

# VIETNAMESE ESSENTIAL OILS AS NATURAL ANTISEPTICS: FORMULATION AND ANTIBACTERIAL PROPERTIES

Vu Thi Kim Ngoc<sup>a</sup>, Bui Thanh Kiet<sup>a</sup>, Nguyen Thi Anh Ngoc<sup>a</sup>, Minh Huy Do<sup>b, c</sup> and Tran Bui Phuc<sup>a\*</sup>

(Received 24 April 2025) (Accepted 08 August 2025)

## ABSTRACT

Essential oils are widely studied and utilized in various fields, including food, medicine, and cosmetics. This study investigates the chemical composition and antibacterial properties of four individual essential oils—lemongrass, lemon, mint and cinnamon—as well as their mixtures. The results indicate that cinnamon essential oil and a combination of mint, lemon, lemongrass, and cinnamon in a 30:25:25:20 V/V/V/V ratio exhibited the highest antibacterial activity against *Escherichia coli* and *Pseudomonas aeruginosa*. The antiseptic solutions containing essential oils were transparent, had distinctive scents, and were non-irritating to the skin. Among the tested formulations, the one with a high proportion of lemon essential oil (mint:lemon:lemongrass:cinnamon at a 30:60:0:10 V/V/V/V ratio) was the most preferred due to its appealing fragrance, which combined the sweetness of lemon with the refreshing notes of mint and cinnamon.