

POTENSI EKSTRAK DAUN MAHANG (*Macaranga tanarius*) SEBAGAI ALTERNATIF PENGobatan RETINOPATI DIABETIK MELALUI PENURUNAN KADAR TNF- α

PRISCA OLIVIA WULANDARI
Prodi S1 Farmasi

INTISARI

Diabetes retinopati (DR) merupakan komplikasi mikrovaskular pada penderita diabetes melitus (DM), penyebab utama kebutaan. Kerusakan sawar darah retina akibat peradangan, dipengaruhi oleh sitokin pro-inflamasi seperti TNF- α . Daun mahang (*Macaranga tanarius*) mengandung senyawa *prenylflavonoid* dengan potensi antidiabetik. Penelitian ini menguji pengaruh induksi STZ-NA terhadap berat badan tikus, pengaruh ekstrak daun *Macaranga tanarius* terhadap kadar gula darah puasa (GDP), dan kadar TNF- α pada tikus DR, serta pengaruh senyawa dalam ekstrak daun *Macaranga tanarius* sebagai antidiabetik. Tikus dibagi 5 kelompok: kontrol negatif, kontrol positif (glibenklamida), dan tiga kelompok dengan dosis ekstrak daun mahang berbeda (0,64 g/Kg BB; 1,28g/Kg BB; dan 1,92g/Kg BB). Setelah induksi DM dengan STZ-NA dan diistirahatkan 4 minggu, tikus diberi sediaan uji selama 4 minggu. BB tikus diukur setiap minggu sejak hari ke-0 penelitian, kadar GDP dan TNF- α diukur pada hari ke-31 dan 59 dari sampel darah sinus orbitalis. Hasil penelitian menunjukkan induksi STZ-NA menurunkan berat badan tikus akibat DM. Ekstrak daun *Macaranga tanarius* mampu menurunkan kadar GDP dan TNF- α , dengan kandungan *scopolentin*, *taraxerol*, *ellagic acid*, *nymphaeol B*, *8-prenylnarigenin*, dan *isobavachin*.

Kata Kunci: Diabetes retinopati, Daun mahang, Gula Darah Puasa, Streptozotocin, TNF- α .

POTENTIAL OF (*Macaranga tanarius*) LEAF EXTRACT AS AN ALTERNATIVE TREATMENT FOR DIABETIC RETINOPATHY THROUGH TNF- α REDUCTION

PRISCA OLIVIA WULANDARI
Bachelor of Pharmacy Program

ABSTRACT

Diabetic retinopathy (DR) is a microvascular complication of diabetes mellitus (DM), a leading cause of blindness. Retinal blood-brain barrier damage due to inflammation is influenced by pro-inflammatory cytokines such as TNF- α . *Macaranga tanarius* leaves contain prenylflavonoids with potential antidiabetic properties. This study investigated the effect of STZ-NA induction on rat body weight, the effect of *Macaranga tanarius* leaf extract on fasting blood glucose (FBG) and TNF- α levels in diabetic rats, and the antidiabetic effects of compounds within the extract. Rats were divided into five groups: a negative control, a positive control (glibenclamide), and three groups receiving different doses of *Macaranga tanarius* leaf extract (0.64 g/kg BW; 1.28 g/kg BW; and 1.92 g/kg BW). After DM induction with STZ-NA and a 4-week rest period, rats received the test preparation for 4 weeks. Rat body weight was measured weekly from day 0, and FBG and TNF- α levels were measured on days 31 and 59 from orbital sinus blood samples. Results showed that STZ-NA induction reduced rat body weight due to DM. *Macaranga tanarius* leaf extract reduced FBG and TNF- α levels. The extract contains scopolentin, taraxerol, ellagic acid, nymphaeol B, 8-prenylnarigenin, and isobavachin as a potential antidiabetic.

Keywords: Diabetic retinopathy, Fasting Blood Glucose, *Macaranga tanarius*, Streptozotocin, TNF- α .