

ESTERS OF *Ferula nuratavica*

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Continuing an investigation of plants of the genus *Ferula* (fam. Apiaceae), we have studied the terpenoid esters of the roots of the narrowly endemic species *Ferula nuratavica* M. Pimen gathered during the flowering stage in Bukhara province, Republic of Uzbekistan.

Ethanol extraction of the ground air-dry roots yielded the total extractive substances, which were separated by treatment with 5% solutions of sodium carbonate and caustic potash into acidic, phenolic, and neutral fractions.

The phenolic fraction was transferred to a column of KSK silica gel, and the substances were eluted with petroleum ether-ethyl acetate (initially 9:1, followed by increasing concentrations of the latter). Five esters of terpenoid alcohols with aromatic alcohols were isolated. Substance (1) $C_{17}H_{22}O_3$, mp. 154-155°, $[\alpha]_D + 5^\circ$ (s 1.0; chloroform), substance (2) $C_{23}H_{32}O_5$, mp, 78-80°, $[\alpha]_D + 86.5^\circ$ (s 1.0; chloroform), substance (3) $C_{22}H_{30}O_4$, mp. 189-190°, $[\alpha]_D - 91.0^\circ$ (s 1.0; chloroform), substance (4) $C_{23}H_{32}O_6$, mp. 164-165°, $[\alpha]_D + 134^\circ$ (s 1.0; chloroform), substance (5) $C_{23}H_{32}O_6$, $[\alpha]_D - 71^\circ$ (s 1.0; chloroform).

Substances (1-5) were identified by their physicochemical constants and spectral (IR, PMR) characteristics as *d*-chimgin, teferin, ferolin, tenuferin, and lancerodiol vanillate, respectively [1-5].

With respect to the qualitative composition of its terpenoid esters, *F. nuratavica* is closest to *ferulatonkorassechennaya** growing in Tashkent province.

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* Not identified. A possible translation into botanical Latin would be *F. tenuisecta*.