

BRIEF COMMUNICATIONS

FUROCOUMARINS OF *Heracleum grandiflorum*

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From the fruit of *Heracleum grandiflorum** collected in the Agul region of the Dagestan ASSR in July, 1973, we have isolated pimpinellin, bergapten, isobergapten, isopimpinellin, xanthotoxin, and β -sitosterol. These substances were shown to be identical with known specimens on the basis of their IR spectra and melting points [1].

The comminuted fruit (1 kg) of the plant mentioned was exhaustively extracted with chloroform. The solvent was distilled off in vacuum, giving 139 g of a resin (13.9% of the air-dry weight of the fruit). This resin was dissolved in chloroform and chromatographed in a column of Al_2O_3 (activity grade III,V according to Brockmann). The ratio of Al_2O_3 and resin was 8:1. The substance was eluted with petroleum ether (fractions 1-10) and with petroleum ether-chloroform (1:1), 41 fractions of 100 ml each being collected.

Fractions 1-10 were combined, and the solvent was distilled off. The residue consisted of a fatty oil (5% of the air-dry weight of the fruit). Similarly, fractions 11-16 yielded a crystalline substance of noncoumarin nature. Removal of the solvent from fractions 17-19 yielded pimpinellin with mp 116-117°C, and in the same way fractions 20 and 21 yielded bergapten with mp 189-190°C. The mother liquor from the isolation of the bergapten was evaporated. On standing, crystals of isobergapten with mp 217-218°C deposited.

After the eluent had been distilled off, fractions 22-32 yielded xanthotoxin with mp 145-146°C; fractions 33-41 contained isopimpinellin with mp 148-150°C (from ethanol). IR spectrum, ν , cm^{-1} : 1720 (C=O of a δ -lactone), 1608, 1600, 1489, 1430 (aromatic ring of a furocoumarin). The mother liquor after the isolation of the isopimpinellin was concentrated by evaporation. On standing, it deposited sitosterol with mp 149-150°C (from ethanol). (The IR spectrum corresponded to that of β -sitosterol. The IR spectra were taken by T. V. Bukreeva on a UR-10 instrument in paraffin oil.)

LITERATURE CITED

1. G. A. Kuznetsova, Natural Coumarins and Furocoumarins [in Russian], Leningrad (1967).

*Endemic to the Dagestan ASSR.

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