THE ELECTROCHEMICAL EVOLUTION OF NOVEL SUBSTITUTED NAPHTHOQUINONE DERIVATIVES

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A great deal of interest has recently been evinced in the synthesis of novel quinone derivatives because of the high biologic activity properties of these kind of compounds[1, 2]. The important biological activities of benzo- and naphthaquinone compounds can be summarized as antitumor, antimalarial, antileishmanial...etc. [3]

The capacity of acceptance of one or two electrons of quinones causes to form radical anion or dianion species. Electron attracting or donating groups also affects the redox properties of quinones [4].

In this study, the new substituted naphthoquinone compounds were synthesized from the reaction of 2,3-dichloro-1,4-naphthoquinone with nucleophiles. The structures of these novel compounds were characterized by using Micro analyses, $^1$H-NMR, $^{13}$C-NMR, FTIR, MS, UV-Vis. Cyclic voltammetric measurements were performed in a conventional three-electrode cell using a computer controlled system of a Gamry Reference 600 Model potentiostat/galvanostat. A polished platinum disc was used as a working electrode with a 0.071 cm$^2$ surface area. A platinum wire served as the counter electrode. Electrochemical grade tetrabutylammonium perchlorate (TBAP) was employed as the supporting electrolyte at a concentration of 0.10 M.

Scheme 1. Electron redox steps of novel naphthoquinone derivatives.

References