Essential oil composition, cytotoxic and antibacterial activities of five Etlingera species from Borneo

Abstract

Essential oils obtained by hydrodistillation from the rhizomes of Etlingera pyramidosphaera (K. Schum.) R. M. Sm, E. meгалоchrеls (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. megalоchrеls (0.25%). The major constituents of the essential oils were oxygenated monoterpensеs, 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±0.5 mg mL⁻¹) and HL 60 (LC 50: 5.0 mg mL⁻¹), respectively. Strong inhibition was also observed for the essential oils of E. coccinea and E. megalоchrеls against Staphylococcus aureus (MIC: 8.0±0.5 mg mL⁻¹, and 5.0±0.5 mg mL⁻¹) and Streptococcus pyrogenes (MIC: 6.0±0.5 mg mL⁻¹ and 8.0±0.5 mg mL⁻¹).