FLAVONOIDS FROM A TOTAL PREPARATION OF THE YELLOW PIGMENT OF THE TEA PLANT

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We have previously reported the isolation and identification of three flavonoids (A, B, and C) from a total preparation of the yellow pigment of tea [1]. Subsequently, by separation on Sephadex the flavonoids D, E, L, and M were isolated from it in the individual state. These substances have been identified from their melting points, a study of the products of acid, alkaline, and enzymatic hydrolysis, and by UV and IR spectroscopy.

Flavonoid D (mp 169-171°C; λ_{max} 256, 351 nm, in ethanol) gave on acid hydrolysis the aglycone quercetin (34.2%); glucose and rhamnose were found in the sugar fraction, the size of the glucose spot being twice that of the rhamnose spot. The amount of the aglycone showed that the glycoside contains three molecules of monosaccharides. This was confirmed by enzymatic hydrolysis with rhamnodiastase.

Bathochromic analysis with complex-forming and ionizing compounds showed that in the flavonoid molecule only the hydroxy group in position 3 is substituted.

On comparing the results that we obtained with literature information, flavonoid D may be considered to be quercetin 3-O-rhamnodiglucoside [2].

Flavonoid E (mp 177-179°C; λ_{max} 265, 372 nm) was characterized correspondingly as kaempferol 3-O-rhamnodiglucoside [3].

Flavonoid L (mp 220-221°C, $[\alpha]_D^{20}$ −54° (c 0.1; ethanol), $\lambda_{max}^{C_2H_5OH}$ 262, 364 nm) was found to be myricetin 3-O-glucoside [4].

Flavonoid M (mp 195-196°C, $\lambda_{max}^{C_2H_5OH}$ 253, 367 nm) was identified as kaempferol 3-O-rutinoside [5]).

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