

PENGARUH AKTIVITAS KOMBUCHA DAUN KELOR DENGAN VARIASI WAKTU FERMENTASI TERHADAP KADAR FLAVONOID TOTAL DAN AKTIVITAS ANTIBAKTERI *Shigella dysenteriae*

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ABSTRAK

Disentri merupakan masalah kesehatan masyarakat dengan sekitar 165 juta kasus dan 1,1 juta kematian setiap tahunnya. Upaya pencegahan dapat dilakukan melalui pemanfaatan tanaman herbal seperti daun kelor yang memiliki aktivitas antibakteri. Kombucha merupakan minuman fermentasi yang berpotensi sebagai minuman fungsional karena mengandung berbagai senyawa bioaktif seperti asam asetat, asam fenolat, dan flavonoid. Penelitian ini bertujuan untuk menganalisis pengaruh variasi waktu fermentasi kombucha daun kelor selama 7, 14, dan 21 hari terhadap kadar flavonoid total dan aktivitas antibakteri *Shigella dysenteriae* menggunakan metode difusi cakram. Kadar alkohol yang terbentuk selama fermentasi mengalami penurunan seiring lamanya waktu fermentasi, yakni sebesar 0,16%, 0,14%, dan 0,13%, sedangkan infusa daun kelor tidak mengandung alkohol. Seluruh kadar alkohol tersebut berada di bawah batas yang ditetapkan Majelis Ulama Indonesia (MUI), yaitu 0,5%. Kadar flavonoid total masing-masing sebesar 24,29 mg QE/mL, 18,82 mg QE/mL, dan 13,46 mg QE/mL, serta zona hambat terhadap *Shigella dysenteriae* sebesar 5,21 mm, 3,68 mm, dan 2,85 mm. Semakin lama waktu fermentasi, kadar alkohol, kadar flavonoid total, dan efektivitas antibakteri cenderung menurun. Uji korelasi ($\text{sig} < 0,05$) menunjukkan adanya hubungan yang signifikan antara kadar flavonoid dan zona hambat terhadap *Shigella dysenteriae*, dimana peningkatan kadar flavonoid berbanding lurus dengan aktivitas antibakterinya.

Kata Kunci: Antibakteri, Daun kelor, Flavonoid, Kombucha

***THE EFFECT OF MORINGA LEAF KOMBUCHA WITH
VARIATIONS IN FERMENTATION TIME ON TOTAL
FLAVONOID CONTENT AND ANTIBACTERIAL
ACTIVITY AGAINST *Shigella dysenteriae****

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ABSTRACT

*Dysentery is a public health problem with around 165 million cases and 1.1 million deaths each year. Prevention can be made using herbal plants such as moringa leaves, which have antibacterial activity. Kombucha is a fermented drink with potential as a functional beverage because it contains various bioactive compounds such as acetic acid, phenolic acid, and flavonoids. This study analyzes the effect of variations in fermentation time of moringa leaf kombucha for 7, 14, and 21 days on total flavonoid content and antibacterial activity of *Shigella dysenteriae* using the disc diffusion method. Alcohol content during fermentation decreased with fermentation time, measured at 0,16%, 0,14%, and 0,13%, while moringa leaf infusion contains no alcohol. All alcohol content are below the limit set by Majelis Ulama Indonesia (MUI), which is 0,5%. The flavonoid content is 24,29 mg QE/mL, 18,82 mg QE/mL, and 13,46 mg QE/mL, and the inhibition zones against *Shigella dysenteriae* were 5,21 mm, 3,68 mm, and 2,85 mm. With longer fermentation, alcohol content, total flavonoid content, and antibacterial effectiveness tended to decrease. The correlation test ($\text{sig} < 0,05$) showed a significant relationship between flavonoid content and the inhibition zone against *Shigella dysenteriae*, in which an increase in flavonoid content is directly proportional to its antibacterial activity.*

Keywords: Antibacterial, Flavonoids, Kombucha, Moringa leaves