

Photovoltaic effects of dye-deposited metal electrodes in electrolytic media

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Photovoltaic effects of Methyl Violet dye deposited on copper electrodes have been extensively studied with I-/I₃⁻ redox couple. Methyl violet is an electron acceptor, which we used as the sensitizer of this study. Photocurrent of 150 mA/cm² and photovoltage of 200 mV could be observed at 1000 W/m² light intensity with this system. The photocurrent generation mechanism is thought to be transfer of electrons accepted by Methyl Violet dye from the copper plate on which the dye is deposited to the electrolyte with the photo excitation of the dye. The photocurrent action spectrum of the system consistent with the absorption spectrum of the dye indicating that photocurrent results from the excitation of the adsorb dye on copper plate.