FLAVONE O-MONOGLUCOSIDES OF Lupinus polyphyllus

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We have previously reported the isolation from the leaves of the annual lupine Lupinus polyphyllus Lindley of luteolin, orientin, and homoorientin [1]. Continuing the separation of the total flavonoids, by preparative paper chromatography we have isolated another four substances (D, E, F, and G). The substances isolated were chromatographed on a column of polyamide sorbent using aqueous ethanol as eluent. On the basis of their R_f values in systems 1 (BAW (4:1:5)) and 4 (20% CH_3COOH) on F No. 11 paper – respectively: D, 0.46 and 0.26; E, 0.51 and 0.37; F, 0.50 and 0.44; G, 0.56 and 0.43 – and Bryant's cyanidin reaction, the compounds isolated were assigned to the glycosides.

Substance D. UV spectra, λ_{max}, nm: 96% ethanol 270, 335; AcONa 273, 372; AcONa + H_3BO_3 270, 336; $AlCl_3$ 280, 344, 380; $AlCl_3$ + HCl 278, 338, 378; NaOH 270, 380.

The UV spectra showed the presence of free hydroxy groups in positions 5 and 7. The absence of a "shoulder" (269 nm) in the basic spectrum of the substance, and also the shift in the absorption maxima on the addition of AcONa + H_3BO_3, showed the absence of a 3',4'-dihydroxy grouping. The absorption maxima at 270 and 380 nm on the addition of NaOH showed that the 4'-hydroxy group was substituted. Luteolin and D-glucose were found in the products of acid hydrolysis, and phloroglucinol and protocatechuic acid in the products of alkaline degradation, which indicated the presence of a free 3'-hydroxy group in substance D.

On the basis of the results obtained, it may be concluded that substance D was apparently luteolin 4'-glucoside [2, 3].

Substance E. mp 180-183°C (ethanol). UV spectra, λ_{max}, nm: 96% ethanol 268, 335; AcONa 270, 335; AcONa + H_3BO_3 270, 335; $AlCl_3$ 278, 344, 382; $AlCl_3$ + HCl 276, 338, 378; NaOH 270, 400.

From the products of quantitative acid hydrolysis (apigenin and D-glucose) and of alkaline degradation (phloroglucinol and p-hydroxybenzoic acid) and from its UV and IR spectra, substance E was identified as apigenin 7-O-β-D-glucopyranoside [4-6].

According to UV spectroscopy and the products of alkaline hydrolysis, substance F was identical with substance E and a difference was observed only in the R_f value in system 4, which possibly shows that it is an isomer of substance E.

Substance G. mp 189-191°C (ethanol). UV spectrum, λ_{max}, nm: 96% ethanol 268, 325; AcONa 270, 325; AcONa + H_3BO_3 268, 325; $AlCl_3$ 275, 336, 380; $AlCl_3$ + HCl 274, 334, 378; NaOH 278, 368 sh.

Acacetin [7] and D-glucose were identified in the products of acid hydrolysis.

Absorption bands in the 892 cm^{-1}, 780, 1046, 1074, and 1032 cm^{-1}, and 2855 cm^{-1} regions in the differential IR spectrum of substance G show the β-configuration of the glycosidic bond, the pyranose form of the D-glucose [6, 8], and the presence of a methoxy group [9].

According to the results of UV and IR spectroscopy and the products of quantitative acid hydrolysis and alkaline degradation, substance G was acacetin 7-O-β-D-glucopyranoside.

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POLYPHENOLS AND TRITERPENES FROM Salvia limbata

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We have investigated the epigeal part of Salvia limbata C.A. M., family Lamiaceae Lindl., collected in the flowering phase in the Nakhichevan ASSR (environs of the town of Ordubad) [1]. The air-dry raw material (300 g of leaves) was extracted successively with chloroform, acetone, and ethanol, and then with water. The concentrated and purified extracts were fractionated and separated into individual components by column and paper chromatography, and also by recrystallization. The following individual compounds were isolated, their nature being established on the basis of the results of physicochemical methods of analysis: apigenin (4',5,7-trihydroxyflavone), cosmosiin (apigenin 7-O-β-D-glucoside), luteolin (3',4',5,7-tetrahydroxyflavone), cynaroside (luteolin 7-O-β-D-glucoside), caffeic acid (3,4-dihydroxycinnamic acid), and ursolic acid [2].

The quantitative determination of the polyphenolic compounds of S. limbata was carried out by a method based on the cyanidin reaction using UV spectroscopy [3]. The amount of polyphenols found was 0.54%. The quantitative determination of ursolic acid was carried out by a spectrophotometric method [4]. Found: 0.65%.

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