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Potentiometric and Spectroscopic Determination of Acid Dissociation Constants of Some Phenols and Salicylic Acids

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Abstract: The dissociation constant of the catechol derivatives 4-nitrocatechol (NCAT), 2,3-dihydroxybenzoic acid (2,3-DHBA), 3,4-dihydroxybenzoic acid (3,4-DBHA), 3,4-dihydroxyphenylacetic acid (3,4-DPHA) and 3,4-dihydroxycinnamic acid (3,4-DHCA) were identified in 0.1M NaClO₄ ionic medium, at $t=25^{\circ}\text{C}$, by potentiometry. In addition, the first and second dissociation constants of the salicylic acid derivatives 5-nitrosalicylic acid (5-NSA), 4-hydroxysalicylic acid (4-HSA) 5-nitrosalicylic acid (5-HSA) were also determined by potentiometry. Furthermore, the second acid dissociation constants of these ligands were evaluated in $I=0.1\text{M NaClO}_4$ ionic medium, at a temperature of 25°C by computer analysis of spectroscopic data.

Key words: Acid dissociation constants, catechol derivatives, salicylic acid derivatives.

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