PENGARUH PEMBERIAN TEPUNG TERUNG UNGU (*Solanum melongena* L.) TERHADAP KADAR GLUKOSA DARAH, AKTIVITAS SUPEROKSIDA DISMUTASE, DAN KADAR MALONDIALDEHID PADA TIKUS MODEL DIABETES MELLITUS

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INTISARI

Latar Belakang: Stres oksidatif pada diabetes mellitus (DM) terjadi karena peningkatan radikal bebas dan penurunan sistem pertahanan antioksidan antara lain superoksidase dismutase (SOD). Kondisi ini menyebabkan terjadinya peroksidasi lipid yang ditunjukkan dengan kadar malondialdehid (MDA). Untuk mengurangi stres oksidatif diperlukan antioksidan. Salah satu bahan pangan yang kaya akan antioksidan adalah terung ungu. Sampai saat ini belum ada bukti ilmiah mengenai efek terung ungu terhadap stres oksidatif pada DM.

Tujuan: Mengetahui pengaruh pemberian tepung terung ungu (TTU) terhadap kadar glukosa darah puasa (GDP), aktivitas antioksidan SOD, dan MDA plasma pada tikus model DM akibat induksi *nicotinamide* (NA)-*streptozotocin* (STZ).

Metode: Penelitian eksperimental ini menggunakan desain *time series*. Sebanyak 36 ekor tikus jantan *Sprague Dawley*, umur 10-12 minggu, berat badan 207,25±26,76 gram dibagi ke dalam 5 kelompok secara acak, yaitu kontrol (normal dan DM) dan 3 kelompok intervensi. Model DM dibuat dengan induksi NA-STZ (230-65 mg/kg BB). Intervensi berupa pakan modifikasi TTU diberikan selama 28 hari dengan variasi dosis 2,36 gram, 4,71 gram, dan 7,07 gram. Pemeriksaan kadar GDP, aktivitas antioksidan SOD, dan MDA plasma dilakukan setiap 2 minggu.

Hasil: Pemberian TTU pada tikus DM secara bermakna menurunkan kadar GDP (33,04-54,61%) dan MDA plasma (52,57-74,73%), serta meningkatkan aktivitas antioksidan SOD (36,20-98,73%). Penurunan tertinggi kadar GDP (25,11-45,36%) dan MDA plasma (32,67-48,53%) terjadi pada minggu kedua intervensi, begitupun dengan peningkatan aktivitas antioksidan SOD (18,68-45,97%). Perubahan kadar GDP dan MDA plasma, serta aktivitas antioksidan SOD seiring dengan peningkatan dosis intervensi.

Kesimpulan: Kadar GDP dan MDA plasma tikus yang diberi TTU lebih rendah daripada tikus kontrol model DM, sedangkan aktivitas antioksidan SOD lebih tinggi daripada tikus kontrol model DM.

Kata Kunci: Diabetes, terung ungu, GDP, SOD, MDA, *streptozotocin*, *nicotinamide*

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THE EFFECT OF PURPLE EGGPLANT FLOUR (*Solanum melongena* L.) TO BLOOD GLUCOSE LEVELS, SUPEROXIDE DISMUTASE ACTIVITY, AND PLASMA MALONDEALDEHYDE LEVELS IN RAT MODELS OF DIABETES MELLITUS

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ABSTRACT

Introduction: Oxidative stress in diabetes mellitus (DM) occurs due to an increase in free radicals and decreased antioxidant defense system, among others superoksidase dismutase (SOD). This condition causes the occurrence of lipid peroxidation as indicated by the malondialdehyde (MDA) levels. For the necessary antioxidants to reduce oxidative stress. One of food which rich in antioxidants are purple eggplant. Until now there is no scientific evidence about the effects of purple eggplant against oxidative stress in DM.

Objective: To determine the effect of purple eggplant flour to fasting blood glucose (FBG) levels, the antioxidant activity of SOD, and plasma MDA in rat models of DM induced by nicotinamide (NA)-streptozotocin (STZ).

Method: This research was an experimental study with time series design. Thirty six of *Sprague Dawley* male rats, aged 10-12 weeks, weighing 207.25 ± 26.76 grams were divided into 5 groups randomly, they were the control (normal and DM) and 3 intervention groups. DM models made by induced NA-STZ (230-65 mg/kg body weight). Intervention was feed modification of TTU given for 28 days with dose variation of 2,36 grams, 4,71 grams, and 7,07 grams. The levels of FBG, antioxidant activity of SOD, and plasma MDA were measured every two weeks.

Results: Oral administration of TTU in DM rats had significantly reduced the levels of FBG (33.04-54.61%) and the levels of plasma MDA (52.57-74.73%), as well as increased the antioxidant activity of SOD (36.20-98.73%). The highest decreased in the level of FBG (25.11-45.36%) and the levels of plasma MDA (32.67-48.53%) occurred in the second week of intervention, as well as an increased the antioxidant activity of SOD (18.68-45.97%). The changes of FBG and plasma MDA levels, and the antioxidant activity of SOD were in line with the increasing doses of intervention.

Conclutions: The levels of FBG and plasma MDA which given TTU were lower than the control of models DM, whereas the antioxidant activity of SOD was higher than the control of models DM.

Key words: Diabetes, purple eggplant, FBG, SOD, MDA, streptozotocin, nicotinamide

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