvegicus*.