

CHEMICAL COMPOSITION, ANTIOXIDANT, ANTIFUNGAL AND ANTIBACTERIAL ACTIVITIES OF *Curcuma longa* L. ESSENTIAL OILS

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Summary

Currently, there are two common varieties of turmeric, namely Xa Cu and Thai varieties, grown in the Seven Mountains region, An Giang province. However, up to date there is no study reported in literature that investigates essential oils extracted from rhizomes of these two varieties. This study was performed to compare the chemical composition, antioxidant and antimicrobial activities of essential oils extracted from rhizomes of Thai and Xa Cu variety. Results showed that the extraction yield of Thai essential oil (6.62%) was higher than that of Xa Cu essential oil (5%). The main compound of turmeric oil is ar-turmerone that was dominantly found in Xa Cu variety about 48.1%, while Thai variety contained about 29.4%. The higher scavenging activity on 2,2-diphenyl-1-picrylhydrazyl-hydrate (DPPH) was observed in Thai essential oil ($IC_{50} = 2.31 \mu\text{l/ml}$) than that of Xa Cu essential oil ($IC_{50} = 7.21 \mu\text{l/ml}$). However, Xa Cu essential oil had higher antimicrobial activities (*Colletotrichum* spp, *Candida albans*, *Bacillus subtilis*, *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*) than Thai essential oil. This study demonstrated that Thai essential oil had higher extraction yield and antioxidant activity, and weaker ar-turmerone content and antimicrobial activities than Xa Cu essential oil.

Keywords: Antimicrobial, antioxidant, *Curcuma longa*, turmeric oil.