

# PENGARUH WAKTU EKSTRAKSI METODE *ULTRASOUND ASSISTED EXTRACTION* TERHADAP KADAR FLAVONOID DAN FENOLIK TOTAL PADA EKSTRAK ETANOL BUNGA TELANG

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## INTISARI

**Latar Belakang:** Bunga telang (*Clitoria ternatea*) merupakan salah satu tanaman yang mulai banyak dibudidayakan karena memiliki banyak manfaat dan potensi. Diantara banyaknya kandungan metabolit yang ada dalam bunga telang, fenolik dan flavonoid merupakan 2 senyawa yang banyak berperan dalam efek farmakologis bunga telang. *Ultrasound Assisted Extraction* (UAE) diketahui mempunyai keunggulan dibanding dengan teknik maserasi sebab ultrasonik memanfaatkan adanya gelombang ultrasonik dimana frekuensi akustik memiliki frekuensi yang tinggi.

**Tujuan Penelitian:** Mengetahui pengaruh waktu ekstraksi terhadap kadar senyawa flavonoid dan fenolik total ekstrak bunga telang (*Clitoria ternatea*).

**Metode Penelitian:** Dilakukan proses ekstraksi UAE pada suhu 45°C dengan variasi waktu 15, 30, 45, 60, 75, dan 90 menit menggunakan pelarut etanol. Digunakan metode kolorimetri  $AlCl_3$  dengan standar kuersetin untuk penentuan kadar flavonoid sedangkan metode Folin Ciocalteu dengan standar asam galat untuk penentuan kadar fenolik total. Metode analisis kualitatif pemeriksaan yang digunakan Kromatografi Lapis Tipis (KLT). Pada metode ini digunakan eluen etanol: etil asetat: kloroform dengan perbandingan (1,5: 2: 8,5) untuk uji flavonoid sedangkan uji fenolik total digunakan eluen n-heksan: etil asetat: etanol dengan perbandingan (1: 8: 1). Hasil KLT dilihat di bawah sinar UV 254 dan 365 nm.

**Hasil Penelitian:** Kadar flavonoid tertinggi didapatkan pada waktu ekstraksi 60 menit sebesar 16,150 mg QE/gram sedangkan kadar fenolik total tertinggi pada waktu ekstraksi 45 menit sebesar 47,253 mg GAE/gram. Profil kromatografi lapis tipis senyawa flavonoid dan fenolik total didapatkan nilai  $R_f$  sebesar 0,683.

**Kesimpulan:** Terdapat pengaruh waktu ekstraksi terhadap kadar senyawa flavonoid dan fenolik total.

**Kata Kunci:** *Ultrasound Assisted Extraction* (UAE), flavonoid, fenolik total

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# THE EFFECT OF EXTRACTION TIME OF THE *ULTRASOUND ASSISTED EXTRACTION* METHOD ON FLAVONOID AND TOTAL PHENOLIC LEVELS IN TELANG FLOWER ETHANOL EXTRACT

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## ABSTRACT

**Background:** Telang flower (*Clitoria ternatea*) is one of the plants that has begun to be widely cultivated because it has many benefits and potential. Among the many metabolites present in the butterfly pea flower, phenolics and flavonoids are 2 compounds that play a large role in the pharmacological effects of the telang flower. *Ultrasound Assisted Extraction* (UAE) is known to have advantages compared to the maceration technique because ultrasonic utilizes the presence of ultrasonic waves where the acoustic frequency has a high frequency.

**Objective:** To determine the effect of extraction time on the levels of flavonoids and total phenolic compounds in telang flower extract (*Clitoria ternatea*).

**Methods:** The UAE extraction process was carried out at 45°C with variations of time 15, 30, 45, 60, 75, and 90 minutes using ethanol solvent. AlCl<sub>3</sub> colorimetric method was used with quercetin standard for determination of flavonoid content while Folin Ciocalteu method with gallic acid standard for determination of total phenolic content. Qualitative analysis method used was Thin Layer Chromatography (TLC). In this method the eluent ethanol: ethyl acetate: chloroform was used with a ratio (1.5: 2: 8.5) for the flavonoid test while the total phenolic test used an eluent n-hexane: ethyl acetate: ethanol with a ratio (1: 8: 1). The TLC results were viewed under UV light at 254 and 365 nm.

**Result:** The highest level of flavonoids was obtained at 60 minutes extraction time of 16,150 mg QE/gram while the highest total phenolic content at 45 minutes extraction time was 47,253 mg GAE/gram. The thin layer chromatography profile of the total phenolic and flavonoid compounds obtained an R<sub>f</sub> value of 0,683.

**Conclusion:** There is an effect of extraction time on the levels of flavonoids and total phenolic compounds.

**Keywords:** *Ultrasound Assisted Extraction* (UAE), flavonoid, total phenolic

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