INVESTIGATION OF POLAROGRAPHIC AND VOLTAMMETRIC BEHAVIOUR OF MORDANT DYE (C.I. 17135)

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A number of azo dyes, which are becoming extensively scattered throughout the environment around manufacturing plants, exhibit genetic or ecotoxic properties leading to the need for electrochemical reaction mechanism and analytical determination. Generally polarographic and voltammetric techniques have been used for determination of electrochemical behaviour of the organic compound in different solution media. Therefore, electrochemical reaction mechanism of azo dyes has been explained by using modern polarographic and voltammetric techniques [1-4].

The aim of this investigation was to study the electrochemical reduction of mordant dye(C.I. 17135) in aqueous media using direct current polarography (DCP), differential pulse polarography (DPP), square wave voltammetry (SWV) and Cyclic voltammetry(CV) techniques. The polarographic and voltammetric experiments were carried out using a computer controlled electro analysis system (Metrohm 757 VA Computrace Electrochemical Analyser). A three electrode combination system was used. This consisted of a Multi Mode Electrode (DME, SMDE and HMDE), a Ag/AgCl reference electrode and a Pt wire auxiliary electrode. It has been chosen Britton Robinson buffer solution media as supporting electrolyte. All the measurements were carried out at room temperature.

It has been explained electrochemical reaction mechanism by using SWV, DPP, DCP and CV voltammetric and polarographic techniques in different pH range 2.0-12.0. From all the polarographic and voltammetric data it has been suggested reaction mechanism. At the same time, it has been determined optimum conditions for the analytical applications.

References