

Abstract

With the Urbanization, industrialization and technological advancements human life has changed a lot. Consumption of various forms of energy to improve lifestyle results in disposal of huge amount of waste in environment. Discharge of pharmaceutical waste into water bodies causes water pollution. Different methods have been used to treat waste water. Among them photodegradation is one of the best method due to its cost effectiveness. This study is based on the development of efficient Sulphur doped cesium tungstate photocatalyst by hydrothermal method using cesium acetate and tungstic acid for the degradation of antibiotics specifically amoxicillin. The as synthesized photocatalyst was characterized by UV-Visible spectroscopy, showed lambda max of 370nm and FTIR spectroscopy confirmed presence of metal oxide and metal-metal bonds. It was observed that change in pH can affect the photocatalytic activity of photocatalyst. Effects of different pH were studied for the photodegradation of AMX. At acidic pH 3 and at basic pH 8 Sulphur doped cesium tungstate showed best photocatalytic activity. A comparison of tungstic acid and Sulphur doped cesium tungstate in photodegradation was also carried out to observe the photodegradation efficiency of the catalysts.