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REMOVAL OF EMERGING POLLUTANTS FROM AQUEOUS SOLUTION USING SOLAR HETEROGENEOUS PHOTOCATALYSIS: SPIRAMYCIN AND MANCOZEB MIXTURE

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Abstract

Photocatalysis is one of the future alternatives of the classic processes for wastewater treatment because of its low costs and effectiveness. Using UV light and a catalyst this process can be conducted until total mineralization. In this study, solar photocatalytic processes have been employed for the removal of emerging pollutants mixture *Spiramycin* (SPM) and *Mancozeb* (MCZ) in tubular reactor. The maximum percentage of SPM and MCZ removal reach more than 96%. The pollutant concentration ratio in the aqueous solution can be an important factor influencing the photodegradation kinetics. In the mixture solution, *Mancozeb* (MCZ) concentration was varied with keeping the same *Spiramycin* (SPM) initial concentration (12 μmol.L⁻¹).

The results show that the presence of *Mancozeb* (MCZ) on excess in the solution influences significantly the *Spiramycin* degradation, which decreases considerably. The presence of *Mancozeb* acts as inhibit for the SPM photodegradation, this is due to the competition between these two molecules to be adsorbed on the catalyst surface.

The degradation efficiency of SPM decreases in an equimolar mixture of SPM and MCZ from 95% to 68%.

Keywords: codegradation, emerging pollutants, *Spiramycin*, *Mancozeb*, solar photocatalysis,

Received: July, 2020; *Revised final:* November, 2020; *Accepted:* December, 2020

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