AKTIVITAS TABIR SURYA FRAKSI METANOL DARI DAUN SIMPUR (*Dillenia indica* Linn.) DAN KARAKTERISASI SENYAWA ISOLATNYA

Abstrak

Telah dilakukan penelitian potensi tabir surya alami dari daun simpur (*Dillenia indica* Linn.). Penelitian ini bertujuan untuk menentukan nilai *sun protection factor* (SPF), persen transmisi eritema (%Te) dan persen trasmisi pigmentasi (%Tp) dari ekstrak dan fraksi daun simpur dengan mengisolasi senyawa flavonoid diduga memiliki aktivitas tabir surya terbaik. Ekstrak metanol, fraksi n-heksana, fraksi diklorometana dan fraksi metanol daun simpur diukur serapannya menggunakan spektrofotometer UV-Vis pada panjang gelombang 200-400 nm dengan masing-masing konsentrasi 50,5; 75,76 dan 101 ppm. Hasil penelitian menunjukkan bahwa fraksi metanol 101 ppm memiliki nilai SPF tertinggi yaitu 4,630±0,043 serta nilai %Te 32,316±0,297 dan %Tp 52,699±0,160 terendah sehingga fraksi metanol dilakukan isolasi senyawa flavonoidnya. Isolasi dilakukan dengan tahap maserasi, fraksinasi, kromatografi lapis tipis, kromatografi kolom cair vakum, kromatografi kolom gravitasi, kromatografi lapis tips preparatif serta uji kemurnian dengan kromatografi lapis tipis satu dan dua dimensi. Isolat terpilih adalah fraksi G1 dengan massa 1,5 mg berbentuk padatan dengan warna hijau kekuningan dengan nilai Rf 0,901 cm. Hasil kromatografi lapis tipis dua dimensi menunjukkan isolat G1 relatif murni yang ditandai dengan spot noda jelas serta tidak berekor. Isolat direaksikan dengan reagen $Ce(SO_4)_2$ menunjukkan positif senyawa flavonoid. Isolat G1 dikonfirmasi dengan hasil spektra FTIR menunjukkan adanya vibrasi gugus OH alkohol (3446,79 cm^{-1}), CH alifatik (2958,80-2858,51 cm^{-1}), C=C aromatik (1635,64 cm^{-1}), C=O (1730,15 cm^{-1}), C-O alkohol (1122,57 cm^{-1}), dan C-H alifatik (1463,97-1382,96 cm^{-1}). Berdasarkan hasil FTIR isolat G1 terhadap data FTIR literatur, daun simpur mengandung senyawa flavonoid diduga golongan flavan atau flavanol yang memiliki aktivitas tabir surya.

Kata kunci: *simpur (Dillenia indica* Linn.*), aktivitas tabir surya, flavonoid*

SUNSCREEN ACTIVITIES OF METHANOL FACTION FROM SIMPUR LEAVES (*Dillenia indica* Linn.) AND CHARACTERIZATION OF ITS ISOLATE COMPOUNDS

Abstract

The natural sunscreen potential of simpur leaves (Dillenia indica Linn.) has been investigated. This study aims to determine sun protection factor (SPF), erythema transmission percent (%Te) and pigmentation transmission percent (%Tp) of extracts and fractions of simpur leaves by isolating flavonoid compounds that have the best sunscreen activity. Methanol extract, n-hexane fraction, dichloromethane fraction and methanol fraction of simpur leaves were measured using UV-Vis spectrophotometer at wavelengths of 200-400 nm with each concentration of 50,5; 75,76 and 101 ppm. The results showed that the 101 ppm methanol fraction had the highest SPF value of 4.630 ± 0.043 and the lowest %Te value of 32.316 ± 0.297 and %Tp of 52.699 ± 0.160 thus the methanol fraction was isolated from flavonoid compounds. Isolation was carried out by maceration, fractionation, thin layer chromatography, vacuum liquid column chromatography, gravity column chromatography, preparative tips layer chromatography and phytochemical assay and two dimensional thin layer chromatography. The selected isolate was fraction G1, a solid with a mass of 1.5 mg in and yellowish green color with an Rf value of 0.901 cm. The results of two-dimensional thin layer chromatography showed that isolated G1 was relatively pure, characterized by a clear spot stain and no tail. Isolate reacted with $Ce(SO_4)_2$ reagent and showed positive flavonoid compounds. Isolate G1 was confirmed by the results of FTIR spectra showing the vibrations of -OH alcohol group (3446.79 cm^{-1}), CH aliphatic (2958.80-2858.51 cm^{-1}), C=C aromatic (1635.64 cm^{-1}), C=O (1730.15 cm^{-1}), C-O alcohol (1122.57 cm^{-1}), and C-H aliphatic (1463.97-1382.96 cm^{-1}). Based on the FTIR results of isolate G1 against the literature FTIR data, simpur leaves contain flavonoid compounds thought to be flavone and flavonol groups that have sunscreen activity.

Keywords: simpur (*Dillenia indica* Linn.), sunscreen activity, flavonoids