Bioactive sesquiterpenes from Curcuma ochrorhiza and Curcuma heyneana

ABSTRACT

Curcuma ochrorhiza ('temu putih') and C. heyneana ('temu giring') are two Zingiberaceous species which are commonly used in traditional medicine in Malaysia and Indonesia. Phytochemical investigations on these Curcuma species have resulted in the isolation of six sesquiterpenes, namely zerumbone (1), furanodienone (2), zederone (3), oxycurcumenol epoxide (4), curcumenol (5) and isocurcumenol (6), along with phytosterols stigmasterol and alpha-sitosterol. Compounds 1 and 2 were obtained for the first time for C. ochrorhiza while 4 was new to C. heyneana. The hexane extract of C. ochrorhiza and sesquiterpenes 1 and 3 showed very strong cytotoxicity activity against T-acute lymphoblastic leukaemia cells (CEM-SS), with IC(50) values of 6.0, 0.6 and 1.6 microg mL(-1), respectively. Meanwhile, constituents from C. heyneana (4-6) demonstrated moderate inhibition against CEM-SS in cytotoxic assay, with IC(50) values of 11.9, 12.6 and 13.3 microg mL(-1), respectively. The crude extracts and sesquiterpenes isolated were moderately active against certain bacteria tested in antimicrobial screening.

Keyword: Curcuma ochrorhiza; Curcuma heyneana; Sesquiterpenes; Cytotoxic; Antimicrobial