

**PENGARUH SERAT UMBI BENGKUANG (*Pachyrhizus erosus* L.)
TERHADAP STRUKTUR HISTOLOGI DAN FUNGSI HATI MENCIT
PUTIH (*Mus musculus* L.) DIABETES MELITUS YANG DIINDUKSI
ALOKSAN**

SKRIPSI SARJANA BIOLOGI

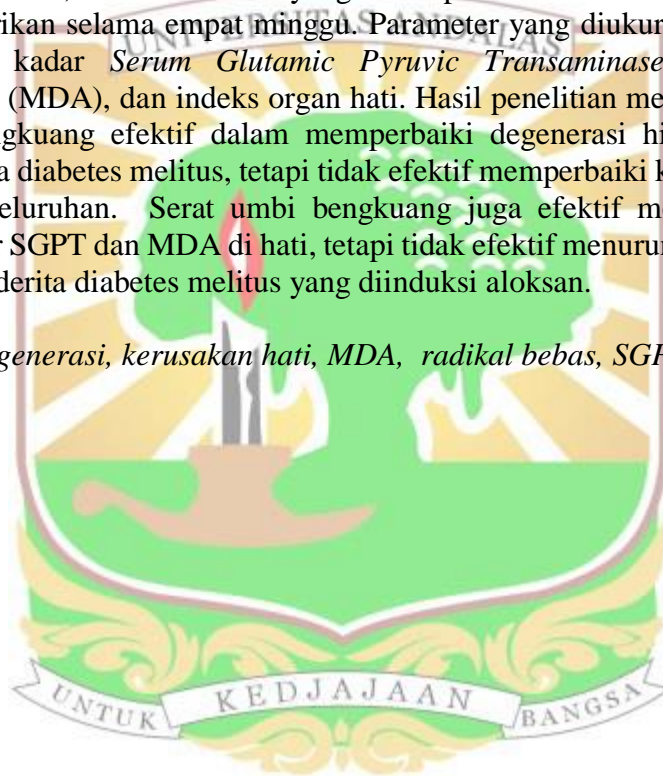


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ABSTRAK

Diabetes melitus (DM) merupakan penyakit metabolik yang dapat menimbulkan komplikasi organ hati. Penelitian ini bertujuan untuk mengetahui pengaruh serat umbi bengkuang (*Pachyrhizus erosus* L.) terhadap struktur histologi dan fungsi hati mencit putih (*Mus musculus* L.) diabetes melitus yang diinduksi aloksan. Penelitian ini dilakukan secara eksperimen dengan rancangan acak lengkap yang terdiri dari lima perlakuan dan lima ulangan. Adapun perlakuannya adalah mencit sehat (non DM) yang diberi pakan ternak komersial sebagai kontrol negatif, mencit DM yang diberi pakan ternak komersial sebagai kontrol positif, mencit DM yang diberi pakan ternak komersial + serat bengkuang (SB) 15%, mencit DM yang diberi pakan ternak komersial + SB 20%, dan mencit DM yang diberi pakan ternak komersial + SB 25%. Perlakuan diberikan selama empat minggu. Parameter yang diukur meliputi struktur histologi hati, kadar *Serum Glutamic Pyruvic Transaminase* (SGPT), kadar Malondialdehid (MDA), dan indeks organ hati. Hasil penelitian menunjukkan bahwa serat umbi bengkuang efektif dalam memperbaiki degenerasi hidropik pada hati mencit penderita diabetes melitus, tetapi tidak efektif memperbaiki kerusakan struktur hati secara keseluruhan. Serat umbi bengkuang juga efektif menurunkan secara signifikan kadar SGPT dan MDA di hati, tetapi tidak efektif menurunkan indeks organ hati mencit penderita diabetes melitus yang diinduksi aloksan.

Kata kunci: *degenerasi, kerusakan hati, MDA, radikal bebas, SGPT*



ABSTRACT

Diabetes mellitus (DM) is a metabolic disease that could cause complications in the liver. This study aimed to determine the effect of yam bean (*Pachyrhizus erosus* L.) fiber on the histological structure and liver function of diabetic mice (*Mus musculus* L.) induced by alloxan. This research was conducted experimentally with a completely randomized design consisting of five treatments and five replications. The treatments were healthy (non DM) mice which were given commercial animal feed as negative control, DM mice were given commercial animal feed as a positive control, DM mice were given commercial animal feed + 15% yam fiber (YF), DM mice were given commercial animal feed + YF 20%, and DM mice were given commercial animal feed + YF 25%. The treatments were given for four weeks. The parameters measured included the histological structure of the liver, level of *Serum Glutamic Pyruvic Transaminase* (SGPT), level of *Malondialdehyde* (MDA), and liver index. The results showed that the yam fiber was effective in counteracting hydropic degeneration in the liver of diabetic mice, but was not effective in repairing the overall of the liver structure damage. The yam fiber was also effective in significantly reducing SGPT and MDA levels in the liver, but it was not effective in reducing the liver index of diabetic mice induced by alloxan.

Key words: *degeneration, free radicals, liver damage, MDA, SGPT*

