

Diana Natalia Candra, 2020, **Pengaruh Ekstrak Daun Wungu (*Graptophyllum pictum* (L.) Griff) Pada Toleransi Jaringan Terhadap Glukosa dan Diameter Pulau Langerhans Mencit (*Mus musculus*) Yang Diovariektomi**, Skripsi ini di bawah bimbingan Dr. Listijani Suhargo, M.Si. dan Drs. Saikhu Akhmad Husen, M.Kes. Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya

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### ABSTRAK

Studi ini dilakukan untuk mengetahui pengaruh ekstrak daun wungu pada toleransi jaringan terhadap glukosa dan diameter pulau Langerhans pada mencit yang diovariektomi. Digunakan 24 ekor mencit strain BALB/C dengan berat 30-40 gram yang dibagi menjadi 6 kelompok yaitu kelompok normal (K1), kelompok kontrol (K2), kelompok esterogen (K3), kelompok perlakuan yang diberi ekstrak daun wungu, terdiri dari P1 (10 mg/kg BB), P2 (20 mg/kg BB), dan P3 (30 mg/kg BB). Perlakuan dilakukan secara per oral selama 21 hari pada mencit yang sudah diovariektomi. Uji toleransi glukosa dilakukan pada hari ke-22. Data *Oral Glucose Tolerance Test* (OGTT) diukur nilai *Area Under Curve* (AUC) dan dianalisis dengan uji *One-way Anova* dan uji *Duncan*. Berdasarkan uji statistik, pemberian ekstrak etanol daun wungu pada dosis 10 mg/kg BB, 20 mg/kg BB, dan 30 mg/kg BB dapat menurunkan nilai AUC. Nilai rata-rata AUC untuk tiap kelompok adalah 14658.75 (K1), 21277.5 (K2), 14167.5 (K3), 17385 (P1), 17325 (P2), dan 16620 (P3). Organ pankreas dibuat preparat histologi dan diukur diameter pulau Langerhans. Data diameter pulau Langerhans dianalisis dengan uji *One-Way Anova* dan uji *Duncan*. Diameter K1, K2, K3, P1, P2, P3 berturut-turut adalah 193.33  $\mu\text{m}$ , 118.75  $\mu\text{m}$ , 160  $\mu\text{m}$ , 127.67  $\mu\text{m}$ , 151.67  $\mu\text{m}$ , dan 129.58  $\mu\text{m}$ . Pemberian ekstrak etanol daun wungu dengan dosis 20 mg/kg BB berpengaruh signifikan pada peningkatan diameter pulau Langerhans. Kesimpulan menunjukkan bahwa pemberian ekstrak etanol daun wungu berpengaruh terhadap peningkatan toleransi jaringan terhadap glukosa melalui penurunan nilai AUC dan peningkatan diameter pulau Langerhans.

Kata kunci : daun wungu, ovariektomi, OGTT, diameter pulau Langerhans

Diana Natalia Candra, 2020, **The Effect of Wungu Leaf Extract (*Graptophyllum pictum* (L.) Griff) on Tissue Tolerance to Glucose and Langerhans Diameter of Ovariectomized mice (*Mus musculus*)**, This thesis was under the guidance of Dr. Listijani Suhargo, M.Si. and Drs. Saikhu Akhmad Husen, M.Kes. Department of Biology, Faculty of Science dan Technology, Airlangga University, Surabaya

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#### ABSTRACT

This study was carried out to determine the effect of wungu leaf extract on tissue tolerance to glucose and Langerhans diameter in ovariectomized mice. Twenty four mice strain BALB/C (30-40 g) were used, and they were divided into six groups: normal (K1), control (K2), estrogen (K3), and treatment group that received wungu leaf extract, they were P1 (10 mg/kg BW), P2 (20 mg/kg BW), and P3 (30 mg/kg BW). Treatment both with estrogen and wungu leaf extract were given by gavage administration about 21 days on ovariectomized mice. The glucose tolerance test was done on the 14<sup>th</sup> day after treatment. *Area Under Curve* (AUC) was measured by *Oral Glucose Tolerance Test* (OGTT) data and analyzed using *One-way Anova* dan *Duncan* test. Based on statistic test, wungu leaf extract 10 mg/kg BW, 20 mg/kg BW, and 30 mg/kg BW was given can reduce blood glucose level. Meanwhile the AUC for K1 was 14658.75, K2 was 21277.5, K3 was 14167.5, P1 was 17385, P2 was 17325, and P3 was 16620. Pancreatic organ was made into histological preparation and the islet of Langerhans diameter was measured. The islet of Langerhans diameter data were analyzed with *One-Way Anova* dan *Duncan* test. Diameter of K1, K2, K3, P1, P2, P3 group were 193.33  $\mu\text{m}$ , 118.75  $\mu\text{m}$ , 160  $\mu\text{m}$ , 127.67  $\mu\text{m}$ , 151.67  $\mu\text{m}$ , dan 129.58  $\mu\text{m}$ . Wungu leaf extract with 20 mg/kg BW increase islet of Langerhans diameter significantly. The conclusion is wungu leaf extract can increase tissue tolerance to glucose through reducing AUC and increase islet of Langerhans diameter.

Keywords : wungu leaf, ovariectomy, OGTT, islet of Langerhans diameter