

## ABSTRAK

**WULANTIKA, W., 2022, PENGARUH LAMANYA FERMENTASI TERHADAP KADAR FENOLIK TOTAL EKSTRAK ETANOL DAUN KELOR (*Moringa oleifera L.*), PROPOSAL SKRIPSI, UNIVERSITAS SETIA BUDI SURAKARTA, FAKULTAS FARMASI. Dibimbing oleh Dr. Nuraini Harmastuti, S.Si., M.Si dan Hery Muhamad Ansory, S.Pd., M.Sc.**

Daun kelor (*Moringa oleifera L.*) mengandung senyawa fenolik antara lain flavonoid, fenol, alkaloid, saponin, dan tanin. Tujuan dari penelitian ini untuk mengetahui kadar total fenolik ekstrak daun kelor sebelum dan sesudah difermentasi. Fermentasi ekstrak etanol daun kelor menggunakan starter *Lactobacillus bulgaricus* dengan media susu sapi murni yang sudah dipasteurisasi. Adapun pengaruh keberhasilan fermentasi yaitu suhu, waktu, aktivitas air, dan pH.

Ekstrak etanol daun kelor (*Moringa oleifera L.*) diekstraksi menggunakan metode maserasi dengan pelarut etanol 96%, proses fermentasi dengan bakteri *Lactobacillus bulgaricus* menggunakan variasi waktu 24 jam, 48 jam, dan 72 jam dengan perbandingan tiap sampel, starter, bakteri (2 mL: 20 mL:  $3,3 \times 10^{-7}$  CFU/mL), identifikasi kadar total fenol pada daun kelor dilakukan menggunakan spektrofotometri UV-Vis pada panjang gelombang 785 nm.

Hasil fermentasi ekstrak daun kelor terbukti dapat menaikkan kadar fenolik total selama 72 jam dibandingkan pada fermentasi 24 dan 48 jam. Penetapan kandungan fenolik total ekstrak etanol daun kelor sebesar  $71,244 \pm 6,012$  mgGAE/gram, sedangkan kandungan pada ekstrak terfermentasi berturut-turut pada 24, 48, dan 72 jam yaitu  $86,133 \pm 5,925$ ;  $91,244 \pm 7,374$ ; dan  $122,578 \pm 9,576$  mgGAE/gram. Kesimpulan yang diperoleh adalah proses dan lama fermentasi dapat mempengaruhi kadar fenolik total pada ekstrak daun kelor terfermentasi.

**Kata Kunci :** Daun kelor, fermentasi, total fenol, spektrofotometri UV-Vis

## ABSTRACT

**WULANTIKA,W.,2022, THE EFFECT OF FERMENTATION TIME ON TOTAL PHENOLIC LEVELS OF MORINGA LEAVES (*Moringa oleifera* L.) LEAF ETHANOL EXTRACT, THESIS PROPOSAL, SETIA BUDI UNIVERSITY, SURAKARTA. FACULTY OF PHARMACY. Guided by Dr. Nuraini Harmastuti, S.Si., M.Si and Hery Muhamad Ansory, S.Pd., M.Sc.**

Moringa leaves (*Moringa oleifera* L.) contain phenolic compounds including flavonoids, phenols, alkaloids, saponins and tannins. The purpose of this study was to determine the total phenolic content of Moringa leaf extract before and after fermentation. Fermentation of the ethanol extract of Moringa leaves using a starter *Lactobacillus bulgaricus* with pure cow's milk media that has been pasteurized. The influence of the success of the fermentation are temperature, time, water activity, and pH.

The ethanol extract of Moringa leaves (*Moringa oleifera* L.) was extracted using the maceration method with 96% ethanol solvent, the fermentation process with *Lactobacillus bulgaricus* bacteria using time variations of 24 hours, 48 hours, and 72 hours with a ratio of each sample, starter, bacteria (2 mL: 20 mL:  $3.3 \times 10^{-7}$  CFU/mL), identification of total phenol levels in Moringa leaves was carried out using UV-Vis spectrophotometry at a wavelength of 785 nm.

Fermentation of Moringa leaf extract has been shown to increase total phenolic content for 72 hours compared to 24 and 48 hours of fermentation. Determination of the total phenolic content of the ethanol extract of Moringa leaves was  $71.244 \pm 6.012$  mgGAE/gram, while the content of the fermented extract at 24, 48 and 72 hours was  $86.133 \pm 5.925$ ;  $91.244 \pm 7.374$ ; and  $122.578 \pm 9.576$  mgGAE/gram. The conclusion obtained is that the process and duration of fermentation can affect the total phenolic content in fermented Moringa leaf extract.

**Keywords :** Moringa leaves, fermentation, total phenol, UV-Vis spectrophotometry.