

Abstract

The preparation of ternary Ag-CeO₂-ZnO and binary Ag-CeO₂, Ag-ZnO and CeO₂-ZnO nanocomposites was successfully achieved through a co-precipitation method with sodium hydroxide acting as the precipitating agent. The structure and surface properties were characterized by Fourier-transform infrared spectroscopy (FTIR), X-ray diffraction (XRD) and UV-Vis spectroscopy. The Photoelectrochemical (PEC) studies reveal that the ternary(Ag-CeO₂-ZnO) composite photoanode have higher current density than binary composite i.e. 1.8mA /cm² at 0.7 V vs Ag/AgCl as compared to binary composite Ag-CeO₂ (0.466 mA /cm²), Ag-ZnO (0.248 mA /cm²) and CeO₂-ZnO (.080mA /cm²) respectively. Consequently, Ag-CeO₂-ZnO photocatalyst that has been generated displays a significantly greater efficacy in the process of photoelectrochemical for the production of H₂ when it subjected to solar light.