## Antioxidant, antibacterial and cytotoxic activities of essential oils and ethanol extracts of selected South East Asian herbs

## Abstract

Antioxidant, antibacterial and cytotoxic activities of essential oils and ethanol extracts of four South East Asian traditional herbs were investigated. Their essential oils were analyzed by Gas chromatography mass spectrometry (GC-MS) and a total of 57 types of volatile organics were identified. Artemisia argyi, Centella asiatica, Cosmos caudatus, and Polygonum hydropiper contained 30, 20, 19 and 21 types of volatiles, respectively. The major volatile hydrocarbon for A. argyi, C. asiatica and C. caudatus was a-cadinene while dodecanal was the major component for P. hydropiper. Total phenolic content of ethanol extracts analyzed by Folin-Ciocalteu method were in the range of 31.58±3.08 to 84.03±8.15 mg GAE/100 g. Free radical-scavenging activity of the four ethanol extracts were in the range of 654.43±17.22 to 5857.54±164.13 mg AA/100 g; while ferricreducing antioxidant power were in the range of  $26.58 \pm 1.10$  to  $50.08 \pm 0.71$  mg AAE/g. Essential oils of all four species were inactive for both these assays. Ethanol extracts of these herbs were active against 60 to 80% of ten strains of human pathogenic bacteria tested, compared to 20 to 50% inhibition for essential oils. Only ethanol extracts of A. argyi and C. caudatus showed activity against P388 murine leukemia cell line, while all the essential oils were inactive.