

In chemosystematic investigations [1] of the family Umbelliferae, in various species of *Daucus flavone* and flavonol glycosides have been detected. We have studied the flavonoid composition of the fruit of *Daucus carota* L. ssp. *sativa* (garden carrot), variety "nant-skaya."

The fruit (80 kg) was extracted with 50% ethanol. The resulting extract, after preliminary purification, was separated chromatographically on polyamide columns. The isolation and structure determination of the flavonoid substances were performed by the usual methods. The UV spectra were determined on an SF-4A spectrophotometer (in methanol).

The flavonoid aglycones present in the fruit were identified as luteolin [mp 327-330°C, λ_{\max} 253 (268), 350], apigenin (mp 346-347°C; λ_{\max} 270, 334 nm), diosmetin (mp 256-259°C; λ_{\max} 253, 264, 345 nm), 5-hydroxyflavone [mp 155-159°C; λ_{\max} 267, (295), 332 nm], and, most probably, 5-hydroxy-2',6',6-trimethoxyflavone [zapotinin; λ_{\max} 264, (309), (347) nm]. The amount of luteolin in the fruit considerably exceeded that of the other aglycones.

The glycosides isolated were luteolin, 7- β -D-glucopyranoside [mp 256-258°C; $[\alpha]_D^{25}$ -96°; λ_{\max} 255, (266), 350 nm], luteolin 7-rutinoside [mp 187-190°C; λ_{\max} 256, (266), 350 nm], apigenin 7- β -D-glucopyranoside (mp 253-254°C; $[\alpha]_D^{24}$ -75°; λ_{\max} 267, 334 nm), apigenin 7-glucorhamnoside (mp 250-252°C; λ_{\max} 268, 334 nm), diosmetin 7-D-glucoside (mp 265-266°C; λ_{\max} 251, 266, 345 nm), and quercetin 3-glucorhamnoside [mp 189-190°C; λ_{\max} 259, (264), 365 nm].

A C-glycoside (mp 229-230°C; $[\alpha]_D^{24}$ +55°; λ_{\max} 275, 336 nm) proved to be identical with apigenin 6,8-di-C-glucoside* (vicein), which we had also isolated previously from plants of the family Umbelliferae [2].

A flavonoid compound with R_f 0.40 in 15% acetic acid (λ_{\max} 255, 350 nm; $\lambda_{\max}^{\text{KOH}}$ 265, 400 nm; $\lambda_{\max}^{\text{CH}_3\text{COONa}}$ 265, 410 nm; $\lambda_{\max}^{\text{CH}_3\text{COONa} + \text{H}_3\text{BO}_3}$ 260, 370 nm; $\lambda_{\max}^{\text{AlCl}_3}$ 273, 330, 395 nm) proved to be a mixture of two components, which it was possible to separate only by means of two-dimensional preparative paper chromatography. The results of a study of the products of stepwise acid hydrolysis have permitted us to propose for the substances investigated the structures of luteolin 5-L-arabino-D-galactoside and luteolin 5-D-galacto-L-arabinoside. Both compounds undergo acid hydrolysis fairly easily (2% HCl; 15 min at 100°C).

LITERATURE CITED

1. J. B. Harborne and C. A. Williams, *Phytochemistry*, **11**, 1741 (1972).
2. L. I. Dranik, *Khim. Prirodn. Soedin.*, 268 (1970).

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