Investigation of Electrochemical Behavior of Mordant Dye (C.I. 17135)

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In this study, the electrochemical behavior of Mordant dye (C.I. 17135) was investigated in Britton-Robinson (BR) buffer (pH 2.0-12.0) media by using different techniques, which are square wave voltammetry (SWV), cyclic voltammetry (CV), differential pulse polarography (DPP), direct current polarography (DCP) techniques. The polarograms and voltammograms of the dye on a static mercury drop electrode (SMDE) and hanging mercury drop electrode (HMDE) show one reduction peak corresponding to the two-step four electron electrode reaction mechanism. In SW voltammograms and DP polarograms of the dye, a broad shoulder peak was seen in the pH range of 2.0 to 12.0, due to the adsorption of the azo dye on the electrode surface. The shift of the peak potentials to more negative values indicate that the protons are involved in the electrode reaction. The effect of scan rate on the reduction peak has been studied at different pH values.

Keywords: Mordant dye, reduction, scan rate, reaction mechanism.

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