



EFFECT OF LIGAND ATTACHED TO FLUORESCEIN ON THE PHOTOCURRENT OF DYE SENSITIZED SOLAR CELLS

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In today's society, it is becoming ever important to find alternative sources of energy that are both cheap and efficient. Converting solar energy into electricity provides a much-needed solution to the energy crisis the world is facing today. With continuous research studies conducted in this field, we have come across the third generation of solar cells; the dye sensitized solar cells. Several types of dyes have been individually employed to study sensitization process of TiO₂|sensitizer|p- semiconductor type solar cells and to produce low-cost dyes; much work is being directed toward synthesizing all-organic, ruthenium-free dyes with high extinction coefficients and broad absorption bands with large solar spectrum overlap. An enhancement of efficiency of this type of solar cells was observed by appropriate coupling of dyes with a same chromophore and different ligand attachments. A comparable study of multi-dye systems was carried out by means of understanding the charge transfer mechanism of multi-dye coated electrodes. The dyes used in this study are organic dyes without any metal influences. They have given photocurrent of 172 μAcm^{-2} , 252 μAcm^{-2} and 127 μAcm^{-2} and a lower efficiency of performance compared to any metal centered dyes.

Keywords: *Fluorescein; Ligand effect; Photocurrent; Dye sensitized solar cell; Anthrance A; 5(6) Carboxy fluorescein; Erythrosin B.*