Mono- and bi-cyanoacrylic acid substituted phenothiazine based sensitizers for dye sensitized solar cells

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ABSTRACT

Phenothiazine and cyanoacrylic acid moiety based sensitizers were synthesized for dye sensitized solar cell application. Absorption and electrochemical properties of the sensitizers having mono- and bi-substituted cyanoacrylic acids were studied. The mono-cyanoacrylic acid substituted phenothiazine sensitizer has more light harvesting ability due to its high molar extinction coefficient. The photovoltaic performance of mono-cyanoacrylic acid substituted phenothiazine sensitizer was slightly greater compared to the bi-cyanoacrylic acid substituted phenothiazine sensitizer which was attributed to the effect of anchoring groups in the sensitizer.

KEYWORDS

Phenothiazine; Anchoring group; Solar energy materials; Spectroscopy; Dye sensitized solar cells

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