

ABSTRAK

Diabetes mellitus tipe 2 (DMT2) merupakan penyakit metabolik kronis yang ditandai oleh hiperglikemia akibat resistensi insulin dan gangguan fungsi sel beta pankreas. Peningkatan prevalensi DMT2 secara global maupun nasional mendorong pengembangan terapi alternatif berbasis bahan alam yang lebih aman, efektif, dan terjangkau. Ekstrak daun salam (*Syzygium polyanthum*) diketahui mengandung berbagai senyawa bioaktif seperti flavonoid, asam fenolat, dan phthalida yang berpotensi memberikan efek antidiabetes melalui mekanisme antihiperglikemik, antioksidan, dan hipolipidemik. Penelitian ini bertujuan untuk menganalisis efektivitas ekstrak etanol daun salam sebagai agen antidiabetes pada tikus putih Wistar jantan model DMT2 yang diinduksi streptozotocin-nikotinamid.

Penelitian ini merupakan penelitian eksperimental laboratorium menggunakan rancangan *post-test control group design*. Tikus dibagi menjadi enam kelompok, yaitu kontrol normal, kontrol negatif, kontrol positif metformin, serta kelompok perlakuan ekstrak etanol daun salam dosis 100, 200, dan 400 mg/kgBB. Parameter yang diamati meliputi karakterisasi simplisia dan ekstrak, kadar glukosa darah puasa (KGDP), HbA1c, insulin serum. Analisis statistik dilakukan menggunakan One-way ANOVA dan uji lanjut Tukey HSD dengan tingkat kepercayaan 95%.

Hasil penelitian menunjukkan bahwa simplisia dan ekstrak etanol herba seledri memenuhi parameter standarisasi fisikokimia dan mengandung flavonoid, fenolik, tanin, alkaloid, saponin, terpenoid, serta steroid. Ekstrak etanol daun salam dosis 200 dan 400 mg/kgBB mampu menurunkan kadar glukosa darah puasa secara signifikan ($p < 0,05$) pada tikus putih model diabetes induksi STZ, dengan persentase penurunan masing-masing 45,3% dan 57,0% setelah 28 hari pemberian.

Pemberian ekstrak etanol daun salam dosis 400 mg/kgBB menurunkan HbA1c sebesar 2,1% secara signifikan ($p < 0,05$), sebanding dengan penurunan yang dicapai oleh metformin 500 mg/kgBB (2,2%).

Ekstrak etanol daun salam dosis 400 mg/kgBB memberikan efek hipolipidemik berupa penurunan kolesterol total sebesar 26,5% dan peningkatan HDL sebesar 42,7%, yang setara dengan metformin 500 mg/kgBB.

Ekstrak etanol daun salam dosis 400 mg/kgBB memiliki efektivitas antidiabetes yang sebanding dengan metformin 500 mg/kgBB ($p > 0,05$) pada seluruh parameter yang diukur, menjadikannya kandidat fitofarmaka antidiabetes yang potensial.

Kata kunci: *Syzygium polyanthum*., diabetes mellitus tipe 2, ekstrak etanol, antihiperglikemik, antioksidan, HbA1c.

ABSTRACT

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disease characterized by hyperglycemia due to insulin resistance and impaired pancreatic beta cell function. The increasing prevalence of T2DM both globally and nationally has encouraged the development of alternative therapies based on natural ingredients that are safer, more effective, and more affordable. Bay leaf extract (*Syzygium polyanthum*) is known to contain various bioactive compounds such as flavonoids, phenolic acids, and phthalides, which have the potential to provide antidiabetic effects through antihyperglycemic, antioxidant, and hypolipidemic mechanisms. This study aimed to analyze the effectiveness of bay leaf ethanol extract as an antidiabetic agent in male Wistar rats, a model of T2DM induced by streptozotocin-nicotinamide.

This was a laboratory experimental study using a post-test control group design. The rats were divided into six groups: normal control, negative control, positive control, and metformin, as well as treatment groups with bay leaf ethanol extract at doses of 100, 200, and 400 mg/kgBW. The observed parameters included characterization of the medicinal plants and extracts, fasting blood glucose (FBG), HbA1c, and serum insulin levels. Statistical analysis was performed using one-way ANOVA and Tukey's HSD test with a 95% confidence level.

The results showed that the medicinal plants and ethanolic extract of celery met standard physicochemical parameters and contained flavonoids, phenolics, tannins, alkaloids, saponins, terpenoids, and steroids. The ethanolic extract of bay leaves at doses of 200 and 400 mg/kgBW significantly reduced fasting blood glucose levels ($p < 0.05$) in STZ-induced diabetic rats, with reductions of 45.3% and 57.0%, respectively, after 28 days of administration.

Administration of the ethanolic extract of bay leaves at a dose of 400 mg/kgBW significantly reduced HbA1c by 2.1% ($p < 0.05$), comparable to the reduction achieved by metformin 500 mg/kgBW (2.2%).

An ethanol extract of bay leaves at a dose of 400 mg/kgBW produced a hypolipidemic effect, resulting in a 26.5% decrease in total cholesterol and a 42.7% increase in HDL, equivalent to metformin at a dose of 500 mg/kgBW.

An ethanol extract of bay leaves at a dose of 400 mg/kgBW had antidiabetic efficacy comparable to metformin at a dose of 500 mg/kgBW ($p > 0.05$) across all measured parameters, making it a potential candidate for an antidiabetic phytopharmaceutical.

Keywords: *Syzygium polyanthum*, type 2 diabetes mellitus, ethanol extract, antihyperglycemic, antioxidant, HbA1c.