

Seven compounds identical with those described above were isolated from S. virgaurea.

Thus, free flavonols and their biosides have been detected in S. canadensis and S. virgaurea. The flavonoid compositions of the species of goldenrod studies are similar to one another; differing only by the ratios of the individual components.

LITERATURE CITED

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FLAVONOIDS OF Salix acutifolia

V. L. Shelyuto and V. G. Bondarenko

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We have investigated the flavonoid composition of the leaves of Salix acutifolia Willd. (sharpleaf willow) collected in August in Gomel' province (Belorussian SSR)

The dry comminuted leaves (1 kg) were exhaustively extracted with 80% ethanol. The ethanolic extracts were concentrated in vacuum, diluted with water, and treated with chloroform.

The purified aqueous fraction was extracted with diethyl ether and with ethyl acetate. The ethereal and ethyl acetate fractions so obtained were chromatographed on columns of polyamide sorbent. The chromatography of the ethereal fraction with elution by chloroform-ethanol containing increasing concentrations of the latter yielded substances (I), (II), and (III). Substances (IV), (V), and (VI) were isolated from the ethyl acetate fraction of the aqueous ethanolic mixture.

Substance (I) - $C_{15}H_{10}O_7$; mp 309-312°C; acetate with mp 198-199°C; λ_{max} 255, 270, 372 nm.

Substance (II) - $C_{15}H_{10}O_6$; mp 328-330°C; the acetate had mp 224-226°C; λ_{max} 255, 268, 350 nm.

Substance (III) - $C_{15}H_{10}O_5$; mp 349-351°C; acetate with mp 183-185°C; λ_{max} 268, 337 nm.

Substance (IV) - $C_{21}H_{20}O_{11}$; mp 226-268°C; $[\alpha]_D^{20}$ -54.7° (formamide); λ_{max} 257, 268, 351 nm.

Substance (V) - $C_{21}H_{20}O_{10}$; mp 222-225°C; $[\alpha]_D^{20}$ -142.8° (formamide); λ_{max} 269, 332 nm.

Substance (VI) - $C_{21}H_{20}O_{12}$; mp 243-245°C; $[\alpha]_D^{20}$ -59° [methanol-pyridine (5:1)]; λ_{max} 256, 268, 364 nm.

From their physical constants, the characteristics of their IR, UV, and PMR spectra, the products of their acid hydrolysis, the results of elementary analyses, and comparisons of them with literature information, and also on the basis of the absence of depressions of the melting points of mixtures with authentic samples, we identified substance (I) as quercetin [2], (II) as luteolin [1], (III) as apigenin [3], (IV) as cynaroside [1], (V) as cosmosiin [3], and (VI) as quercimeritrin [2].

Substance (VII) and (VIII) were minor components and they were identified by paper chromatography with markers as isoquercetin and rutin, respectively.

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