Short Communication

Studies on Photoelectric Performance of Natural Dyes from Safflower

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The TiO₂ nanoparticles thin films was used to prepare the dye-sensitized solar cells (DSSCs) as photoelectrode and natural dyes as photosensitizers. The sensitized TiO₂ based solar cell used nature dye carthain and hydroxysafflor yellow A as sensitizer, which were extracted from the abundant Hehuang safflowers in Qinghai province of China. The DSSCs exhibited short-circuit photocurrent density (J_{sc}) value of 2.193 mA·cm⁻², open-circuit photovoltage (V_{oc}) of 0.61 V, the fill factor (FF) of 0.50 and solar energy-to-electricity conversion yield (η) of 0.664 %. Natural dyes as sensitizers for DSSCs are promising because of their environmental friendliness, low-cost and designable polychrome modules.

Keywords: Natural dye, Dye-sensitized solar cells, Safflower

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