FRAXIDIN AND ISOFRAXIDIN FROM *Artemisia scotina*

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Continuing a study of the lactones of *Artemisia scotina* Nevsky [1], we have chromatographed the acidic fraction of the resin on neutral alumina (activity grade III), elution with benzene and benzene–methanol (9:1 and 4:1) yielding a substance with the composition $C_{11}H_{10}O_5$, mp 146-147°C (methanol), R_f 0.15 [benzene–methanol (9:1) system; Silufol]; M^+ 222. From qualitative reactions and its IR and UV spectra the substance is a hydroxycoumarin. The NMR spectrum showed the presence in the substance of two methoxy groups and one hydroxy group and one free proton. From its physicochemical properties and a comparison of IR spectra, the substance was identified as isofraxidin [2]. Its methyl ether was obtained with mp 103-104°C [benzene–hexane (1:1)].

From the methanol-soluble fraction of the resin by chromatography on silica gel and elution with chloroform–methanol (9:1) we isolated a second substance with the composition $C_{11}H_{10}O_5$, mp 196-197°C (methanol), R_f 0.31 [benzene–methanol (4:1) system; Silufol]; M^+ 222; trimethyl ether with mp 103-104°C. From qualitative reactions and its IR, UV, and NMR spectra the substance was assigned to the trisubstituted hydroxycoumarins with two methoxy groups and one hydroxy group and one free proton. Mixtures of this substance with isofraxidin and arscotin gave depressions of the melting point and it is therefore their isomer, i.e., fraxidin [3].

The trimethyl ethers of all three isomers are identical. A trimethoxy derivative with mp 103-104°C can be given by hydroxycoumarins having one hydroxy group and two methoxy groups in the 6,7,8 positions. Therefore, the arscotin [4] that we isolated previously must have the structure of 6-hydroxy-7,8-dimethoxycoumarin, and not 7-hydroxy-5,6-dimethoxycoumarin.

LITERATURE CITED

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