

## CHIMGIN FROM *Ferula lapidosa*

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We have investigated the roots of *Ferula lapidosa* Korov., collected in Kirghizia in the Buam Gorge, the classical site of occurrence of this species. In a methanolic extract of the roots we found five compounds of aromatic nature with  $R_f$  0.37, 0.53, 0.56, 0.65, and 0.80 [TLC, SiO<sub>2</sub>; benzene-methanol (95:5) system].

After chromatography twice in a column of silica gel and fractional crystallization, we isolated a colorless crystalline substance with  $R_f$  0.53, composition C<sub>17</sub>H<sub>22</sub>O<sub>3</sub>, (M<sup>+</sup> 274), mp 149-150°C,  $[\alpha]_D^{24}$  -42.8° (c 0.72; ethanol). Yield 0.5% (on the weight of the dry raw material).

The UV spectrum of the compound has  $\lambda_{\max}$  260 nm (log  $\epsilon$  4.27), which is characteristic for an aromatic chromophore.

This substance is an ester of an aromatic acid and a terpenoid alcohol. This was confirmed by the presence in the mass spectrum of fragments with m/e 121 and 153, corresponding to the aromatic and terpenoid moieties of the molecule.

On alkaline hydrolysis of the substance in 5% aqueous KOH, we obtained a hydroxyterpene and an acid. The hydroxyterpene was a colorless crystalline substance with the composition C<sub>10</sub>H<sub>18</sub>O,  $[\alpha]_D^{24}$  -39.6° (c 2.99; ethanol), mp 197°C (hexane),  $R_f$  0.29 [Silufol; hexane-benzene-methanol (5:4:1)]; it was identified as *l*-borneol by a comparison of IR spectra and by a mixed melting point. According to the literature [1], it is *trans-l*-borneol.

The acid formed colorless acicular crystals with the composition C<sub>7</sub>H<sub>6</sub>O<sub>3</sub>, mp 207-209°C (hexane-ether),  $R_f$  0.07. It was identified as *p*-hydroxybenzoic acid by comparison with a reference sample which we obtained by the alkaline degradation of phellavin [2].

It follows from what has been said that the ester isolated is *l*-chimgin, isolated previously from *Ferula prangifolia* [3].

This is the first time that this compound has been found in *Ferula lapidosa*.

### LITERATURE CITED

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