

**GREEN SYNTHESIS OF SILVER NANOPARTICLES (AgNPs) AND
ITS APPLICATION FOR PHOTOCATALYTIC ACTIVATION OF
METHYLENE BLUE**

NUR DIYANA SYAZWANI BINTI ZAMBRI

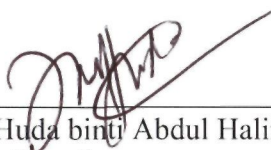
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Nurul Huda binti Abdul Halim
Supervisor
Faculty of Applied Sciences
Universiti Teknologi MARA
Kuala Pilah Campus
72000 Kuala Pilah
Negeri Sembilan



Nurul Huda binti Abdul Halim
Project Coordinator
B. Sc. (Hons.) Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
Kuala Pilah Campus
72000 Kuala Pilah
Negeri Sembilan



Mazni binti Musa
Head of Programme
School of Chemistry and
Environment
Faculty of Applied Sciences
Universiti Teknologi MARA
Kuala Pilah Campus
72000 Kuala Pilah
Negeri Sembilan

Date: _____

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ABSTRACT

GREEN SYNTHESIS OF SILVER NANOPARTICLES (AgNPs) AND ITS APPLICATION FOR PHOTOCATALYTIC ACTIVATION OF METHYLENE BLUE

The silver nanoparticles (AgNPs) were successfully synthesized by green route method using aqueous extract of *Azadirachta Indica* and silver nitrate solution. The effect of various parameters which are extracted volume of *Azadirachta Indica* leaf extract with reaction time and concentration of silver nitrate with reaction time were studied. It was found that hydroxyl and carboxylate groups of the aqueous leaf extract play major role for the formation of AgNPs through infrared spectra analysis. The most suitable extracted volume and silver nitrate concentration for formation of AgNPs were found to be at 3 mL and 1 mM respectively through UV-Vis analysis. Besides, the shape were mostly spherical and oval in shape. The size diameter range were noted from 30 to 80 nm with the average diameter of selected area in the SEM image was 70 nm. The strong signal and the sharp peak of silver atom in the EDX analysis also gives a clear indication of the presence of elemental silver in the sample with the weight percentage of 56.12 %. This study also revealed that the silver nanoparticles can be an excellent photocatalyst on reduction of methylene blue dye which was confirmed by the gradual decrease of maximum absorbance values at 664 nm when exposed to direct sunlight compared UV-A lamp irradiation that shows slower rate of degradation as recorded by UV-Vis spectrum.