

ABSTRACT

Among various other renewable source of energy, solar energy is one of the appropriate renewable and green energy sources. The solar cell is the elementary building block of the photovoltaic technology. Though inorganic solar cell give good efficiency its cost and size are its limitation, to overcome this problem organic solar cell are of great interest. Among various organic solar cell dye-sensitized solar cells (DSCs) are promising alternative to Silicon solar cells due to its cost effectiveness and flexibility, but the efficiency of DSC is much less than silicon solar cells. To improve the efficiency of the cell research are going on. The present work gives emphasis to improve the efficiency of the cell by modifying the working electrode. Generally TiO_2 is used as working electrode due to its low cost, widely availability, non toxicity, less prone to corrosion, easy synthesis, large surface area and high carrier electron mobility. To further increase the charge transfer from dye to the semiconductor electrode, metal of large atomic radii can be used as a sensitizer which may improve the charge transfer. In the present work metal sensitized titania nanoparticle and thin film were synthesized using sol-gel. All the prepared nanoparticle were characterized by XRD, SEM, TEM, EDX, FTIR and UV-DRS and thin film were SEM, EDX and UV-DRS. The prepared thin film was then used for the fabrication of DSC.