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SESQUITERPENOIDS AND FLAVONOIDS FROM *Tanacetopsis mucronata*

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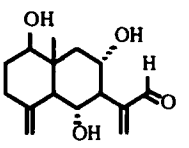
We have previously established that the main secondary metabolites of the epigeal part of *Tanacetopsis mucronata* are the sesquiterpene lactones deacetyllaurenobiolide, balchanolide, isobalchanolide, tanachin, tamirin, tavulin, mycoguanolide, mucrin, mucrolide, mucronin, and mucrochin, and the sesquiterpene alcohol mucrolidin [1, 2]. However, TLC analysis of the mother solutions showed the presence of a series of minor components that had not been isolated. By rechromatographing the resin from the mother solutions of the main components we have now isolated four sesquiterpenoids (**1** — $C_{15}H_{22}O_4$, M^+ 226, mp 240°C (acetone—hexane); **2** — $C_{30}H_{42}O_7$, M^+ 514, mp 215—217°C; **3** — $C_{15}H_{22}O_4$, M^+ 266, mp 146—148°C (acetone—hexane); and **4** — $C_{15}H_{28}O_3$, M^+ 256, mp 139—140°C (acetone—hexane)) and two flavonoids (**5** — $C_{17}H_{14}O_7$, M^+ 330, mp 240°C (acetone—hexane); and **6** — $C_{18}H_{16}O_8$, M^+ 360, mp 103°C (acetone—hexane).

IR spectrum of (**1**) (KBr, ν, cm^{-1}): 3378 (OH groups), 2788 (C—H bond of an aldehyde group, 1679 (C=O group of an aldehyde), 1647 (C=C bond).

The mass spectrum of (**1**) revealed the peak of the molecular ion with *m/z* 266 (M^+, $C_{15}H_{22}O_4$, 1%), the peaks of ions with *m/z* 265 (1.72%), 264 (3.72%), 248 (3.5%), 246 (15%), 230 (6%), 228 (3.93%), 217 (9.5%), 199 (8%), 184 (9.3%), 182 (9.3%), 181 (2.4%), 107 (100%), 29 (32%), 28 (61%), and also other fragments characteristic for the breakdown of eudesmanolides under electron impact.

In the PMR spectrum of (**1**) (Py-d_5) we observed characteristic signals of the protons of three OH groups (5.06, 6.35, 6.46 ppm), the protons of three gem-hydroxy groups (3.74, 4.34, and 4.27 ppm), the protons of an exocyclic methylene group (6.30 and 6.34 ppm) and of an exomethylene group in a six-membered ring (5.17 and 5.18 ppm), and the signals of the protons of aliphatic methylenes (1.77—2.9 ppm), and also a signal of the protons of an angular methyl (1.09 ppm).

The ^{13}C NMR spectrum (Py-d_5) showed signals of the following carbon atoms (ppm): C-1 (77.92), C-2 (32.42), C-3 (35.40), C-4 (144.9), C-5 (57.72), C-6 (67.43), C-7 (55.66), C-8 (77.62), C-9 (41.35), C-10 (43.0), C-11 (139.9), C-12 (193.2), C-13 (118.93), C-14 (14.45), C-15 (109.44). On the basis of the spectral characteristics and also of a comparison of them with those of the known lactones (**7**) [3] and (**8**) [4] we have proposed structure (**1**) for the first compound, and we have called it mucrotan.



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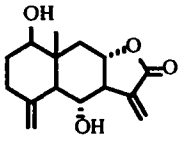

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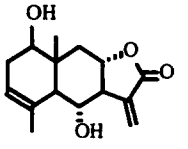

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The study of the structures of the other compounds isolated is continuing.

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