

FLAVONOIDS OF SOME SPECIES OF THE GENERA

Arenaria AND Cerastium

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A series of representatives of the genera Arenaria and Cerastium, family Careophyllaceae has been investigated. The extracts obtained from the dried epigeal parts of the plants with 50% ethanol were chromatographed in various solvent systems on "Filtrak" No. 11 paper. It was found that all the plants contained flavonoids showing in UV light a dark brown fluorescence and after the chromatogram had been sprayed with a solution of zirconium nitrate a dull yellow-orange fluorescence. The additional treatment of the chromatograms with ammonia vapor led to the intensification and differentiation of the colors of the spots from emerald green to dark orange with various transitional tinges, which is connected with the structure of the aglycones, the number of sugar residues, the positions of their attachment to the aglycone, and their nature.

The extracts were hydrolyzed with 10% hydrochloric acid solution and with Kiliani's mixture [1]. In the first case, prolonged hydrolysis (5 h) did not lead to the production of aglycones, and only the sugars attached to the aglycones by an ether bond were split out. After hydrolysis of the extracts with Kiliani's mixture for 10-12 h, in all cases the aglycones apigenin and luteolin were obtained. These compounds were identified with the aid of UV spectroscopy and by comparison with "markers" in the BAW (4:1:5) and 60% acetic acid systems. The individual glycosides were isolated by preparative chromatography on paper and by column chromatography on Kapron. For characterization and identification we used the UV spectroscopy of alcoholic solutions of these substances, including the addition of ionizing and complex-forming compounds [2], acid and enzymatic hydrolysis, and also comparison with authentic samples.

It was established that plants of the genus Arenaria contain C-monoglycosides of apigenin and luteolin such as vitexin, isovitexin, orientin, and homoorientin, and also their 8- β , 6- α , and 6- β isomers. These compounds were found in A. saxatilis, A. serpyllifolia, A. longifolia, A. stenophylla, A. juncea, and A. lychnidea. In addition, A. serpyllifolia and A. longifolia contained isosaponarin, and A. saxatilis and A. serpyllifolia contained isomers of vicenin [3]. A. saxatilis, A. longifolia, and A. juncea also contained O-glycosyl derivatives of the C-monoglycosides mentioned.

Plants of the genus Cerastium contain apigenin and luteolin as aglycones. These compounds are present in the C-monoglycosides vitexin, saponaretin, orientin, and homoorientin, which were found in all the plants investigated: C. anomalum, C. biebersteinii, C. falcatum, C. perfoliatum, C. grandiflorum, C. cerastoides, C. imbricatum, C. pilosum, C. dahuricum, C. fontanum, and C. trigynum. In addition, C. anomalum, C. perfoliatum, C. cerastoides, C. fontanum, C. trigynum, and C. dahuricum contained more highly polar compounds (15% acetic acid system) consisting of di-, tri-, and tetraglycosides of C-monoglycosides of apigenin or luteolin (isosaponarin, homoadonivernitol, adonivernitol, cachimoside, etc.). C. anomalum, C. cerastoides, and C. trigynum contained a substance A, which is apparently luteolin 6-C- β -D-glucoside.

The study of the flavonoids of the genera Arenaria and Cerastium is continuing.

LITERATURE CITED

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