

## ABSTRACT

**MUTIAH ARUM PUSPITA.** Synthesis and Characterization of Cu<sub>2</sub>O/Co Thin Film Using Electrodeposition Method for Degradation Application of Methyl Blue. Mini Thesis, Chemistry, Faculty Of Mathematics and Natural Science, Universitas Negeri Jakarta, February 2021.

This study aims to determine the effect of cobalt on Cu<sub>2</sub>O thin film in increasing the photocatalytic properties of the degradation of methylene blue dye using the electrodeposition method. SEM measurements show that variations in the concentration of Co can change the morphology and size of the particles. The results of EDX analysis of thin film Cu<sub>2</sub>O / Co 0.005 M obtained the peaks of Cu, O, and Co, and in XRD measurements there were peaks of Cu<sub>2</sub>O, and Cu. To determine the electrochemical properties of the Cu<sub>2</sub>O / Co thin film that has been synthesized, PEC and EIS measurements were carried out. The results obtained were that the higher the Co concentration resulted in a large current density and a small resistance value. The percentage of degradation resulting from the undoped thin film Cu<sub>2</sub>O is 30.44% and Cu<sub>2</sub>O / Co 0.001 M; 0.005 M; 0.01 M; 0.05 M, respectively 34.64%; 40.28%; 60.06%; 64.72%. The results of the degradation percentage of variations in the concentration of Co showed that the higher the concentration of Co added had better photocatalytic performance against MB than thin film Cu<sub>2</sub>O.

**Keywords:** Cu<sub>2</sub>O thin film, semiconductor, photocatalysis, methylene blue, photodegradation