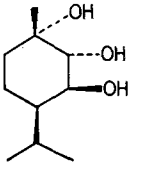
corresponding conformational state most probably would have a low population. Hence, in the favored cis arrangement, the iPr group is equatorial and the C_3 –OH axial. The relative orientation of C_3 –OH and C_2 –OH groups follows from the observed value of J_{23}. Vicinal diols are known to exhibit 5.6 and 2.3 Hz 3-bond ^{1}H-^{1}H couplings for rela-



I

tive orientations of the OH groups that correspond, respectively, to the trans diaxal and cis arrangement in a non-distorted cyclohexane skeleton[13]. The measured value of 4.8 Hz therefore suggests that both C_3 –OH and C_2 –OH are axial. Further corroboration to this conclusion was provided by the magnitude of the 2 J_{HCOH} couplings (3 and 4 Hz, respectively, for C_2 –H and C_3 –H). These couplings are known to depend on the preferred rotational orientation of the OH group which, in turn, reflects its steric interactions with neighbouring groups[14]. In vicinally di- and tri-substituted 6-membered ring systems equatorial hydroxyl groups usually exhibit a higher (6–7 Hz) J_{HCOH} couplings, whereas axially oriented OH groups systematically show lower values (3–4 Hz)[15].

^{1}H-NMR furnished no direct information regarding the orientation of the substituents at C_1, although the linewidth of the 7–CH_3 protons (1.6 Hz) suggested the occurrence of a 4-bond W-coupling with one of the C_6 methylene protons, typical of axially oriented methyl groups[16].

The stereochemistry at C_1 was conclusively demonstrated by converting the new product into its acetonide and subsequent acetylation of the latter. ^{1}H-NMR showed the acylable OH to be at C_3, i.e. the acetonide formation occurred with the participation of C_1 –OH and C_2 –OH. Since the stereochemistry of this reaction requires that the 2 alcoholic functions be cis one to another, in the preferred conformation the OH group at C_1 must be equatorial and the C_1-methyl axial.

The stereochemistry of the molecule is displayed by **I**. Synthesis of the racemic menthane triols is in progress and will be reported in a separate publication.

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A new furanoid fatty acid from the soft corals *Sarcophyton glaucum* and *gemmatum*

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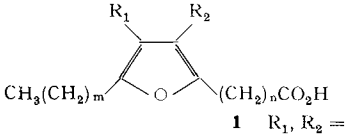
Summary. The isolation and spectral data of a new furanoid fatty acid obtained from 2 *Sarcophyton* soft-corals is reported.

Most recently, the isolation from fish lipids of a whole series of furane containing long-chain fatty acids, of the general structure **1**, have been reported[1].



1 $R_1, R_2 = H, CH_3$ m = 2–5 n = 7–12
1a $R_1, R_2 = CH_3$ m = 4 n = 2
(Me-ester)

We wish to represent here the isolation for the 1st time of a new member of this series **1a** ($R_1 = R_2 = CH_3$, m = 4, and n = 2, as the Me-ester in about 0.04% dry weight) from a different marine organism namely, from a soft coral. Compound **1a** could be revealed in the petrol-ether fraction of 2 species of *Sarcophyton*, *S. glaucum* and *S. gemmatum*, while in *S. decaryi* and 2 other *Sarcophyton* sp. it was absent. Compound **1a** has been assigned the methyl 3,4-dimethyl-5-n-pentylfurylpropionate structure on the basis of the following evidence. IR(CCl_4): 1740, 1598w, 1365, 1220, 1168, 1122, 1035, 990, 710 cm^{-1}.UV (MeOH): λ_{max} 225 nm(ε 7,400), positive Ehrlich test for furane rings. NMR ($CDCl_3$, 270 MHz); δ 3,66s(OCH_3), 2.84t (J = 7.6 Hz, 2H)[2], 2.58t (J = 7.6 Hz, 2H)[2], 2.47t(J = 7.6, 2H), 184s(3H), 1.82s(3H), 1.21–1.31m(4H) and 0.88t(J = 7.0 Hz, terminal methyl). ^{13}C-NMR ($CDCl_3$, 22.63 MHz): 173,4s (CO_2Me), 149.2s, 145.9s, 115.5s and 114.7s (the 4 furane ring carbon atoms)[3], 51.5q (OMe), 33.1t, 31.5t 28.4t, 26.1t, 22.5t, 21.8t, 14.0q (the terminal n-pentyl-Me) and 8.3q (the 2 vinylic Me groups). MS: m/e 252.1694 ($C_{15}H_{24}O_3$, M^+, 40%), 195.0993 ($C_{11}H_{15}O_3$, $[M\text{-}C_4H_9]^+$, 100%), 179.1426 ($C_{12}H_{19}O$, $[M\text{-}CH_2CO_2Me]$, 88%) and 135.0797 ($C_9H_{11}O$, 95%). The above data are in good agreement with the suggested substituted furane system[4]; however, the substitution sequence, suggested mainly according to the ^{1}H-NMR[5] and a speculative biosynthesis, demanded further evidence. Warming up of a solution of **1a** with maleic anhydride in benzene for 12 h gave the expected 1:1 adduct. The 2 methyl groups signals observed in the ^{1}H-NMR spectrum (δ 1.67s and 1.68s) established unequivocally the 3,4-position of the Me-groups in **1a**. The isolation of compound **1a** from a soft coral is interesting from the biosynthetic point of view. The suggested 1,4-oxidation of fatty acids, followed by methylation and consequence cyclization to a furane ring, does not seem to be unique for fish and may be a more general transformation which has to be further investigated.

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