

ABSTRAK

“EFEK PERASAN DAUN KELOR (*Moringa oleifera* Lam.) TERHADAP GEJALA KLINIS, KADAR GLUKOSA DARAH, DAN GAMBARAN HISTOPATOLOGIK PANKREAS TIKUS WISTAR (*Rattus norvegicus*) YANG DIINDUKSI STREPTOZOTOCIN (STZ)”

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Tanaman kelor (*Moringa oleifera* Lam.) merupakan salah satu tanaman obat tradisional yang memiliki banyak manfaat salah satunya dapat mengontrol kadar glukosa darah bagi penderita diabetes melitus (DM). Penelitian ini bertujuan mengetahui efek perasan daun kelor terhadap gejala klinis, kadar glukosa darah, dan gambaran histopatologik pankreas tikus Wistar (*Rattus norvegicus*) yang diinduksi streptozotocin (STZ).

Sebanyak 20 ekor tikus Wistar (*Rattus norvegicus*) dibagi menjadi 4 kelompok, tiap kelompok terdiri dari 5 ekor. Kelompok I tikus penderita DM diberi 1 mL perasan daun kelor 90 mg/kg BB/ekor/hari/Peroral (PO) dan diinduksi STZ 40 mg/kg BB/ekor/Intraperitoneal (IP). Kelompok II, tikus penderita DM diberi 1 mL aquades/ekor/hari/PO dan diinduksi STZ 40 mg/kg BB/ekor/IP. Kelompok III, tikus normal diberi 1 mL perasan daun kelor 90 mg/kg BB/ekor/hari/PO, dan Kelompok IV, tikus normal diberi 1 mL aquades/ekor/hari/PO. Perlakuan dilakukan selama 36 hari. Seluruh tikus dinekropsi pada hari ke-36 dan diambil organ pankreas untuk pembuatan preparat histologi dengan pewarnaan imunohistokimia (IHC).

Hasil penelitian menunjukkan tikus Kelompok I dan II mengalami penurunan berat badan berturut-turut 40,6 gram dan 34,25 gram, mengalami polifagi, polidipsi, dan poliuria. Sedangkan pada Kelompok III dan IV mengalami peningkatan berat badan sebanyak 48,6 gram dan 18 gram serta tidak menunjukkan gejala klinis diabetes melitus. Tikus Kelompok I mengalami penurunan kadar glukosa darah mencapai normal (100 mg/dL) setelah hari ke-20, Kelompok II mengalami kenaikan kadar glukosa darah secara permanen (>400 mg/dL), dan kadar glukosa darah Kelompok III dan IV tetap normal berturut-turut 83 mg/dL dan 111 mg/dL. Hasil pemeriksaan pankreas Kelompok I dan II mengalami kerusakan seluruh sel-sel β pankreas sedangkan Kelompok III dan IV sel-sel β pankreas terlihat normal.

Pemberian perasan daun kelor pada kelompok tikus diabetes tidak dapat meningkatkan berat badan, tetap memperlihatkan gejala klinis, dapat menurunkan kadar glukosa darah, dan belum mampu memperbaiki kerusakan sel-sel β pankreas.

Kata kunci: *Moringa oleifera* Lam., streptozotocin, tikus Wistar, diabetes melitus, histopatologik pankreas.

ABSTRACT

“EFFECT OF MORINGA LEAF EXTRACT (*Moringa oleifera* Lam.) ON BLOOD GLUCOSE LEVEL, CLINICAL SIGN, AND PANCREAS HISTOPATOLOGICAL PROFILE ON STREPTOZOTOCIN-INDUCED DIABETIC WISTAR RATS (*Rattus norvegicus*)”

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Moringa plants (*Moringa oleifera* Lam.) are one of the traditional medicinal plants that have many benefit, one of which can control blood glucose levels in people with diabetes mellitus (DM). This study aimed to determine the effect of moringa leaf extract on clinical symptoms, blood glucose levels, and pancreas histopathological profile on Streptozotocin-induced diabetic Wistar rats (*Rattus norvegicus*).

Twenty Wistar rats were divided into 4 groups in which each group consisted of 5 rats. Group I, diabetic rats were given 1 mL of moringa leaf extract 90 mg/kg/each/day/Peroral (PO) and induced STZ 40 mg/kg BB/each/Intraperitoneal (IP). Group II, diabetic rats fed 1 mL aquadest/each/day/PO and induced STZ 40 mg/kg BB/each/IP. Group III, normal rats were given 1 mL moringa leaf extract 90 mg/kg/ each/ day/ PO, and Group IV, normal rats were given 1 mL aquadest/each/day/PO. Treatment was done for 36 days. All rats were necropsed on the 36th day and part of the pancreas was prepared for the preparation of histology preparations with immunohistochemical staining (IHC).

The results showed that Group I and II rats weight decreased by 40.6 grams and 34.25 grams respectively, as well as polyphagi, polydipysi, and polyuria. Whereas in Group III and IV the body weight of rats increased by 48.6 grams and 18 grams and did not show clinical symptoms of diabetes mellitus. Group I rats had decreased blood glucose levels to normal (100 mg/ dL) after the 20th day, Group II rats had a permanent increase in blood glucose levels (>400mg/dL), and blood glucose levels of Group III and IV remained normal in a row 83 mg/ dL and 111 mg/ dL. The results of pancreatic examination in Groups I and II rats damaged all pancreatic β cells while Group III and IV pancreatic β cells looked normal.

Moringa leaf extract that have been given to diabetic rats group cannot increase body weight, still showing clinical symptoms, can reduce blood glucose levels, and unable to repair damaged pancreatic β cells.

Keywords: *Moringa oleifera* Lam. , streptozotocin, Wistar rat, diabetes mellitus, pancreas histopathological picture