

ABSTRACT

Diabetes mellitus (DM) is a metabolic disorder which characterized by hyperglycemia. General treatment of type 2 DM using long-term oral hypoglycemic drugs is at risk for side effects. One of plants is used traditionally for treatment of DM is *sambung nyawa* leaves (*Gynura procumbens* (Lour.) Merr). Therefore, this study aims to determine the effect of water fraction of ethanolic extract of *G. procumbens* leaves (FAS) on blood glucose levels of rats are induced by streptozotocin (STZ) and nicotinamide (NA).

The powder of *G. procumbens* leaves was macerated with 95% ethanol. Extract was fractionated successively by hexane, ethyl acetate, and water, until FAS was obtained. Rats model of type 2 DM were induced by STZ 60 mg/kgBW i.p in 15 minutes after injection of NA 60 mg/kgBW i.p. Diabetic rats were confirmed on day 7 after injection (were called day 0), and then they were divided into negative control (CMC-Na 0,5%), positive control (glibenclamide 5 mg/kgBW), FAS at doses of 90, and 270 mg/kgBW, were added normal control, which each group consist 4 rats with 14 days of treatment. Fasting blood glucose (GDP) and 2-hour postprandial blood glucose (GD2JPP) levels were measured on baseline, days 0; 7; and 14 using the GOD-PAP enzymatic method. Data between sampling times from each group were analyzed by paired t-test (parametric) or Wilcoxon test (non-parametric).

Treatment using FAS at doses of 90 and 270 mg/kgBW showed the results GDP and GD2JPP levels on day 7 and 14 were not differ significantly ($p > 0,05$) compared to day 0. In conclusion, administration of FAS at doses of 90 and 270 mg/kgBW during 14-days were not able to give effect of decreasing GDP and GD2JPP levels in STZ-NA induced type 2 DM rats.

Keywords : Water fraction, *G. procumbens*, glucose levels, streptozotocin-nicotinamide

INTISARI

Diabetes melitus (DM) merupakan gangguan metabolisme yang ditandai hiperglikemia. Tatalaksana umum DM tipe 2 menggunakan obat hipoglikemik oral jangka panjang beresiko terjadinya efek samping. Salah satu alternatif obat tradisional DM yaitu daun sambung nyawa (*Gynura procumbens* (Lour.) Merr). Penelitian ini bertujuan untuk mengetahui pengaruh fraksi air ekstrak etanolik *G. procumbens* (FAS) terhadap kadar glukosa darah tikus yang diinduksi streptozotosin (STZ) dan nikotinamid (NA).

Serbuk daun *G. procumbens* dimaserasi dengan etanol 95%. Ekstrak difraksinasi bertahap dengan heksan, etil asetat, dan air, hingga diperoleh FAS. Induksi tikus DM tipe 2 yaitu menggunakan STZ 60 mg/kgBB i.p pada 15 menit setelah injeksi NA 60 mg/kgBB i.p. Tikus dinyatakan DM pada 7 hari setelah induksi (disebut hari ke-0), kemudian dikelompokkan menjadi kontrol negatif (CMC-Na 0,5%), positif (glibenklamid 5 mg/kgBB), FAS dosis 90, dan 270 mg/kgBB, ditambah kontrol normal, masing-masing 4 ekor tikus dengan perlakuan 14 hari. Diukur kadar glukosa darah puasa (GDP) dan 2 jam *postprandial* (GD2JPP) pada saat *baseline*, hari ke-0; 7; dan 14, menggunakan metode enzimatis GOD-PAP. Data antar waktu sampling pada tiap kelompok dianalisis *paired t-test* (parametrik) atau uji *Wilcoxon* (non-parametrik).

Perlakuan FAS dosis 90 dan 270 mg/kgBB menunjukkan hasil kadar GDP dan GD2JPP hari ke-7 dan 14 yang tidak berbeda bermakna ($p > 0,05$) dibanding hari ke-0. Kesimpulannya pemberian FAS dosis 90 dan 270 mg/kgBB selama 14 hari tidak mampu memberikan efek penurunan kadar GDP dan GD2JPP tikus DM tipe 2 yang diinduksi STZ-NA.

Kata Kunci: Fraksi air, *G. procumbens*, kadar glukosa, streptozotosin-nikotinamid