

## EXTRACTION AND UTILIZATION OF PLANT PIGMENTS FOR THE USE OF SENSITIZATION IN SOLAR CELLS

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Colorants are used for various purposes such as food colouring, cosmetic things, and material fabrication. Dyes are also used as sensitizer in Dye Sensitized Solar Cells (DSSC) for more than two decades. Although commercial dyes are efficient than natural dyes, the natural dyes are preferred because of low cost, easiest extraction, widely available, and environmentally friendly. Various components of a plant such as the flowers petals, leaves and bark have been tested as sensitizers. In this review, 14 different plant pigments were extracted to give an optimal natural dye as sensitizer in DSSCs. For that, the UV-Visible spectroscopy was used to analyses to each pristine plant extract. Then, from the absorbance spectra, the plant materials were selected which showed high absorbance peaks in UV and Visible regions. In this study, purple bush bean flowers and spinach fruits extracts were selected for further analysis due to their strong absorption. Cells with TiO<sub>2</sub> layer were immersed into the extracts selected for 24 hrs. The absorption of [TiO<sub>2</sub> / dye] was measured in visible region, and I-V characteristic curves were obtained. The results show that; the purple bush bean flowers extract has the promising ability to use as sensitizer in DSSCs among the other plant materials which were tested.

**Keyword:** Extraction, DSSC, U-V absorption, TiO<sub>2</sub>, Sensitizer

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