

Highly efficient bio-based carbonaceous counter electrode for dye-sensitized solar cells

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The use of platinum, an expensive and scarce element, in dye sensitized solar cells may affect the cost and commercialisation of the technology. In this regard preferable candidates would be materials which are abundant and cost effective. Carbonaceous materials are promising materials for being abundant and having many suitable characteristics such as porosity, conductivity, high surface area, chemical and thermal stability. We propose to use carbonaceous materials as counter electrode for dye-sensitized solar cells to replace Pt. The carbon electrocatalyst is prepared from organic waste such as apricot and/or walnut shells. The material is characterized by various techniques including XRD, SEM, EDS, FTIR. Also photovoltaic and electrochemical properties of solar cells based on novel counter electrode are measured.