Identification and Bioactivity Evaluation of Twelve New Depsidone Derivatives from Garcinia Oligantha

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Abstract

Phytochemical studies on the leaves and twigs of Garcinia oligantha led to the isolation of twelve novel depsidone derivatives (oli-ganthdepsidones A-L, 1-12). Their structures were elucidated by extensive spectroscopic analysis including ¹H and ¹³C NMR, HSQC, HMBC and NOESY along with HRESIMS. The structure of oliganthdepsidone J was finally determined using DFT-NMR chemical shift calculations and DP4+ methods. Cytotoxicity test in four human cancer cell lines indicated that oliganthdepsidone F (6) had relatively strong cytotoxic effect against A375 (melanoma), A549 (lung cancer), HepG2 (liver cancer), and MCF-7 (breast cancer) cell lines with IC₅₀ of 18.71, 15.44, 10.92, and 15.90 μM, respectively. The dose- and time-dependent antiproliferative effects of oliganthdepsidone F on these cell lines were also observed by CCK-8 test. As determined by fluorescent microscopy and flow cytometry in these cell lines, oliganthdepsidone F could promote cell apoptosis, leading to the inhibition of cell proliferation. The results of wound healing assay and transwell assay showed that oliganthdepsidone F could inhibit the migration and invasion of A549 and MCF-7 cell lines in a concentration-dependent manner.

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