

SYNTHESES OF ZINK OXIDE (ZnO) NANOPARTICLES USING BREADFRUIT LEAVES EXTRACT (Artocarpus altilis) AS AN ADSORBEN OF CONGO RED

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ABSTRACT

Abstract. Liquid dye waste from industry contains many dangerous and toxic ingredients such as azo groups which have a negative impact on the environment, one of which is congo red dye waste. Adsorption of dye waste using nanoparticles such as ZnO is an alternative to reduce the concentration of dye waste. This research aims to synthesize and analyze ZnO nanoparticles using the breadfruit leaves extract (*Artocarpus altilis*) for complexing agent, determine the optimum adsorption time for congo red dye, determine the adsorption reaction order and the appropriate adsorption isotherm pattern. The adsorption results show that the optimum contact time is 30 minutes. The adsorption reaction order follows the pseudo 2nd order adsorption kinetics model and the corresponding isotherm model is the Freundlich isotherm pattern.

Kata Kunci: Adsorption, Congo Red, ZnO Nanoparticles, breadfruit leaves extract