

## Essential oil composition, cytotoxic and antibacterial activities of five *Elingera* species from Borneo

### Abstract

Essential oils obtained by hydrodistillation from the rhizomes of *Elingera pyramidosphaera* (K. Schum.) R. M. Sm, *E. megaloscheilos* (Griff.) A.D. Poulsen, comb. nov., *E. coccinea* (Blume) S. Sakai & Nagam, *E. elatior* (Jack) R. M. Sm, and *E. brevilabrum* (Valeton) R. M. Sm were analyzed by GCMS. The highest oil yield was obtained from *E. pyramidosphaera* (0.45%), followed by *E. elatior* (0.38%), *E. coccinea* (0.30%), *E. brevilabrum* (0.28%) and *E. megaloscheilos* (0.25%). The major constituents of the essential oils were oxygenated monoterpenes, followed by sesquiterpenes, oxygenated sesquiterpenes, oxygenated diterpenes and diterpenes. The essential oils from *E. pyramidosphaera* and *E. brevilabrum* exhibited the best cytotoxicity against MCF 7 (LC 50:  $7.5 \pm 0.5 \text{ mg mL}^{-1}$ ) and HL 60 (LC 50:  $5.0 \text{ mg mL}^{-1}$ ), respectively. Strong inhibition was also observed for the essential oils of *E. coccinea* and *E. megaloscheilos* against *Staphylococcus aureus* (MIC:  $8.0 \pm 0.5 \text{ mg mL}^{-1}$ , and  $5.0 \pm 0.5 \text{ mg mL}^{-1}$ ) and *Streptococcus pyogenes* (MIC:  $6.0 \pm 0.5 \text{ mg mL}^{-1}$  and  $8.0 \pm 0.5 \text{ mg mL}^{-1}$ ).