

**EFFECT OF JICAMA (*Pachyrhizus erosus*) FIBER ON FECAL WATER
CONTENT AND HISTOPATHOLOGY OF COLON IN MICE (*Mus musculus*)
FED WITH HIGH-FAT DIET**

BIOLOGY UNDERGRADUATE THESIS

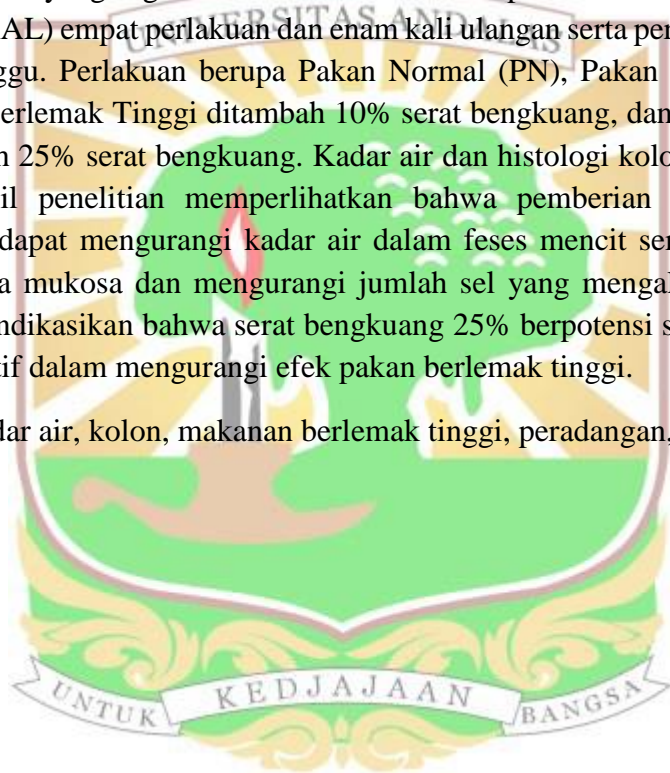


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ABSTRAK

Konsumsi makanan berlemak tinggi dapat meningkatkan permeabilitas jaringan epitel, makanan berlemak tinggi juga berfungsi sebagai penanda terjadinya peradangan di usus besar. Sebaliknya, asupan makanan berserat tinggi dapat menangkal efek negatif makanan tinggi lemak. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian serat bengkung terhadap kadar air dan histopatologi kolon pada mencit yang diberi pakan berlemak tinggi. Penelitian ini telah dilaksanakan dari bulan April-Agustus 2021 di laboratorium Fisiologi Hewan, Jurusan Biologi, FMIPA, Universitas Andalas. Metode penelitian yang digunakan adalah metode eksperimental dengan rancangan acak lengkap (RAL) empat perlakuan dan enam kali ulangan serta perlakuan dilakukan selama 12 minggu. Perlakuan berupa Pakan Normal (PN), Pakan Berlemak Tinggi (PBT), Pakan Berlemak Tinggi ditambah 10% serat bengkung, dan Pakan Berlemak Tinggi ditambah 25% serat bengkung. Kadar air dan histologi kolon di ukur diakhir perlakuan. Hasil penelitian memperlihatkan bahwa pemberian serat bengkung sebanyak 25% dapat mengurangi kadar air dalam feses mencit serta meningkatkan ketebalan tunika mukosa dan mengurangi jumlah sel yang mengalami peradangan. Hasil ini mengindikasikan bahwa serat bengkung 25% berpotensi sebagai salah satu langkah preventif dalam mengurangi efek pakan berlemak tinggi.

Kata Kunci: kadar air, kolon, makanan berlemak tinggi, peradangan, serat



ABSTRACT

Consumption of a high-fat diet can increase the permeability of epithelial tissue, a high-fat diet also has a function as a marker of colonic inflammation. Otherwise, intake of fiber can counteract the negative effects of a high-fat diet. This study aimed to determine the effect of jicama fiber on fecal water content and histopathology of colon in mice fed with a high fat diet. This research has been carried out from April-August 2021 in the Animal Physiology Laboratory, Department of Biology, FMIPA, Andalas University. The research method used was an experimental method with a completely randomized design with four treatments and six replications and the treatment was carried out for 12 weeks. The treatments were Normal Diet (ND), High Fat Diet (HFD), High Fat Diet with 10% jicama fiber, and High Fat Diet with 25% jicama fiber. Fecal water content and histopathology of the colon were measured at the end of the treatment. The results showed that jicama fiber as much as 25% can reduce fecal water content of mice and increase the thickness of the tunica mucosa and reduce the number of inflammatory cells. These results indicate that 25% jicama fiber has the potential as a preventive measure in reducing the effects of a high-fat diet.

Keywords: colon, fiber, high fat diet, inflammation, water content.

