

Research Article

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Chemical composition, antioxidant and antibacterial properties of the essential oils of *Etilingera elatior* and *Cinnamomum pubescens* Kochummen

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Abstract

BACKGROUND: Plant essential oils are widely used as fragrances and flavours. Therefore, the essential oils from the leaves of *Cinnamomum pubescens* Kochummen (CP) and the whole plant of *Etilingera elatior* (EE) were investigated for their antioxidant, antibacterial and phytochemical properties.

RESULTS: CP and EE were found to contain appreciable levels of total phenolic contents (50.6 and 33.41 g kg⁻¹ as gallic acid equivalent) and total flavonoid contents (205.6 and 244.8 g kg⁻¹ as rutin equivalent), respectively. DPPH free radical scavenging activity of CP is superior to EE ($P < 0.05$) showing IC₅₀ of 77.2 and 995.1 µg mL⁻¹, respectively. Methicillin-resistant *Staphylococcus aureus* (MRSA), *Bacillus subtilis*, *Pseudomonas aeruginosa* and *Salmonella choleraesuis* were tested against CP and EE. Only MRSA was the most susceptible bacteria to CP. GC/MS studies resulted in the identification of 79 and 73 compounds in CP and EE, respectively. The most abundant components of EE included β-pinene (24.92%) and 1-dodecene (24.31%). While the major compounds in CP were 1,6-octadien-3-ol, 3,7-dimethyl (11.55%), cinnamaldehyde (56.15%) and 1-phenyl-propane-2,2-diol diethanoate (11.38%). **CONCLUSION:** This study suggests that the essential oils from *Cinnamomum pubescens* Kochummen and *Etilingera elatior* could be potentially used as a new source of natural antioxidant and antibacterial in the food and pharmaceutical industries. © 2010 Society of Chemical Industry

Keywords: antibacterial activities; antioxidant; chemical composition; *Cinnamomum pubescens* Kochummen; *Etilingera elatior*