

**PENGARUH DURASI EKSTRAKSI TERHADAP  
KADAR FENOLIK DAN FLAVONOID TOTAL  
EKSTRAK DAUN MENGGKUDU (*Morinda citrifolia* L.)**

Vera Dian Apsella Putri<sup>1</sup>, Devika Nurhasanah<sup>2</sup>.

**INTISARI**

**Latar Belakang:** Daun mengkudu (*Morinda citrifolia* L.) mengandung senyawa fenolik dan flavonoid yang berperan sebagai antioksidan. Kandungan ini dapat diekstraksi menggunakan metode *Ultrasound-Assisted Extraction* (UAE), namun waktu ekstraksi menjadi faktor penting karena mempengaruhi kadar senyawa bioaktif yang dihasilkan. Durasi ekstraksi yang terlalu lama dapat memicu oksidasi, sedangkan durasi terlalu singkat membuat senyawa bioaktif tidak terekstrak secara optimal.

**Tujuan Penelitian:** Mengetahui pengaruh waktu ekstraksi terhadap kadar senyawa fenolik dan flavonoid total ekstrak daun mengkudu.

**Metode Penelitian:** Serbuk daun mengkudu diekstraksi dengan metode UAE pada suhu 55°C selama 20, 40, dan 60 menit menggunakan etanol 50% (1:10). Ekstrak yang diperoleh dilakukan uji organoleptik, skrining fitokimia, identifikasi senyawa fenolik dan flavonoid dengan KLT, serta penentuan kadar fenolik dan flavonoid total menggunakan standar asam galat (mg GAE/g) dan standar kuersetin (mg QE/g).

**Hasil Penelitian:** Ekstrak daun mengkudu durasi 20, 40, dan 60 menit berwarna coklat kehitaman, bentuk ekstrak kental dengan aroma khas, Skrining fitokimia menunjukkan adanya alkaloid, flavonoid, fenolik, saponin, dan tanin. Identifikasi KLT menunjukkan sampel positif mengandung asam galat ( $R_f$  0,7) dan kuersetin ( $R_f$  0,825) pada semua durasi. Kadar fenolik total ekstrak daun mengkudu yang di ekstrak dengan durasi 20, 40, dan 60 menit yakni sebesar 9,718±0,040; 14,796±0,066; 15,086±0,040 mg GAE/g dan kadar flavonoid total ekstrak daun mengkudu yang di ekstraksi dengan durasi 20, 40, 60 menit yakni sebesar 9,533±0,029; 14,771±0,048; 12,431±0,038 mg QE/g.

**Kesimpulan:** Durasi ekstraksi mempengaruhi kadar fenolik dan flavonoid daun mengkudu, dengan kandungan fenolik tertinggi pada durasi 60 menit (15,086 ± 0,040 mg GAE/g) dan flavonoid tertinggi pada durasi 40 menit (14,771 ± 0,048 mg QE/g).

**Kata Kunci :** Durasi, Fenolik, Flavonoid, *Morinda citrifolia* L., UAE.

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**THE EFFECT OF EXTRACTION TIME ON THE TOTAL PHENOLIC  
AND FLAVONOID CONTENT OF NONI LEAF (*Morinda citrifolia* L.)  
EXTRACT**

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**ABSTRACT**

**Background:** *Morinda citrifolia* L. contain phenolic and flavonoid compounds that act as antioxidants. These compounds can be extracted using the Ultrasound-Assisted Extraction (UAE) method; however, extraction time is a critical factor, as it influences the yield of bioactive compounds. Excessive extraction duration may trigger oxidation, while insufficient duration may result in suboptimal extraction of bioactive compounds.

**Objective:** To determine the effect of extraction time on the total flavonoid and phenolic content of *Morinda citrifolia* L. extract.

**Research Method:** *Morinda citrifolia* L. powder was extracted using the UAE method at 55 °C for 20, 40, and 60 minutes with 50% ethanol (1:10). The resulting extracts were subjected to organoleptic testing, phytochemical screening, identification of phenolic and flavonoid compounds using TLC, and determination of total phenolic and flavonoid contents using gallic acid (mg GAE/g) and quercetin (mg QE/g) as standards.

**Research Results:** Noni leaf extracts obtained from 20, 40, and 60 minutes of extraction were dark brown in color, had a thick consistency, and possessed a characteristic aroma. Phytochemical screening revealed the presence of alkaloids, flavonoids, phenolics, saponins, and tannins. TLC identification showed that all extracts were positive for gallic acid ( $R_f$  0.775) and quercetin ( $R_f$  0.825). The total phenolic content of noni leaf extracts obtained at 20, 40, and 60 minutes was  $9.718 \pm 0.040$ ,  $14.796 \pm 0.066$ , and  $15.086 \pm 0.040$  mg GAE/g, respectively, while the total flavonoid content was  $9.533 \pm 0.029$ ,  $14.771 \pm 0.048$ , and  $12.431 \pm 0.038$  mg QE/g, respectively.

**Conclusion:** The extraction duration affected the phenolic and flavonoid contents of noni leaves, with the highest phenolic content obtained at 60 minutes ( $15.086 \pm 0.040$  mg GAE/g) and the highest flavonoid content at 40 minutes ( $14.771 \pm 0.048$  mg QE/g).

**Keywords:** Duration, Phenolic, Flavonoid, *Morinda citrifolia* L., UAE.

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