Abstract

The extract of Jambolão (java plum), Eugenia jambolana Lam, was used as a natural sensitizer of a wide band-gap semiconductor (TiO2) in photoelectrochemical solar cells. The natural dye, adsorbed onto the semiconductor surface, absorbs visible light and promotes electron transfer across the dye/semiconductor interface. Photogenerated current and voltage as high as 2.3 mA and 711 mV, respectively, were obtained and effective conversion of visible light into electricity was achieved. The use of a natural product as the semiconductor sensitizer enables a faster and simpler production of cheaper and environmentally friendly solar cells.

Keywords

photoelectrochemical solar cell; natural dye; Jambolão (java plum); energy conversion; dye sensitized solar cells.