

Influence of N⁶-benzyladenine and sucrose on in vitro direct regeneration and microrhizome induction of *Kaempferia parviflora* wall. Ex Baker, an important ethnomedicinal herb of Asia

ABSTRACT

Removal of ciprofloxacin (CIP) pollutant from wastewater using conventional process is particularly challenging due to poor removal efficiency. In this work, CIP was photocatalytically degraded using a porous ZnO/SnS₂ photocatalyst prepared via microwaves. The influence of process parameters (e.g., pH, catalyst mass and initial CIP concentration) and radical scavengers on visible-light induced degradation of CIP on the catalyst was investigated. From the study, it was found that visible-light induced degradation of CIP on ZnO/SnS₂ is a surface-mediated process and the reaction kinetics followed the Langmuir-Hinshelwood first-order kinetics. It was found that the optimum condition for CIP degradation was at pH of 6.1 and catalyst dosage of 500 mg L⁻¹. Higher catalyst dosage however led to a decline in reaction rate due to light scattering effect and reduction in light penetration.

Keyword: Visible-light; Ciprofloxacin; Photocatalysis; ZnO/SnS₂; Transformation products