POLYHYDROXYSTEROIDS AND THYMIDINE FROM THE SEA PEN *Pavonaria finmarchica*

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Marine organisms are a rich source of a variety of biologically active compounds [1]. In continuation of a search for such compounds [2], we investigated the composition of the sea pen *Pavonaria finmarchica* (Coelenterata, Anthozoa, Pennatulacea). Several new diterpenoids [3-5] and steroids [6, 7] were isolated earlier from related Coelenterata.

Sea pens were collected in August 2001 in the Okhotsk Sea near Cape Aniva (46°00.9 N, 143°49.7 E) at a depth of 213 m. The ground animals were extracted with ethanol. The evaporated extract was dissolved in $CHCl_3$:C_2H_5OH (1:1) and was separated as a concentrated solution over silica gel using a $CHCl_3$:C_2H_5OH gradient (100:0-90:10). Two of the resulting fractions were separated individually over columns packed with Sephadex LH-20 in ethanol and over silica gel in hexane:ethylacetate (70:30-50:50 and 50:50-25:75) in addition to double HPLC (YMC-Pack ODS-A, 250×10 mm, 1.5 mL/min) in 90 and 70% ethanol. Compounds **1**, **2**, and **3** were isolated.

24-Norcholesta-7,22*E*-dien-3β,5α,6β-triol (1). Yield 8×10^{-5}% of animal wet mass, R_f 0.78 ($CHCl_3$:C_2H_5OH:H_2O, 11:3.5:0.2).

PMR spectrum (300 MHz, $CDCl_3$, δ, ppm, J/Hz, 0 = TMS): 0.60 (CH_3-18, s), 0.95 (CH_3-26,27, d, J = 6.6), 1.01 (CH_3-21, d, J = 6.7), 1.09 (CH_3-19, s), 3.72 (H-6, m), 4.09 (H-3, m), 5.17 (H-22, dd, J = 8.4 and 15.3), 5.29 (H-23, dd, J = 6.4, J = 15.3), 5.36 (H-7, m). Mass spectrum (direct probe), *m*/*z*; 384 $[M - H_2O]^+$, 369 $[M - H_2O - CH_3]^+$, 366 $[M - 2H_2O]^+$, 351 $[M - 2H_2O - CH_3]^+$, 287 [M - side chain - $H_2O]^+$, 269 [M - side chain - $2H_2O]^+$, 251 [M - side chain - $3H_2O]^+$, 97 (side chain).

Cholesta-7,22*E*-dien-3β,5α,6β-triol (2). Yield 7×10^{-5} %, R_f 0.78 ($CHCl_3$:C_2H_5OH:H_2O, 11:3.5:0.2).

PMR spectrum (300 MHz, $CDCl_3$, δ, ppm, J/Hz, 0 = TMS): 0.60 (CH_3-18, s), 0.87 (CH_3-26,27, d, J = 6.6), 1.02 (CH_3-21, d, J = 6.6), 1.09 (CH_3-19, s), 2.12 (H-4, dd, J = 12.8, J = 12.8), 3.62 (H-6, m), 4.08 (H-3, m), 5.18 (H-22 or H-23, m), 5.26 (H-22 or H-23, m), 5.36 (H-7, d, J = 4.9).

24-Norcholesta-7,22*E*-dien-3β,5α,6β-triol and cholesta-7,22*E*-dien-3β,5α,6β-triol were isolated for the first time from sponges [8, 9] and later from sea lily [10]. The spectral properties of steroids **1** and **2** agree with those published [8, 10]. They have not previously been found in Coelenterata.

Thymidine (3). Yield 6.4×10^{-4}%, R_f 0.53 ($CHCl_3$:C_2H_5OH:H_2O, 11:3.5:0.2), UV spectrum (EtOH, λ_{max}, nm): 264.

^{13}C NMR spectrum (CD_3OD:C_6D_6 1:1, δ, ppm, 0 = TMS): 151.4 (C-2, s), 165.4 (C-4, s), 110.7 (C-5, s), 137.2 (C-6, d), 85.7 (C-1′, d), 40.6 (C-2′, t), 71.3 (C-3′, d), 88.0 (C-4′, d), 62.0 (C-5′, t), 12.0 (CH_3, q).

A comparison of the ^{13}C NMR spectrum of **3** with those in the literature [11] and the PMR spectrum of **3** with standard spectra identified **3** as thymidine. Thymidine is a common metabolite. However, its isolation from representatives of the Pennatulacea order has not been reported.

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