The physical characteristics of photo-anode and counter electrodes have a significant effect on the energy conversion efficiency of dye sensitized solar cells (DSSCs). In this study, the MgO-ZnO nanocomposites with various doping amount of MgO were obtained using as photo-anode electrodes and applied to assembly of the DSSCs. The doctor blade method was used for the fabrication of undoped and MgO-doped Zn paste on the ITO-coated glass substrates via glass bar and blade. An appropriate doping amount of nano-sized MgO in the photoelectrodes was favorable to improved photovoltaic properties of DSSCs, resulting from the increased amount of dye adsorption and enhanced absorbance of visible light. The promising effects of doping amount of MgO were evaluated in terms of optoelectronic parameters such as open-circuit voltage, short-circuit current density, fill factor and conversion efficiency. It is demonstrated that the optimal doping amount of MgO was 1.0 wt%, giving rise to open-circuit voltage, short-circuit current density, fill factor and the best conversion efficiency of 620mV, 4.02 mA/cm², 41.56% and 1.03 % much better than that of the dye sensitized solar cell without doping of MgO. Figure 1 shows the J_sc–V curve of DSSCs with MgO-doped ZnO. Figure 2 shows that the relationship of conversion efficiency(%) versus various doping amount of MgO in ZnO films for the DSSCs.

**Figure 1:** J_sc–V curve of DSSCs with MgO-doped ZnO

**Figure 2:** Relationship of conversion efficiency(%) versus various doping amount of MgO in ZnO films for the DSSCs