

ABSTRACT

The TiO₂ based solar cells are developed due to their low cost and simple fabrication. However, the efficiency is low and the material only absorbs light above 3,1 eV (ultraviolet spectrum). In this study, a TiO₂ based solar cell was fabricated using spin coating method. In order to increase its efficiency a red dragon fruit dye sensitizer is added. We found that the efficiency of TiO₂ solar cells depends on rotational speed of spin coating, TiO₂ mass, and the additional red dragon fruit dye. Using 40 grams of TiO₂ coated on FTO wafer and three steps of spin coating speed (step 1 : 500 rpm; step 2 : 1200 rpm; step 3 : 3500 rpm), as well as a mixture of PVA and LiOH electrolyte polymer, the obtained efficiency is 0,007 %. This efficiency increases up to 0.024 % after the solar cell is soaked in red dragon fruit extracts for 48 hours.

Keywords : Titanium Dioxide, red dragon fruit dye, spin coating