SYNTHESIS OF THE SILVER NANOPARTICLES USING *MORINDA CITRIFOLIA'S* ROOTS FROM ETHANOL EXTRACTS AND THEIR DEGRADATION OF METHYLENE BLUE

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ABSTRACT

SYNTHESIS OF THE SILVER NANOPARTICLES USING *MORINDA CITRIFOLIA'S* ROOT FROM ETHANOL EXTRACTS AND THEIR DEGRADATION OF METHYLENE BLUE

Morinda citrifolia was used as reducing and stabilization agents for the synthesis of nanoparticles with high dispersion controllable and stability shape and size. Our study was used ethanol extract of *M. citrifolia' s* root to synthesize *M. citrifolia* AgNPs (MCEN) and this was applied in methylene blue degradation. To optimize the formation of AgNPs, different parameters including the concentration of MCE and $AgNO_3$, reaction time, initial pH value for MCE and temperature were investigated. MCEN was characterized by UV-Vis Spectrophotometer and FTIR. The optimum conditions were at 5 mL of MCE concentration, 90 min of reaction time, 1 mM of $AgNO_3$, pH 11.4 and 85 ºC for MCEN formation. The formation of MCEN was confirmed by colour changes from yellowish to dark brown. The absorbance peak of MCEN were obtained in range 400 to 450 nm by UV-Vis Spectrophotometer. FTIR showed that plant compound has been capped with nanoparticles. MCEN have a good catalytic activity on methylene blue (MB) dye reduction. The percentage of MB degradation by MCEN at 97.11% for 240 min of exposure time. Nano-size dosage systems have the ability to improve activity and overcome phyto-related problems. The synthesis of metallic nanoparticles using MCE, it emerges as a safe alternative to conventional biomedical methods.