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Evaluation of Polyphenol Content, Anti Inflammatory, Antioxidant, and Antibacterial Activities of Legundi Leaf (*Vitex trifolia* L.)

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ABSTRACT

Legundi leaves are widely used by people to treat rheumatism, headaches, fever, inflammation, infections, and cancer. The use of legundi leaves as a medicinal plant is related to its chemical content in the form of alkaloids, flavonoids, phenolics, tannins, and terpenoids. This study aims to determine the total phenolic and flavonoid levels as well as the anti-inflammatory, antioxidant, and antibacterial activities of the ethanol extract of legundi leaves. The results showed that the total phenolic and flavonoid content of the ethanol extract of legundi leaves was 39.55 mgGAE/g extract and 35.25 mgQE/g extract, respectively. Legundi leaf ethanol extract has anti-inflammatory activity with an IC50 value of 153.59 µg/mL. Antioxidant activity using the DPPH method shows an IC_{50} value of 20.32 µg/mL while antioxidant activity using the CUPRAC method has an EC_{50} value of 80.49 µg/mL. The antibacterial activity of ethanol extract of legundi leaves against Bacillus subtilis bacteria had the largest inhibitory zone diameter at a concentration of 16%, namely 9.65 mm. Meanwhile, the bacteria *Staphyllococcus aureus, Salmonella typhi, Pseudomonas aeruginosa*, and *Escherichia coli* had the largest inhibitory zone diameter values at a concentration of 16%, respectively 10.41 mm, 10.67 mm, 11.68 mm, and 12.06 mm.

Keywords: CUPRAC, DPPH, flavonoids, protein denaturation, phenolic