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<https://doi.org/10.1142/S0218625X18501640> | Cited by: 11 (Source: Crossref)

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Abstract

Titanium dioxide (TiO₂) nanoparticles have been synthesized by the cost effective Sol–Gel technique. Characteristics of TiO₂ nanoparticles were investigated by X-ray diffraction and Fourier Transform Infrared spectroscopy. The Eosin Y dye and dye extracted from Hibiscus tea have been successfully used in fabrication of the dye sensitized solar cell. The photovoltaic performance of the dye sensitized solar cell indicates that the short circuit photo current, open circuit voltage and efficiency of the DSSC using Eosin Y dye is 10 times more compared to the DSSC using the Hibiscus dye.

Keywords: Titanium dioxide nanoparticles, Eosin Y dye, hibiscus dye, dye sensitized solar cell (DSSC)

We recommend

Natural dyes as sensitizers for dye-sensitized solar cells
Chu Qin et al., Functional Materials Letters, 2018

Efficiency of Solar Cells Based on Natural Dyes with Plasmonic Nanoparticle-Based Photo Anode
Kirti Sahu et al., International Journal of Nanoscience, 2018

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Photovoltaic performance of dye-sensitized solar cells using TiO₂ nanotubes aggregates produced by hydrothermal synthesis

Qiufan Chen et al., International Journal of Modern Physics B, 2015

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