SELECTIVE METHYLATION OF RUTIN

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On methylation with dimethyl sulfate in an aqueous medium in the presence of alkali, the rate of methylation rises in the sequence 3 > 3' > 4' > 7 [1]. By the selective methylation of rutin (3, 4, 7, 3', 4'-pentahydroxyflavone 3-O-β-D-glucopyranosyl-(6 → 1)-α-L-rhamnopyranoside) with dimethyl sulfate in an aqueous solution of borax we have obtained 4'-methoxyrutin, $C_{28}H_{32}O_{16}$, with mp 167–171° C. From the products of its acid hydrolysis we isolated the aglycone, $C_{16}H_{12}O_7$, mp 296–298° C. The UV spectra of the aglycone with sodium acetate shows a small bathochromic shift of band I (11 mμ). Under these conditions, band II remains almost unchanged, which is characteristic for quercetin methylated in position 7 or 4'. Substance II is obviously methylated in position 4', since in an aqueous medium the methylation of flavonoids with dimethyl sulfate in position 7 is hindered [1].

By its physicochemical properties, UV spectra, and chromatographic behavior, the aglycone was identified as 3, 5, 7, 3'-tetrahydroxy-4'-methoxyflavone.

REFERENCE

1. T. H. Simpson and J. L. Beton, J. Chem. Soc., 4065, 1954.

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