

INTISARI

Latar belakang: Penderita diabetes melitus memiliki risiko komplikasi mikrovaskular dan makrovaskular. Komplikasi tersebut berhubungan dengan kadar glukosa darah dan triglisierida plasma. Mahoni (*Swietenia macrophylla* King) memiliki aktivitas antidiabetik dimana bagian yang sering digunakan adalah biji yang mengandung alkaloid.

Tujuan: Penelitian ini bertujuan untuk mengetahui pengaruh pemberian 3,6,7-trimetoksi-4-metil-1,2,3,4-tetrahydroisoquinolin biji *S. macrophylla* King terhadap kadar glukosa darah dan triglisierida plasma.

Metode: Subjek 36 ekor tikus putih (*Rattus norvegicus*) galur Wistar usia ± 10 minggu dengan berat 200-300 gram. Subjek dikondisikan diabetes melitus tipe 2 menggunakan streptozotocin 65 mg/kgBB dan nicotinamide 230 mg/kgBB. Subjek dikelompokkan menjadi kelompok kontrol, kelompok diabetes melitus, kelompok glibenklamid 0,18 mg/hari, kelompok 3,6,7-trimetoksi-4-metil-1,2,3,4-tetrahydroisoquinolin biji *S. macrophylla* King 10 mg/200 gBB, 20 mg/200 gBB, dan 40 mg/200 gBB. Perlakuan diberikan selama 28 hari dan pemeriksaan kadar glukosa darah dan triglisierida plasma dilakukan sebelum dan sesudah perlakuan.

Hasil: Penelitian menunjukkan penurunan kadar glukosa darah antara kelompok glibenklamid dan 3,6,7-trimetoksi-4-metil-1,2,3,4-tetrahydroisoquinolin biji *S. macrophylla* King 10 mg/200 gBB, 20 mg/200 gBB, dan 40 mg/200 gBB yang tidak bermakna ($p > 0,05$), sedangkan dosis 10 mg/200 gBB dan 20 mg/200 gBB juga tidak menunjukkan perbedaan penurunan kadar triglisierida plasma yang bermakna dengan kelompok glibenklamid ($p > 0,05$).

Kesimpulan: Senyawa 3,6,7-trimetoksi-4-metil-1,2,3,4-tetrahydroisoquinolin biji *S. macrophylla* King 10 mg/200 gBB, 20 mg/200 gBB, dan 40 mg/200 gBB memiliki efektivitas yang sama dengan glibenklamid untuk menurunkan kadar glukosa darah, sedangkan dosis 10 mg/200 gBB dan 20 mg/200 gBB memiliki efektivitas yang sama dengan glibenklamid untuk menurunkan kadar triglisierida plasma.

Kata kunci: diabetes melitus, *Swietenia macrophylla* King, glukosa, triglisierida

ABSTRACT

Introduction: Patients with diabetes mellitus have risk of macrovascular and microvascular complications. These complications are associated with high level of blood glucose and plasma triglycerides. Mahogany (*Swietenia macrophylla* King) has antidiabetic activity of which its parts to be used are often seeds that contain alkaloid.

Objective: The study was conducted to determine the effects of 3,6,7-trimethoxy-4-methyl-1,2,3,4-tetrahydroisoquinolin of *S. macrophylla* King seeds on blood glucose and plasma triglycerides level.

Methods: The subjects were 36 Wistar strain white rats (*Rattus norvegicus*) aged ± 10 weeks weighing 200-300 grams. Subjects were conditioned with 65 mg/kgBW streptozotocin and 230 mg/kgBW nicotinamide induced type 2 diabetes mellitus. Subjects were grouped into control group, diabetic group, glibenclamide group, 3,6,7-trimethoxy-4-methyl-1,2,3,4-tetrahydroisoquinolin of *S. macrophylla* King seeds 10 mg/200 gBW, 20 mg/200 gBW, and 40 mg/200 gBW. The administrations were conducted for ± 28 days and blood glucose and plasma triglycerides level examination were done before and after the administrations.

Results: The study showed insignificant difference in the decrease of blood glucose level between glibenclamide and 3,6,7-tri-methoxy-4-methyl-1,2,3,4-tetrahydroisoquinolin of *S. macrophylla* King seeds 10 mg/200 gBW, 20 mg/200BW, and 40 mg/200 gBW groups ($p > 0,05$), so that between doses of 10 mg/200 gBW and 20 mg/200 gBW and glibenclamide groups in the decrease of tryglyceride ($p > 0,05$).

Conclusion: Administration of 10 mg/200 gBW, 20 mg/200 gBW, and 40 mg/200 gBW 3,6,7-trimethoxy-4-methyl-1,2,3,4-tetrahydroisoquinolin of *S. macrophylla* King seeds can reduce blood glucose level as effectively as glibenclamide, whereas doses of 10 mg/200 gBW, 20 mg/200 gBW can reduce plasma triglyceride level as effectively as glibenclamide.

Keywords: diabetes mellitus, *Swietenia macrophylla* King, glucose, triglyceride