SESQUITERPENE LACTONES OF *Ferula litvinowiana*

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Ferula litvinowiana is one of a species of the genus *Ferula* that is widely distributed in the USSR. It grows in the deserts and semideserts of Central and Southern Kazakhstan, and also in some regions of Central Asia. In the taxonomic respect it belongs to the group of species including *F. malacophyla* and *F. oopoda* [1].

On chromatographic separation of the total extractive substances obtained by the ethanolic extraction of the roots of *F. litvinowiana*, we isolated sesquiterpene lactones having the compositions $C_{25}H_{30}O_7$ (I), M^+ with m/z 442, mp 191-192°C (ethanol); $C_{29}H_{32}O_9$ (II), M^+ with m/z 524, mp 204-205°C (ethanol), and $C_{26}H_{28}O_9$ (III), M^+ with m/z 484, mp 216-217°C (ethanol). The UV spectrum of compound (I) showed absorption maxima at 224 and 250 nm (log ε 4.56 and 4.49), and in the IR spectrum there were absorption bands at 1795 cm^{-1} (CO of a γ-lactone), 1710 cm^{-1} (CO of an ester), 1690 cm^{-1} (CO of an α,β-unsaturated cyclopentanone), and 1640 and 1618 cm^{-1} (double bonds in conjugation).

The UV spectrum of compound (II) had absorption maxima at 221, 260, and 292 nm (log ε 4.61, 4.46, and 3.95), and the IR spectrum of this molecule had absorption bands at 1795 cm^{-1} (CO of a γ-lactone), 1720 and 1710 cm^{-1} (CO of an ester), 1692 cm^{-1} (CO of an α,β-unsaturated cyclopentanone), and 1640, 1620, 1615, and 1505 cm^{-1} (double bonds in conjugation).

On the basis of the identity of their UV, IR, and mass spectra, and also from the absence of depressions of the melting points of mixtures with organic samples, compounds (I), (II), and (III) were identified as talassin A, malaphyll, and malaphyllin, respectively [2].

LITERATURE CITED

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