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Novel aromatic sesquiterpene from the sponge Halichondria

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Background and Aims: Curcuphenol (1) is a biologically active sesquiterpene phenol that has been isolated from the marine sponges. It has shown antimicrobial, antifungal, antimalarial and also cytotoxic activities. In this work, isolation and structure elucidation of new Curcuphenol derivatives from the sponge Halichondria was done.

Methods: The sponge (700g) was collected, identified and extracted with MeOH: EtOAC (1:1). The extract was subjected to a Kupchan solvent-partition scheme yielding hexane, CH2Cl2, BuOH and H2O soluble material. The hexane and CH2Cl2 extracts were further fractionated over several Si gel flash columns and RPHPLC. The pure compounds were elucidated by spectroscopic data.

Results: Curcuphenol (1) was obtained from hexane extract along with a new curcuphenol derivative sesquiterpene (2).

Compound 1: Yellow oil, H NMR (500 MHz, CDCl3): d 1.25 (d, 3H, J = 6.9 Hz), 1.49–1.75 (m, 2H), 1.56 (s, 3H), 1.70 (s, 3H), 1.93–1.99 (m, 2H), 2.29 (s, 3H), 2.94–3.06 (m, 1 H), 4.74 (s, 1H), 5.15 (t, 1H, J = 6.9 Hz), 6.60 (s, 1H), 6.74 (d, 1H, J = 7.8 Hz), 7.05 (d, 1H, J = 7.8 Hz). MS (EI): m/z 218 Anal. Calcd for C15H22O.

Compound 2: H NMR (500 MHz, CDCl3): d 1.25 (d, 3H, J = 6.9 Hz), 1.75, 1.85 (m, 2H), 1.66 (s, 3H), 1.9-2.04 (m, 2H), 2.29 (s, 3H), 2.94–3.06 (m, 1 H), 6.45 (dt, 1H, J= 1,6), 6.60 (s, 1H), 6.74 (d, 1H, J = 7.8 Hz), 7.05 (d, 1H, J = 7.8 Hz), 9.35 (s, 1H) . MS (EI): m/z 232 Anal. Calcd for C15H20O2.

Conclusions: Compound 2 differs from 1 in the terminal aldehyde groupe. This was confirmed by the observation of singlet at 9.3 ppm in HNMR along with a signal at 195.45 ppm from CNMR. So compound 2 was proposed as a new member of curcuphenol derived sesquiterpenes.

Keywords: Halichondria; Curcuphenol; Sesquiterpene