

BRIEF COMMUNICATIONS

POLYATOMIC ALCOHOLS FROM THE MARINE ISOLATE OF THE FUNGUS *Aspergillus ochraceus*

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Recent research has demonstrated that fungal micromycetes isolated from marine sources are interesting as producers of biologically active compounds [1–3]. We isolated strains of *Aspergillus ochraceus* from sediments of Okhotsk Sea during work on a systematic search for biologically active compounds in extracts of marine isolates of microbiological fungi.

Fungi were cultivated on solid medium for 21 d at room temperature in nine Ehrlenmeyer flasks (0.5 L), each of which contained medium of composition (g) millet, 15; KH₂PO₄, 0.001; MgSO₄·7H₂O, 0.001; sodium tartrate, 0.001; FeSO₄·7H₂O, 0.0001; seawater, 20 mL. Fungal mycelium with medium was extracted with EtOAc. The extract was evaporated *in vacuo*. The dry solid (3.453 g) was chromatographed over a column of silica gel with elution by EtOAc:EtOH of increasing polarity. Elution by EtOAc:EtOH (95:5) produced compound **1** (443 mg); by EtOAc:EtOH (50:50), compound **2** (435 mg).

(OH)H₂C–[CH(OH)]₂–CH₂(OH) (**1**),

(OH)H₂C–[CH(OH)]₄–CH₂(OH) (**2**).

Meso-erythritol (butan-1,2,3,4-tetraol) (1), C₄H₁₀O₄, mp 120°C, [α]_D²² 0° (*c* 1, CH₃OH). Mass spectrum (EI, 70 eV, *m/z*): 122 (1) [M]⁺, 91 (23), 60 (100). IR spectrum (KBr, ν, cm⁻¹): 3268, 2970, 1081, 1053. UV spectrum (H₂O, λ_{max}, nm, ε): 259 (1.43). PMR spectrum (500 MHz, C₅D₅N, δ, ppm, J/Hz): 4.45 (2H, dd, J = 3.5, 10.5, H-1, H-4), 4.32 (2H, dd, J = 5.6, 10.5, H-1, H-4), 4.40 (2H, m, H-2, H-3). ¹³C NMR spectrum (125.4 MHz, C₅D₅N, δ, ppm): 65.0 (C-1, C-4), 74.2 (C-2, C-3).

Meso-erythritol was isolated previously from the algae *Protococcus vulgaris* and *Trentepohlia jolithus* in addition to lichens and other fungi [4, 5]. The compound was also used as a sweetener, moisture-retention agent, and stabilizer (E968) in the food industry [6, 7].

Dulcitol (hexan-1,2,3,4,5,6-hexaol) (2), C₆H₁₀O₆, mp 189°C, [α]_D²² 0° (*c* 1, CH₃OH). Mass spectrum (EI, 70 eV, *m/z*): 182 (4) [M]⁺, 149 (53), 31 (100). IR spectrum (KBr, ν, cm⁻¹): 3395, 3287, 2971, 1081, 1019. UV spectrum (H₂O, λ_{max}, nm, ε): 245 (0.12), 271 (0.12). PMR spectrum (500 MHz, C₅D₅N, δ, ppm, J/Hz): 4.52 (2H, dd, J = 4.2, 10.8, H-1, H-6), 4.35 (2H, dd, J = 5.8, 10.8, H-1, H-6), 4.60 (2H, m, H-2, H-5), 4.81 (2H, d, J = 7.5, H-3, H-4). ¹³C NMR spectrum (125.4 MHz, C₅D₅N, δ, ppm): 65.4 (C-1, C-4), 73.3 (C-2, C-5), 72.1 (C-3, C-4).

PMR spectrum (500 MHz, DMSO-d₆, δ, ppm, J/Hz): 3.39 (2H, m, H-1, H-6), 3.60 (2H, m, H-1, H-6), 4.28 (2H, t, J = 5.4, 1-OH, 6-OH), 3.46 (2H, m, H-2, H-5), 4.36 (2H, d, J = 5.4, 2-OH, 5-OH), 3.54 (2H, m, H-3, H-4), 4.10 (2H, d, J = 7.3, 3-OH, 4-OH). ¹³C NMR spectrum (125.4 MHz, DMSO-d₆, δ, ppm): 63.9 (C-1, C-4), 71.4 (C-2, C-5), 69.8 (C-3, C-4).

Like the compound described above, it had a sweet taste and occurred in marine algae, yeast, and lichens [4].

The yields of **1** and **2** relative to the mass of dry primary (total) extract were 12.8 and 12.6%, respectively. Meso-erythritol and dulcitol were isolated from *A. ochraceus* for the first time. Our research showed that the strain *A. ochraceus* is a good producer of polyatomic alcohols that are used in the food industry.

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