

Synthesis, Structure and Acid-Base Behaviour of Some 4-Hydroxycoumarin Derivatives

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The compound 3,3'-[(4-hydroxy-3-methoxy-5-nitrophenyl)methylene]-bis(4-hydroxy-2*H*-1-benzopyran-2-one) (**1**) crystallizes in the monoclinic system, space group $P2_1/n$, with cell constants $a = 16.859(4)$, $b = 6.1624(15)$, $c = 25.164(4)$ Å, $\beta = 98.019(19)^\circ$. The two 4-hydroxycoumarin fragments are intramolecularly hydrogen-bonded between hydroxyl and carbonyl groups. The pH-dependent color changes of 4-hydroxycoumarin derivatives were studied by means of potentiometric and spectrophotometric titration. On the basis of the results obtained, the use of 3,3'-[(4-hydroxy-3-methoxy-5-nitrophenyl)methylene]-bis(4-hydroxy-2*H*-1-benzopyran-2-one) as an indicator in alkalimetry and acidimetry is proposed.

Key words: 4-Hydroxycoumarin, X-Ray Diffraction Analysis, Acid-Base Titration, Spectrophotometry, Indicators