

ABSTRAK

ISOLASI, IDENTIFIKASI, DAN UJI AKTIVITAS ANTIDIABETES SENYAWA METABOLIT SEKUNDER DARI EKSTRAK METANOL KULIT BATANG TABEBUYA KUNING *Handroanthus chrysotrichus* (Bignoniaceae)

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Tumbuhan *H. chrysotrichus* merupakan salah satu tumbuhan dari famili bignoniaceae, tumbuhan ini dikenal menyimpan berbagai jenis metabolit sekunder. Tumbuhan ini juga dimanfaatkan sebagai obat tradisional seperti antimalaria, antibakteri dan antiinflamasi. Penelitian ini bertujuan untuk mengidentifikasi, mengkarakterisasi serta menguji aktivitas antidiabetes senyawa metabolit sekunder yang terkandung dalam ekstrak metanol kulit batang tumbuhan *H. chrysotrichus*.

Ekstraksi sampel dilakukan dengan metode perkolasi menggunakan pelarut metanol, dan isolasi senyawa dilakukan menggunakan metode Kromatografi Kolom (KK). Uji kemurnian senyawa hasil isolasi dilakukan menggunakan alat titik leleh Fisher-Johns dan karakterisasi senyawa hasil isolasi menggunakan spektrofotometer *UV-Vis*, Spektroskopi *Nuclear Magnetic Resonance* (NMR) dan *Liquid Chromatography-High Resolution Mass Spectrometry* (LC-HRMS) serta uji aktivitas antidiabetes dilakukan secara *in-vitro* menggunakan enzim α -glukosidase.

Hasil penelitian ini diperoleh 2 senyawa yaitu asam betulinat dan asam *p*-kumarat yang tergolong senyawa triterpenoid pentasiklik dan fenolik, asam betulinat berbentuk serbuk putih sebanyak 13,9 mg dan asam *p*-kumarat berbentuk kristal putih kekuningan sebanyak 5,6 mg. Senyawa asam betulinat hasil isolasi menunjukkan nilai % inhibisi tertinggi pada 200 ppm yaitu 9,77% dan diperoleh nilai IC_{50} sebesar $311,73 \pm 2,25$ μ g/mL yang menyatakan kemampuan senyawa asam betulinat dalam menghambat aktivitas enzim sangat lemah, sedangkan senyawa asam *p*-kumarat menunjukkan nilai % inhibisi tertinggi pada 200 ppm yaitu 47,52% sehingga diperoleh nilai IC_{50} sebesar $98,54 \pm 1,13$ μ g/mL yang menyatakan kemampuan senyawa asam *p*-kumarat dalam menghambat enzim α -glukosidase tergolong kuat berdasarkan kategori inhibitor enzim α -glukosidase.

Kata Kunci: *H. chrysotrichus*, Asam betulinat, Asam *p*-kumarat, Antidiabetes.

ABSTRACT

ISOLATION, IDENTIFICATION AND ANTIDIABETIC ACTIVITY TEST OF SECOUNDARY METABOLITE COMPOUNDS FROM METHANOL EXTRACT STEM BARK TABEBUYA KUNING *Handroanthus* *chrysotrichus* (Bignoniaceae)

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H. chrysotrichus is one of the plants of the bignoniaceae family, this plant is known to store various types of secondary metabolites. This plant is also used as a traditional medicine such as antimalarial, antibacterial and anti-inflammatory. This research to identify, characterize and test the antidiabetic activity of secondary metabolite compounds contained in methanol extract stem bark of *H. chrysotrichus* plants. Sample extraction was carried out by percolation method using methanol solvent, and isolation of compounds was carried out using the Column Chromatography (CC) method. The purity test of the isolated compounds was carried out using the Fisher-Johns melting point device and the characterization of the isolated compounds was carried out using UV-Vis spectrophotometers, Nuclear Magnetic Resonance (NMR) and Liquid Chromatography-High Resolution Mass Spectrometry (LC-HRMS) and antidiabetic activity tests were carried out in vitro using the enzyme α -glucosidase. The results of this study were obtained 2 compounds, namely betulinic acid and *p*-coumaric acid which are classified triterpenoids pentacyclic and phenolic compounds, betulinic acid in the form of white powder as much as 13.9 mg and *p*-coumaric acid in the form of yellowish-white crystals as much as 5.6 mg. The isolated betulinic acid compound showed the highest % inhibition value at 200 ppm, which was 9.77% and obtained an IC_{50} value of 311.73 ± 2.25 μ g/mL, which stated that the ability of betulinic acid compounds to inhibit enzyme activity was very weak, while *p*-coumaric acid compounds showed the highest % inhibition value at 200 ppm, which was 47.52%, resulting in an IC_{50} value of 98.54 ± 1.13 μ g/mL which stated the ability of *p*-coumaric acid compounds to inhibit the enzyme α -glucosidase classified as strong based on the category of enzyme inhibitors α -glucosidase.

Keywords: *H. chrysotrichus*, Betulinic acid, *p*-coumaric acid, Antidiabetic