

Under the influence of CH_3ONa , a bathochromic shift of the first band by 58 nm was observed for substance (IV). After the performance of the cyanidin reaction and the addition of NaHCO_3 , the crimson coloration did not change [5], which showed the substitution of the hydroxyl in position 4.

The absence of a change in the UV spectrum of substance (V) under the influence of AcONa and a negative reaction with diazotized sulfanilic acid [6] permitted the conclusion that the L-arabinose was attached at C_7 of the herbacetin.

Thus, the results of a study of chemical behavior and of UV and IR spectra has enabled us to characterize substance (IV) as 3,4',5,7,8-pentahydroxyflavone 4'-O- β -D-glucopyranoside and substance (V) as 3,4',5,7,8-pentahydroxyflavone 7-O- β -L-arabinopyranoside, which we have called gelidolin and gelolin, respectively.

The phenolic compounds were accompanied by a crystalline substance having mp 166-167°C possessing the properties of polyhydric alcohols. From the melting point of its hexaacetate (122-123°C), the nature of its IR spectrum, and a mixed-melting point, it was identified as D-mannitol.

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ACCUMULATION OF CAROTENOIDS AND ASCORBIC ACID IN Anethum graveolens

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Previously, [1] studying the accumulation of essential oil in specimens of Anethum graveolens L. (dill) from different growth sites we investigated plants with different amounts of essential oil in the fruit. The best of them were recommended for cultivation and for the production of a high-quality food and drug raw material. We are making an analysis of the accumulation of carotenoids and ascorbic acid in 47 specimens of dill with the aim of finding plants richest in these compounds. The amount of ascorbic acid has been determined by the method of indophenol titration [2] and the amount of carotenoids by photoelectrocolorimetry at a wavelength of 440 nm in comparison with a standard solution of potassium dichromate [3].

Analysis of plants grown under the conditions of the temperate zone of the European part of the USSR has shown that the specimens of dill differed in the amounts of carotenoids and ascorbic acid that they contained. Not many specimens of dill with the maximum amount of carotenoids in the leaves (about 46 mg-%) were found. These were specimens from Eastern Egypt (46.5 mg-%), Iraq (44.5 mg-%), Nepal (39.2 mg-%), Sweden (38.3 mg-%), and Norway (38.3 mg-% on the absolutely dry weight of the raw material). Of domestic specimens, the richest in carotenoids proved to be the dill Gribovskii 388 (39.7 mg-%) and that growing in the AzSSR (37.2 mg-%) and the Buryat ASSR (45.3 mg-%). The highest carotenoids content was found in the leaves in the budding phase; their amount in the stems and fruit did not exceed 2-4 mg-%.

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The largest amount of ascorbic acid accumulated in specimens from Western China (144 mg-%), Iran, Sweden, Afghanistan, and the BSSR (120 mg-%). In the other samples its amount ranged from 14 to 97 mg-%. Like the carotenoids, the ascorbic acid accumulated mainly in the leaves. There was little of it in the stems, flowers, and fruit.

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PHENOLIC ACIDS OF Iris ensata

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Continuing an investigation of the phenolic compounds of the epigeal parts of Iris ensata Thunb. (Russian iris), we have studied an ethyl acetate fraction obtained as the result of the ethyl acetate treatment of an evaporated methanolic extract [1].

Chromatography on "Filtrak" FN-1 paper in 2% acetic acid showed the presence of four substances which, on the basis of qualitative reactions, were assigned to the phenolic carboxylic acids [2].

The acids were separated by paper chromatography in the 2% acetic acid system and were then eluted with 96% ethanol. Four individual substances were isolated.

Substance (I), $C_{10}H_{10}O_4$, mp 167-169°C, R_f 0.32, bright blue fluorescence in UV light, λ_{max} 323 nm. By comparison with an authentic sample, it was identified as ferulic acid.

Substance (II), $C_9H_8O_7$, mp 209-211°C, R_f 0.40, violet fluorescence in UV light, λ_{max} 310 nm, 290 nm (sh.), was p-coumaric acid.

Substance (III), $C_8H_8O_4$, mp 201-203°C, λ_{max} 260 nm, 290 nm (sh.), R_f 0.65, was identified by comparison with an authentic sample as vanillic acid.

Substance (IV), $C_7H_6O_3$, mp 212-214°C, λ_{max} 255 nm, R_f 0.56, was identified as p-hydroxybenzoic acid.

The epigeal part of Iris ensata contained ferulic acid in largest amount.

This is the first time that any of these phenolic acids have been discovered in plants of this species.

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