

## ABSTRAC

This study investigated the synthesis of cadmium sulfide (CdS) for the photocatalytic degradation of ciprofloxacin, with the aim of determining the effectiveness of CdS synthesis in the photodegradation of ciprofloxacin. The method used was chemical bath deposition, where the substrate is immersed in a chemical solution containing precursors, leading to the deposition of material on the substrate surface. The substrate used was fluorine-doped tin oxide (FTO) glass. The synthesized CdS was characterized using SEM-EDX mapping, XRD, and UV-DRS spectrophotometry. The results of this study showed that CdS synthesized with variations in reaction time and solution molarity achieved the highest photodegradation percentage of ciprofloxacin at 40%, with a reaction rate of  $2.67 \times 10^{-2} \text{ min}^{-1}$ . Characterization using SEM-EDX showed that the samples had a spherical morphology with a composition of Cd, O, S, Sn, and uniform distribution of each element throughout the sample. Characterization using XRD showed that the CdS samples had hexagonal crystals with a diameter of 27.1 nm. Characterization using UV-DRS showed that the variation affected the band gap by 2.1 eV. ABS.

**Key word:** cadmium sulfid, chemical bath deposition, fotodegradation, ciprofloxacin