FLAVONOIDS OF *Digitalis ciliata*

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The isolation of luteolin, dracocephaloside, apigenin, and cynaroside from an ethanol–chloroform extract of the leaves of *Digitalis ciliata* Trautv. has been reported previously [1, 2]. Continuing an investigation of the chemical composition of this plant, from the combined nonpolar glycosides, in addition to cardiac glycosides we have isolated two bright yellow crystalline substances giving the characteristic reactions for flavonoids. Substance (I), after recrystallization from 40% ethanol, melted at 255-256°C. UV spectrum, λ_{max} C_2H_5OH nm: 350, 270, 257; +$ZrOCl_2$ citric acid 360, 302, 260, + CH_3COONa 356, 255; +CH_3COONa/H_3BO_3 350, 257; C_2H_5ONa 400, 360, 260. The PMR spectrum showed the signal of a methoxy group at 3.15 ppm.

On being heated with a 5% aqueous solution of sulfuric acid and with a 0.5% solution of caustic soda [3], substance (I) was cleaved to form a chromatographically homogeneous alycon with mp 259-261°C. UV spectrum, λ_{max} C_2H_5OH, nm: 345, 270, 257; +$ZrOCl_2$ 420, 335, 272; +$ZrOCl_2$/citric acid, 367, 282, 264; +CH_3COONa 370, 273; +CH_3COONa/H_3BO_3 375, 260; +C_2H_5ONa 400, 271.

Demethylation of the aglycon led to the less polar 6-hydroxyluteolin with mp 323-327°C [4]. By comparing the results obtained with the literature [5, 6], the aglycon was identified as 6-methoxyluteolin or nepetin. D-Glucose was found in the carbohydrate part of the hydrolysate.

A comparison of the UV spectra of the glycoside and the aglycon obtained on the addition of sodium acetate showed that the carbohydrate component was present at the C-7 of the aglycon.

On the basis of the results obtained and literature information, substance (I) was characterized as 6-methoxyluteolin 7,O-β-D-glucopyranoside or nepetrin [7, 8].

Substance (II), after recrystallization from 50% ethanol, melted at 227-233°C. UV spectrum, λ_{max} C_2H_5OH, nm: 338, 276; +$AlCl_3$ 362, 302; +$AlCl_3$/HCl 355, 300; +CH_3COONa 387, 327 sh., 277; +CH_3COONa/H_3BO_3 335, 316 sh., 275 [9]. The aglycon was identified as 4'5',7-trihydroxy-6-methoxyflavone or hispidulin [6, 7]. D-glucose was detected in the sugar part of the hydrolysate.

Thus, substance (II) was characterized as 6-methoxyapigenin 7-O-β-D-glucopyranoside or hispidulin 7-O-β-D-glucopyranoside [7, 8, 10].

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