PENGARUH PROBIOTIK DADIH TERHADAP KADAR GLUKOSA DARAH PUASA, HEMOGLOBIN TERGLIKASI, DAN MALONDIALDEHID TIKUS DIABETES MELITUS DENGAN INDUKSI ALOKSAN

TESIS

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ABSTRAK

PENGARUH PROBIOTIK DADIH TERHADAP KADAR GLUKOSA DARAH PUASA, HEMOGLOBIN TERGLIKASI, DAN MALONDIALDEHID TIKUS DIABETES MELITUS DENGAN INDUKSI ALOKSAN

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Perubahan komposisi mikrobiota usus berkontribusi dalam perkembangan diabetes melitus. Probiotik dadih mengandung BAL dan dapat memodulasi mikrobiota usus yang berperan dalam kontrol glukosa darah dengan menekan inflamasi dan meningkatkan aktivitas antioksidan. Penelitian ini bertujuan menganalisis pengaruh probiotik dadih terhadap kadar glukosa darah puasa, HbA1c, dan MDA tikus diabetes melitus dengan induksi aloksan.

Penelitian ini menggunakan rancangan eksperimental dengan *post test only control group*. Sampel tikus putih galur wistar dibagi menjadi 4 kelompok. Kelompok negatif tidak diberikan perlakuan, K(+), P1, dan P2 diinduksi aloksan 150 mg/kgBB pada hari pertama. Kelompok P1 dan P2 diberikan probiotik dadih dosis 1,87 g/200gBB dan 3,74 g/200gBB pada hari ke-4 hingga ke-17. Pengukuran kadar glukosa darah puasa, HbA1c, dan MDA dilakukan pada hari ke-18. Data dianilisis dengan *One Way Anova* dan Uji *post-hoc*. Hasil penelitian bermakna secara statistik jika $p < 0,05$.

Hasil penelitian memperlihatkan rata-rata kadar glukosa darah puasa dengan hasil berturut-turut K- 92,14 mg/dL, K+ 422, 86 mg/dL, P1 254,29 mg/dL, dan P2 145,71 mg/dL. Rata-rata kadar HbA1c K- 53,88 ng/L, K+ 71,57 ng/L, P1 59,89 ng/L, dan P2 56,98 ng/L. Rata-rata kadar MDA K- 2,18 nmol/mL, K+ 3,77 nmol/mL, P1 2,91 nmol/mL dan P2 2,53 nmol/mL. Berdasarkan uji statistik terdapat pengaruh probiotik dadih terhadap kadar glukosa darah puasa, HbA1c, dan MDA dibuktikan nilai $p < 0,05$.

Kesimpulan penelitian adalah probiotik dadih dosis 1,87 g/200gBB dan 3,74 g/200gBB dapat menurunkan kadar glukosa darah puasa, HbA1c dan MDA tikus percobaan.

Kata kunci : Aloksan, dadih, diabetes melitus, glukosa darah puasa, HbA1c, malondiadehid, probiotik.

ABSTRACT

THE EFFECT OF DADIH PROBIOTICS ON LEVELS FASTING BLOOD GLUCOSE, GLYCATED HEMOGLOBIN, AND MALONDIALDEHYDE IN RATS WITH DIABETES MELLITUS WITH ALLOXAN INDUCTION

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The changes composition of the gut microbiota contributes to the development of diabetes mellitus. Dadih probiotics contain LAB and can modulate the gut microbiota which plays a role in blood glucose control by suppressing inflammation and increasing antioxidant activity. This study aims to analyze the effect of dadih probiotics on fasting blood glucose, HbA1c, and MDA levels in alloxan-induced diabetic rats.

This study used an experimental design with a post-test-only control group. Wistar strain white rat samples were divided into 4 groups. The negative group was not given any treatment, K(+), P1, and P2 were induced by alloxan 150 mg/kg BW on the first day. Groups P1 and P2 were given dadih probiotic doses of 1.87 g/200 gBW and 3.74 g/200 gBW on days 4 to 17. Measurement of fasting blood glucose, HbA1c, and MDA levels was carried out on the 18th day. Data were analyzed with One Way Anova and a post-hoc test. The research results are statistically significant if p-value<0.05.

The results showed that the average fasting blood glucose levels were K-92.14 mg/dL, K+ 422.86 mg/dL, P1 256.86 mg/dL, and P2 145.71 mg/dL. The average levels of HbA1c K- 53.88 ng/L, K+ 71.57 ng/L, P1 59.89 ng/L, and P2 56.98 ng/L. The average levels of MDA K- 2.29 nmol/mL, K+ 3.77 nmol/mL, P1 2.97 nmol/mL, and P2 2.53 nmol/mL. Based on statistical tests, there was an effect of dadih probiotics on fasting blood glucose, HbA1c, and MDA levels as evidenced by a p-value <0.05.

The conclusion of the study was dadih probiotic doses of 1.87 g/200 gBW and 3.74 g/200 gBW can reduce fasting blood glucose, HbA1c, and MDA levels in experimental rats.

Keywords: *Alloxan, dadih, Diabetes mellitus, fasting blood glucose, HbA1c, malondiadehid, probiotic*