

## ABSTRAK

Ekstrak *ethanol* akar alang-alang (*Imperata Cylindrica*) berperan sebagai antioksidan melalui flavonoid yang dikandungnya. Flavonoid menghambat jalur *cyclooxygenase* dan pembentukan NO melalui inhibisi NF $\kappa$ B dan supresi iNOS sehingga menekan pengeluaran sitokin pro-inflamasi yang menurunkan ekspresi gen G6Pase pada proses glukoneogenesis. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak *ethanol* akar alang-alang terhadap ekspresi gen G6Pase di hepar pada mencit model sepsis dan mengetahui dosis yang paling efektif untuk meningkatkan ekspresi gen G6Pase. Metode penelitian ini adalah studi eksperimental laboratorium *in vivo* yang dilakukan di Laboratorium Biokimia dan Biomolekular Fakultas Kedokteran Universitas Padjajaran selama delapan bulan. Desain penelitian ini berupa *randomized post-test only controlled group* pada empat kelompok mencit jantan galur DDY, yaitu kelompok 1 (kontrol normal), kelompok 2 (kontrol negatif), kelompok 3 diberi ekstrak *ethanol* akar alang-alang sebanyak 90 mg/KgBB, dan kelompok 4 diberi ekstrak *ethanol* akar alang-alang sebanyak 115 mg/KgBB selama dua minggu. Kelompok 2, 3, dan 4 diinduksi LPS sebanyak 10 mg/KgBB secara intraperitoneal agar sepsis dan dinilai dengan *Murine Sepsis Score* (MSS). Mencit kemudian dieuthanasia untuk diambil heparnya, selanjutnya dilakukan pemeriksaan ekspresi gen G6Pase. Perbandingan *mean* antar kelompok menunjukkan bahwa tidak ada peningkatan ekspresi gen G6Pase, dilihat dari perbandingan *mean* pada setiap kelompok percobaan. Hasil Uji *One-Way ANOVA* menunjukkan adanya perbedaan signifikan antar kelompok perlakuan (*p value* <0,05). Hasil Analisa *Post Hoc* menunjukkan terdapat perbedaan pada kelompok 1 dengan kelompok lain (*p value* <0,05) dan tidak ada perbedaan signifikan antara kelompok 2, 3, dan 4. Simpulan penelitian, ekstrak *ethanol* akar alang-alang tidak memengaruhi ekspresi gen G6Pase dan tidak ada dosis yang paling efektif untuk meningkatkan ekspresi gen G6Pase.

Kata kunci: Alang-alang, ekspresi G6Pase, hepar, sepsis

## ABSTRACT

*Ethanol extract of cogon grass roots (Imperata Cylindrica) acts as an antioxidant through the flavonoids. Flavonoids inhibit the cyclooxygenase pathway and NO formation through inhibition of NFκB and suppression of iNOS thereby suppressing the release of pro-inflammatory cytokines that decrease G6Pase gene expression in the process of gluconeogenesis. This study aims to determine the effect of ethanol extract of cogon grass roots on G6Pase gene expression in the liver in the sepsis model mice and determine the most effective dose to increase G6Pase gene expression. This research method is an in vivo laboratory experimental study conducted at the Biochemistry and Biomolecular Laboratory of the Faculty of Medicine, Padjajaran University for eight months. The design of this study was a randomized post-test only controlled group in four DDY strain male mice, namely group 1 (normal control), group 2 (negative control), group 3 was given 90 mg/Kg of ethanol extract of cogon grass roots, and group 4 was given 115 mg/Kg of ethanol extract of cogon grass roots. Groups 2, 3, and 4 was induced by 10 mg/Kg of LPS intraperitoneally for sepsis and assessed by Murine Sepsis Score (MSS). Mice were carried out by euthanasia and the liver was taken. Then the G6Pase gene expression was examined. Comparison of the mean between groups showed that there was no increase in G6Pase gene expression, seen from the comparison from each group. One-Way ANOVA test results showed a significant difference between treatment groups ( $p$  value  $<0.05$ ). Post Hoc Analysis Results showed there were differences in group 1 with other groups ( $p$  value  $<0.05$ ) and there were no significant differences between groups 2, 3, and 4. Conclusions of the study, ethanol extract of Imperata roots did not affect the expression of the G6Pase gene and there is no dose that is most effective for increasing the expression of the G6Pase gene.*

*Keywords: Cogon grass, hepar, G6Pase expression, sepsis*