

Antibacterial Activities of Ethanol Extract of Karamunting (*Melastoma malabathricum* L.) Leaf and Flowers on *Salmonella typhi*, *Escherichia coli*, *Staphylococcus aureus*

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Keywords: *Melastoma malabathricum* L, Karamunting, *Salmonella typhi*, *Escherichia coli*, *Staphylococcus aureus*

Abstract: Karamunting (*Melastoma malabathricum* Linn) is native species from Borneo. This plant is easily found in Borneo as shrub. *M. malabathricum* L has not been used optimally, only considered a pest. *M. malabathricum* L contains flavonoid, saponin, tannin and alkaloid, which serve as antibacterial agents. In this study we tested the antibacterial activity of *M. malabathricum* L leaves and flowers against bacteria *Salmonella typhi* ATCC 14028, *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 25923. Testing of antibacterial activity using diffusion method by measuring the inhibition zone formed around the paper disk. The results of phytochemical scheming of ethanol extract of the leaves indicates *M. malabathricum* L to contain flavonoid, saponin, tannin, and alkaloid, and flowers to emit flavonoid, saponin and tannin. Profoundly, its ethanolic extract of the leaves have the antibacterial agents respectively lead to the most effective inhibitory effect 28.2 mm in diameter on *Salmonella typhi*, and that of its flowers of 27.2 mm on *Escherichia coli*.

1 INTRODUCTION

Melastoma malabathricum L (karamunting) is a native species from South Borneo. This plant is easily found in Borneo as shrub. *M. malabathricum* L has not been used optimally, only considered a pest. Based on the study, *M. malabathricum* L flowers contain flavonoid, saponin, and tannin components (Isnaini *et al.*, 2010). Flavonoid have activity as antioxidant (Unoufin *et al.*, 2017), anticancer (Raffa *et al.*, 2017), antibacterial (Unoufin *et al.*, 2017).

Flavonoid contained in the flower of *M. malabathricum* L, namely quercetin, kaempferol, and antosianin (Janna *et al.*, 2006; Isnaini *et al.*, 2017). Quercetin, kaempferol and anthocyanin are antibacterial (Borrás-Linares *et al.*, 2015; Valle *et al.*, 2016; Yang *et al.*, 2017).

Each part of the plant has a different activity because of the different content. Antibacterial activity of melaboma malabathricum L. leaves and flowers is unknown in bacterial *Salmonella typhi* ATCC 14028, *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 25923

2 MATERIAL AND METHOD

2.1 Materials

The research materials used were flower and leaves *M. malabathricum*, isolate *Salmonella typhi* ATCC 14028, *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 25923, which was cultured in Microbiology Laboratory of Medical Faculty UNLAM, ethanol 70%, so that Mc conkey, Mueller Hinton (MH), CMC-Na, sterile aquades, blank disc paper, Brain Heart Infusion (BHI), standard solution of Mc farland I of 3.108 cfu / ml, standard ampicillin disk, standard chloramphenicol disk

2.2 Extraction

Leaves and flowers of *M. malabathricum* L obtained in Kelurahan Guntung Manggis, Banjarbaru, South Kalimantan. Identification of plant species to be studied was done by Basic Laboratory of Faculty of Biology MIPA UNLAM with sample no. 095/TS-02/011. Extraction was done by maceration method using 70% ethanol solvent with a ratio of 1: 5 and soaked for 24 hours with 3 repetitions. The

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antimicrobial metabolism of tannins is associated with microbial adhesion inactivation, enzyme cell envelope transport protein, causing toxicity in bacterial filaments, and tannins also bind to protein walls to inhibit bacterial growth (Pandey and Kumar, 2013).

4 CONCLUSION

The differences in phytochemical content of leaves and flowers of *M. malabathricum* L cause differences in antibacterial activity

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