

## Photosensitization of Nanoporous TiO<sub>2</sub> Films with Natural Dye

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The dye-sensitized solar cell (DSSC) was assembled by using natural dyes extracted from ssuk, bamboo, red maple leaves as photosensitizers. The Voc from 0.53 V to 0.67 V, The Isc from 1.49 mA/cm<sup>2</sup> to 0.64 mA/cm<sup>2</sup>, and fill factor from 0.55 to 0.66 were obtained from the DSSC sensitized with natural dye extracts. Based on investigation on the structure and properties of dye molecules, it was found that red maple leaves extracts possesses the best photosensitized effect in the extracts of several kinds of natural dyes chosen, which is due to the better interaction between the carbonyl and hydroxyl groups of anthocyanin molecule and the surface of TiO<sub>2</sub>, and act as efficient sensitizers. Low cost and widely available natural dye as an alternative sensitizer for dye-sensitized solar cell is promising.