

Bioorganic Marine Chemistry (v. 4)

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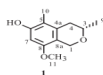
ISOCHROMENE METABOLITE FROM THE FACULTATIVE MARINE FUNGUS *Penicillium citrinum*

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Facultative and obligative marine microscopic fungi are known to be promising sources of various types of biologically active compounds [1, 2]. Under the auspices of a program for discovery of biologically active compounds in extracts of isolates of marine microscopic fungi, we isolated the strain *Penicillium citrinum* Thom. from sediment collected during core drilling of methane gas hydrates at a depth of 645 m in the Okhotsk Sea. The fungus was cultivated for 21 d at 22°C in a 1-L flask containing medium of composition sodium tartrate, 0.005 g; yeast extract, 0.01 g; rice, 10 g; KH_2PO_4 , 0.005 g; and seawater, 20 mL.

Fungal mycelium with medium was extracted twice with EtOAc. The extract was evaporated. The solid was dissolved in EtOH:H₂O (1:4). The resulting solution was extracted successively by hexane, EtOAc, and BuOH. The EtOAc extract was evaporated in vacuo. The dry solid (300 mg) was chromatographed over a column (25 × 2 cm) of silica gel with elution by hexane:EtOAc (95:5) to afford a compound (8 mg). The compound was identified by MS and 2D-NMR spectroscopy (Table 1) and comparison with the literature [3] as (3S)-3,5-dimethyl-8-methoxy-3,4-dihydro-1H-isochromen-6-ol (1).



Compound 1, mp 122–123°C (hexane:EtOAc), $[\alpha]_D^{20} +118^\circ$ (*c* 0.05, MeOH). Mass spectrum (*m/z*, %): 208 (100) [M^+], 193 (30) [$\text{M} - \text{CH}_3$], 177 (13) [$\text{M} - \text{CH}_3\text{O}$], 164 (77), 149 (14), 134 (19), 119 (6), 91 (15), 77 (8).

Compound 1 was isolated previously from the terrestrial fungi *Penicillium expansum* (grain) [4], *P. sp.* (freshwater isolate) [3], and *Penicillium* hybrid strains [5]. It is known to exhibit cytotoxic and anticoccidial activity [3]. It was isolated for the first time from a marine fungus.

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