RESEARCH RESULT SEMINAR

EFFECT OF JICAMA (*Pachyrhizus erosus* L.) FIBER IN HIGH-FAT DIET ON GLUCAGON-LIKE PEPTIDE 1 IN MICE (*Mus musculus*)

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This Undergraduate Thesis is Submitted as One of the Requirements to Obtain a Bachelor of Science Degree in Biology Studies

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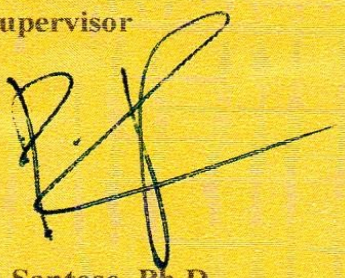

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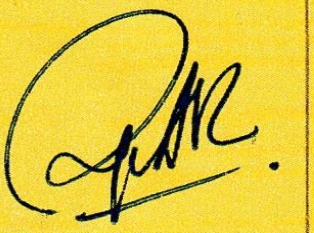
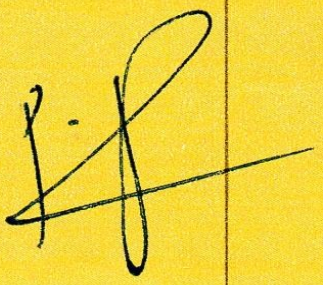
1.	Dr. Resti Rahayu	Chairman	
2.	Dr. Putra Santoso	Secretary	
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ABSTRACT

A high-fat diet (HFD) is one of detrimental factors contributing in epidemic of obesity. This study aimed to analyze the effect of yam fiber on GLP-1 hormone levels and the role of bioactive compounds in yam fiber to prevent obesity in mice fed with High-Fat Diet (HFD). This study was conducted for 4 months from May until August 2021, in Animal Physiology Research Laboratory, Department of Biology, Faculty of Mathematics and Natural Sciences, Andalas University, Padang. This study used experimental method and with a completely randomized design with 4 treatments and 6 replications for 12 weeks. The mice were treated with different diet, Normal Diet (ND), HFD, HFD combined with 10% and 25% Jicama fiber. The results revealed that yam fiber especially at a dose of 25% had a significant difference in reducing GLP-1 hormone secretion and inhibiting GLP-1 hormone hypersecretion. In addition, yam fiber contains a bioactive compound, namely Cycloertanol which acts as a GLP-1 agonist that is able to activate the GLP-1 receptor so that it can provide a physiological effect to prevent obesity. Therefore, Jicama fiber exerted health benefits against HFD and obesity.

Keywords: *Dietary Fiber, Obesity, Cycloertanol, GLP-1*

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ABSTRAK

Pakan Berlemak Tinggi (PLT) adalah salah satu faktor merugikan yang berpengaruh dalam perkembangan obesitas. Penelitian ini bertujuan untuk menganalisis pengaruh dari serat bengkuang terhadap kadar hormone GLP-1 dan peran senyawa bioaktif yang dimiliki serat bengkuang untuk mencegah obesitas pada mencit yang diberi Pakan Berlemak Tinggi (PLT). Penelitian ini dilaksanakan selama 4 bulan, dari Mei hingga Agustus 2021 di Laboratorium Fisiologi Hewan, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Andalas. Penelitian in menggunakan metode eksperimen dengan 4 perlakuan dan 6 kali ulangan selama 12 minggu. Mencit diberikan perlakuan pakan berbeda, Pakan Normal (PN), Pakan Berlemak Tinggi (PLT), PLT dikombinasikan dengan 10% dan 25% serat bengkuang. Hasil penelitian mengungkapkan bahwa serat bengkuang teruama pada dosis 25% memiliki perbedaan signifikan dalam menurunkan sekresi hormone GLP-1 dan menghambat hipersekresi hormone GLP-1. Selain itu serat bengkuang terdapat senyawa bioactive yaitu Cycloertanol yang berperan menjadi GLP-1 agonist yang mampu mengaktivasi reseptor GLP-1 sehingga mampu memberikan efek fisiologis untuk mencegah obesitas. Dengan demikian, serat bengkuang memberikan dampak kesehatan dalam menangkal efek negatif Pakan Berlemak Tinggi dan obesitas.

Kata kunci: *Serat Bengkuang, Obesitas, Cycloertanol, GLP-1*