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COUMARINS OF *Prunella vulgaris*

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In a study of the epigeal part of *Prunella vulgaris* L. Family Lamiaceae collected in the environs of Tomsk in August, 1984, six benzo- α -pyrone derivatives have been detected by two-dimensional paper and thin-layer chromatography.

To isolate the coumarins, the comminuted herb was extracted exhaustively with hot 70% ethanol, the extract was concentrated and diluted with water (1:2) and was treated successively with petroleum ether (I) with chloroform (II), and with chloroform-ethyl acetate (2:1) (III) [1]. The combined dry residues II and III were transferred to a column of Woelm polyamide (5 x 20 cm). The fractions eluted by chloroform and chloroform-ethanol (2:1) were rechromatographed on Silufol plates in the benzene-ethyl acetate (2:1) system [2]. Two individual substances were isolated: A with R_f 0.72 and B with R_f 0.36. When the column was washed further with chloroform-acetone (7:3), the fractions contained a substance C with R_f 0.09 [3, 4]. The substances obtained were subjected to repeated recrystallization from methanol.

Substance A formed colorless acicular crystals with mp 233-236°C. UV spectrum: $\lambda_{\text{max}}^{\text{C}_2\text{H}_5\text{OH}}$ 325, 256 nm. The IR spectrum (tablets with KBr) had absorption bands at 1725 cm^{-1} (γ -pyrone) and 3300 cm^{-1} (OH group). On the basis of the results obtained, substance A was identified as umbelliferone.

Substance B formed white crystals with mp 205-207°C. On the basis of UV and IR spectroscopy and a mixed melting point it was identified as scopoletin.

Substance C formed yellowish acicular crystals with mp 269-271°C. UV spectrum: $\lambda_{\text{max}}^{\text{C}_2\text{H}_5\text{OH}}$ 262, 306, 355 nm. IR spectrum, $\nu_{\text{max}}^{\text{KBr}}$ (cm^{-1}): 1598, 1630, 1686 (C=C); 1718 (C=O); and 3400 (OH group). The results of the investigation agreed with literature information for esculetin [5-7].

This is the first time that hydroxycoumarins have been isolated from *Prunella vulgaris* L.

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