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Electrochemical studies of some carbazole derivatives via cyclic voltammetry and convolution - Deconvolution transforms

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Abstract
Three carbazole chromophores derivatives featuring dicyno, cyano, ethyl acetate and dimethyl acetate groups as an acceptor moiety with a π- conjugated spacer and N-methyl dibenzo[b]pyrole as donor were investigated electrochemically at a platinum electrode in 0.1 mol/L tetraethylammonium chloride (TEACl) in acetonitrile solvent via cyclic voltammetry, convolution - deconvolution transforms and digital simulation techniques. Cyclic voltammetric study revealed that the presence of a single reversible oxidative peak due to two sequential electron transfer (EE scheme) and unidirectional reductive peak which proceed as ECEC mechanism. The electrode reaction pathway, the relevant chemical and electrochemical parameters of the investigated carbazole chromophores were determined using cyclic voltammetry, convolution- deconvolution transforms and chronoamperograms. The extracted electrochemical parameters and the nature of the electrode reaction were verified & confirmed via digital simulation method. © J. New Mat. Electrochem. Systems.

Author Keywords
Carbazole derivatives; Convolution transforms; Cyclic voltammetry; Digital simulation

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