Investigation of Graphene-MoS_2 Nanocomposite as Counter Electrode in Dye-Sensitized Solar Cells

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Abstract : Dye-sensitized solar cells are sustainable tool for generating electrical energy using sunlight. To develop this technology, obstacles such as cost and the use of expensive compounds must be overcome. Herein, we employed a MoS_2/graphene composite instead of platinum in the DSSCs. Platinum is an efficient and conventional counter electrode in the preparation of DSSCs, for this purpose, the effect of the presence of platinum electrode was also studied under similar conditions. The prepared nanocomposite product was checked by analysis methods to confirm the correctness of the construction and the desired structure. Finally, the DSSCs were fabricated using MoS_2/graphene composite, and to compare the results, the DSSCs were also prepared using platinum. The results showed that the prepared composite has a similar performance compared to platinum and can replace it.

Keywords : efficiency, dye-sensitized solar cell, nano-composite MoS_2, platinum free
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