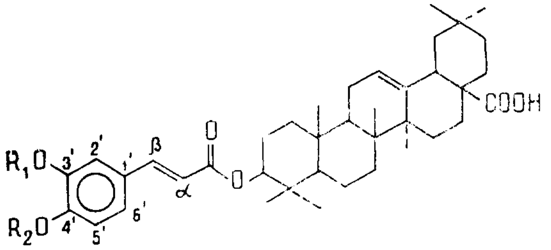
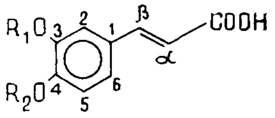
tulin [3], of betulic acid [4], and of some other triterpene alcohols [5] from natural materials has been reported previously. In these papers, the antioxidant [5] and antiinflammatory activity [4] of these compounds were also discussed.



I. $R_1=R_2=H$

II. $R_1=R_2=Ac$



III. $R_1=R_2=H$

IV. $R_1=R_2=Ac$

LITERATURE CITED

1. S. Seo, Y. Tomita, and K. Tori, Tetrahedron Lett., 7 (1975).
2. F. W. Wehrli and T. Wirthlin, Interpretation of Carbon 13 NMR Spectra, Heyden, London (1976), p. 47.
3. R. Ekman and R. Sjoholm, Finn. Chem. Lett., 134 (1983)
4. H. Omsuka, S. Fujioka, T. Komija, M. Loto, Y. Hiramatsu, and H. Fujimura, Chem. Pharm. Bull., 29, 3099 (1981).
5. T. Takagi, T. Iida, J. Am. Oil Chem.Soc., 57, 326 (1980).

TRITERPENE ACIDS OF SOME REPRESENTATIVES OF *Eucalyptus*

I. S. Movsumov and A. M. Aliev

UDC 581.192+547.914

Continuing a study of the chemical composition of cultivated plants [1-4], we have investigated the leaves of some representatives of the genus *Eucalyptus* (*E. albens*, *E. camaldulensis*, *E. globulus*, *E. leucoxylon*, *E. obliqua*, *E. ovato*, *E. rostrota*, *E. polynthemos*, *E. siderocylon*, and *E. umbellatum*), family *Myrtacene*, collected in October, 1982, in the Mardakyan Arboretum of the Academy of Sciences of the Azerbaidzhan SSR.

A powder (0.1 kg) of the air-dry leaves of each plant was separately extracted succesively with hexane and with ethyl acetate in a Soxhlet apparatus. In the ethyl acetate extract the presence of two triterpene acids was established by TLC (sorbent: silica gel L5/40 μm; solvents: chloroform—ethanol (20:1); benzene—ether (1:1); revealing agent: 25% ethanolic solution of tungstophosphoric acid).

The ethyl acetate was evaporated and the residue was chromatographed on KSK silica gel. The substances were eluted with hexane—ethyl acetate (8:2) and (1:1). This gave substances (I) and (II).

Substance (I) — mp 300-302°C (ethanol), $[\alpha]_D^{20}$ + 78° (c 0.8; pyridine), $C_{30}H_{48}O_3$, mol. wt. 456 (mass spectrometry).

Substance (II) — mp 264-266°C (ethanol), $[\alpha]_D^{20}$ + 40° (c 0.9; pyridine), $C_{30}H_{48}O_4$, mol. wt. 472 (mass spectrometry).

On the basis of their physicochemical properties and chromatographic and IR- and mass-spectrometric characteristics, substance (I) was identified as oleanolic acid — 28-carboxy-3-hydroxyolean-12-ene — and substance (II) as maslinic acid — 28-carboxy-2,3-dihydroxyolean-12-ene [5, 6].

N. Narimanov Azerbaidzhan State Medical Institute, Baku. Translated from Khimiya Prirodnykh Soedinenii, No. 2, pp. 271-272, March-April, 1985. Original article submitted September 20, 1984.

0009-3130/85/2102-0256$09.50

This is the first time that either substance has been isolated from the *Eucalyptus* species mentioned.

LITERATURE CITED

1. A. M. Aliev, and I. S. Movsumov, Khim. Prir. Soedin., 399 (1976).
2. A.M. Aliev, I. S. Movsumov, and S. V. Serkerov, First Congress of Azerbaidzhan Pharmacists. Abstracts of Lectures [in Russian], Baku (1976), p. 148.
3. I. S. Movsumov and A. M. Aliev, Khim. Prir. Soedin., 389 (1981).
4. I. S. Movsumov, A. M. Aliev, and Yu. B. Kerimov, Khim. Prir. Soedin., 265 (1984).
5. L. Cagliotti, G. Cainelli, and F. Minutilli, Gazz. Chim. Ital., 91, 1387 (1961).
6. R. Caputo, L. Mangoni, P. Monaco, and P. Previtera, Phytochemistry, 13, 2825 (1974).
7. A. A. Savina, T. A. Sokol'skaya, and D. A. Fesenko, Khim. Prir. Soedin., 113 (1983).

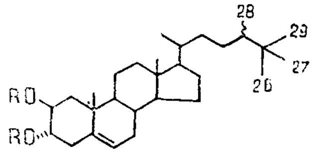
STEROID COMPOUNDS OF MARINE SPONGES.

V. 24ξ,25-DIMETHYLCHOLEST-5-ENE-2β,3α-DIOL DI(AMMONIUM SULFATE) — A NEW POLYHYDROXYLATED STEROID FROM A SPONGE *Halichondria sp.*

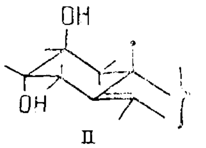
T. N. Makar'eva, L. K. Shubina,
A. I. Kalinovskii, and V. A. Stonik

UDC 547.92

Continuing an investigation of the steroid composition of sponges of the family *Halichondriidae* [1-4], from an aqueous extract of a sponge *Halichondria sp.*, collected in the northwestern littoral of the island of Madagascar in December, 1981 (Scientific-Research Ship "Professor Bogorov"), by column chromatography on Polikhrom-1 (water → 50% ethanol) and silica gel ($CHCl_3$—C_2H_5OH—H_2O (20:20:1)) we have isolated a previously unknown sulfated steroid (Ia); yield 0.03%, mp 205-207°C, $[\alpha]_D^{20}$ − 14.2° (c 0.12; pyridine). IR spectrum: ν_{max}^{KBr} 1236 cm^{-1} (SO_3). Mass spectrum (m/z): 394 ($M^+ - 2NH_4HSO_4$); 253, 211.



I a $R = SO_3NH_4$
I b $R = H$
I c $R = COCH_3$



II

The acid hydrolysis (9% HCl, 90°C, 1.5 h) of (Ia) gave sulfuric acid and a diol (Ib) with mp 257-260°C, $[\alpha]_D^{20}$ − 32° (c 0.05; ethanol). Mass spectrum (m/z): 430 (M^+), 415, 412 ($M^+ - H_2O$), 397, 379, 253, 211.

The acetylation of (Ib) with a mixture of acetic anhydride and pyridine (1:1) led to a diacetate (Ic) with mp 189-191°C. Mass spectrum (m/z): 454 ($M^+ - CH_3COOH$), 439, 412, 394 ($M^+ - 2CH_3COOH$), 379, 253, 211.

The structure of the side chain of the compound obtained (Ia) followed from a comparison of the high-resolution ^1H NMR spectra of (Ia-c) with the corresponding spectra of halistanol sulfate, halistanol, and halistanol triacetate. Almost complete coincidence of the signals was observed for the CH_3-28 and the CH_3-26, -27, and -29 groups, and a small difference for the CH_3-18, and CH_3-21 groups (−0.02 to 0.03 ppm) [2, 5].

From this it was concluded that the structures of the side chains for (Ia-c) and halistanol sulfate were identical.

The presence of fragment (II) in the steroid nucleus of compounds (Ia-c) followed from double-resonance experiments with differential decoupling for (Ib). Starting from the CH_3-19

Pacific Ocean Institute of Bioorganic Chemistry, Far Eastern Scientific Center, Academy of Sciences of the USSR, Vladivostok. Translated from Khimiya Prirodnykh Soedinenii, No. 2, pp. 272-273, March-April, 1985. Original article submitted August 23, 1984.