

4-HYDROXYBENZALDEHYDE FROM THE BAIKAL SPONGE *Lubomirskia baicalensis*

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Marine sponges are rich sources of various types physiologically active compounds [1]. However, the chemistry of freshwater sponges is poorly studied [2-9].

The sponge *Lubomirskia baicalensis* was collected in June 2003 at a depth of 30 m. Freshly collected specimens were ground and extracted twice with ethanol. The extract (10 L) was concentrated in vacuum and separated over a silica-gel column using a gradient of hexane:ethylacetate (100:0-0:100).

The fraction eluted by hexane:ethylacetate (1:1, 3 g) was evaporated and chromatographed twice over a column of Sephadex LH-20 (CHCl₃:alcohol, 2:1) to isolate a compound (50 mg, 0.01% of the dry mass) that according to TLC was slightly more polar than free sterols. The compound has GC—MS and NMR spectra that were identified by comparison with the literature [10, 11] as those of 4-hydroxybenzaldehyde.

Mp 115°C (water). UV spectrum (EtOH, λ_{\max} , nm): 284 (11000), 224 (8500).

IR spectrum (CHCl₃): 3585, 1687, 1604 cm⁻¹.

PMR spectrum (300 MHz, CDCl₃, δ , ppm, J/Hz): 9.87 (CHO, s), 7.82 (H-3,5, d, J = 8.7), 6.97 (H-2,6, d, J = 8.7).

¹³C NMR spectrum (75.5 MHz, CDCl₃, δ , ppm): 191.1 (CHO, d), 161.9 (C-1, s), 132.4 (C-3,5, d), 129.7 (C-4, s), 116.0 (C-2,6, d).

Mass spectrum, m/z : 122 [M]⁺, 121, 93, 65.

The isolated compound is widely distributed in nature. It is a constituent of the volatile components of certain plants and food products [11, 12] and was previously detected in marine bacteria of the *Chromobacterium* genus [13] and marine sponges [11, 14]. In plants, 4-hydroxybenzaldehyde acts as an antimicrobial agent [12]. In sponges, it repels predatory starfish [14]. This aldehyde has not previously been observed in freshwater organisms.

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