

## ABSTRAK

### **PENGARUH PEMBERIAN EKSTRAK ETANOL BUAH PARE (*Momordica charantia* L.) TERHADAP PENURUNAN KADAR GULA DARAH DAN GEJALA TOKSISITAS PADA MENCIT (*Mus musculus* L.)**

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Hiperglikemia adalah terjadinya peningkatan kadar gula darah di atas normal. Hiperglikemia disebabkan oleh gula yang menumpuk dalam darah dan tidak mampu masuk ke dalam sel, gangguan hormon insulin, dan faktor keturunan. Kondisi hiperglikemia dapat menyebabkan kerusakan jaringan dan gangguan fungsi organ seperti hati, ginjal, dan jantung. Beberapa kajian menunjukkan buah *Momordica charantia* mengandung senyawa yang dapat merangsang perbaikan sel-sel beta, sehingga dapat meningkatkan produksi insulin dan toleransi glukosa. Penelitian ini bertujuan untuk menguji efektivitas ekstrak etanol buah *M. charantia* terhadap penurunan kadar gula darah dan uji efek subletal pada mencit jantan yang diinduksi aloksan. Parameter yang digunakan meliputi rerata berat badan, rerata kadar gula darah, berat relatif organ, dan pengamatan organ makroskopis. Metode penelitian yang digunakan adalah Rancangan Acak Lengkap (RAL) yang melibatkan 6 kelompok perlakuan hewan uji dengan 5 ulangan, yaitu K(-): kontrol negatif (tanpa induksi aloksan dan bahan uji), K(+): kontrol positif (diinduksi aloksan), P1: kelompok yang diinduksi aloksan dan diberi ekstrak *M. charantia* 5 mg/kgBB, P2: kelompok yang diinduksi aloksan dan diberi ekstrak *M. charantia* 50 mg/kgBB, P3: kelompok yang diinduksi aloksan dan diberi ekstrak *M. charantia* 300 mg/kgBB, P4: kelompok yang diinduksi aloksan dan diberi ekstrak *M. charantia* 2000 mg/kgBB. Data dianalisis dengan uji Levene, *One-Way Anova*, dan dilanjutkan uji BNT pada taraf nyata 5%. Hasil analisis statistik *One-Way Anova* dilanjutkan dengan uji BNT pada taraf nyata 5% menunjukkan pemberian ekstrak etanol buah pare mampu menurunkan kadar gula darah mencit jantan yang diinduksi aloksan, kelompok P4 menjadi kelompok yang efektif dengan penurunan kadar glukosa darah yang cukup tinggi (129,5 mg/dL) dan berbeda nyata dengan kelompok K(-), K(+), P1, P2, dan P3. Pengamatan rerata organ dan makroskopis tidak menunjukkan gejala kerusakan akibat sifat toksik sehingga ekstrak etanol buah pare aman untuk digunakan.

**Kata kunci:** Aloksan, Hiperglikemia, *Momordica charantia*.

## ABSTRACT

### THE EFFECT OF ADMINISTERING ETHANOLIC EXTRACT OF BITTER MELON (*Momordica charantia* L.) ON REDUCING BLOOD SUGAR LEVELS AND TOXICITY SYMPTOMS IN MICE (*Mus musculus* L.)

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Hyperglycemia refers to an increase in blood sugar levels above the normal range. Various factors, including the accumulation of sugar in the blood, insulin hormone disorders, and heredity can cause this condition. Hyperglycemia can lead to tissue damage and impair the functioning of organs such as the liver, kidneys, and heart. Research has indicated that *Momordica charantia* fruit contains compounds that can stimulate the repair of beta cells, which in turn improves insulin production and glucose tolerance. A study was conducted on alloxan-induced male mice to test the effectiveness of the ethanol extract of *M.charantia* fruit as a means to decrease blood sugar levels and evaluate its safety. Parameters used include mean body weight, mean blood sugar level, sublethal effect, relative organ weight, and macroscopic observations. The research method was a completely randomized design involving 6 treatment groups of test animals with 5 replicates. These groups included K(-): (negative control without alloxan induction and test materials), K(+): (positive control induced with alloxan), P1: (group was induced by alloxan and was given 5 mg/kgBW *M.charantia* extract), P2: (group was induced by alloxan and was given 50 mg/kgBW *M.charantia* extract), P3: (group was induced by alloxan and was given 300 mg/kgBW *M.charantia* extract), and P4: (group was induced by alloxan and was given 2000 mg/kgBW *M.charantia* extract). The data will be analyzed with Levene test, One-Way ANOVA, and then continued by LSD test at 5%. One-Way Anova followed by LSD test at 5% level of significance was applied to analyze data and indicated that bitter melon ethanol extract was able to reduce blood sugar levels in male mice induced by alloxan, The P4 group became the best group with a fairly high reduction in blood glucose levels (129.5 mg/dL) and significantly different from the K(-), K(+), P1, P2, and P3 groups. Observations of organ and macroscopic mean did not show symptoms and toxic properties so that bitter melon ethanol extract is safe to use.

**Key words: Alloxan, Hyperglycemia, *Momordica charantia***