

Electrochemical oxidation of methylenedioxyamphetamines

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Four amphetamine derivatives bearing a methylenedioxy group at positions 3 and 4 of the benzene ring and differing in their substitution at C(6) were studied by differential pulse voltammetry in aqueous media. These experiments showed a single oxidation peak for the C(6)-H, -Br and -Cl compounds, while the C(6)-NO₂ analogue was not oxidized. The oxidation peak is interpreted as due to the removal of one electron from the aromatic electrophore with formation of a radical cation stabilized by the dioxole ring. The linear relationship between the peak current and the concentration of the derivatives is appropriate for development of a quantitative method for their determination. pK_a values were determined using both electrochemical and spectrophotometric methods. © 1993.