

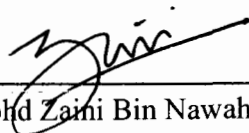
**BIOREMEDIATION OF AZO DYES BY USING**  
*Pseudomonas sp.*

**AMIRUL ASYRAF BIN ISHAK**

**Final Year Project Report Submitted in  
Partial Fulfillment of the Requirements for the  
Degree of Bachelor of Sciences (Hons.) Biology  
In the Faculty of Applied Sciences  
Universiti Teknologi MARA**

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This Final Year Project Report entitled “**Bioremediation of Azo Dyes by Using *Pseudomonas sp.***” was submitted by Amirul Asyraf Bin Ishak in partial fulfillment of the requirements for the Degree of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by



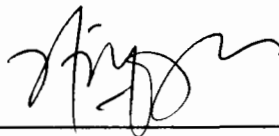
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Mohd Zaini Bin Nawahwi  
Supervisor  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
Pekan Parit Tinggi  
72000 Kuala Pilah Negeri Sembilan



---

Ilyanie Binti Haji Yaacob  
Project Coordinator  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
Pekan Parit Tinggi  
72000 Kuala Pilah Negeri Sembilan



---

Dr. Nor'Aishah Binti Abu Shah  
Head of Biology School  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
Pekan Parit Tinggi  
72000 Kuala Pilah Negeri Sembilan

Date: 22/1/16

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## ABSTRACT

### BIOREMEDIATION OF AZO DYES BY *Pseudomonas sp.*

Azo dye is a large class of synthetic dye that contains two adjacent nitrogen atoms between carbon atoms in its molecules. The wastewater products of azo dyes could cause pollution especially to the aquatic ecosystem. Bioremediation is one of the ecofriendly treatment that could convert azo dyes into less toxic substances. The aims of this study are to determine decolorization of azo dyes between Congo Red, Sunset Yellow and Acid Blue 9 by *Pseudomonas sp.* and to measure the optimum parameter for *Pseudomonas sp.* to degrade selected azo dye. The Gram negative bacteria of *Pseudomonas sp.* is used for azo dye decolorization. Screening decolorization process was left over for twenty four hours period of time under facultative anaerobic condition of room temperature. Next, optimization was done for four parameter which are type of carbon and nitrogen sources, dye concentration and inoculum size. Results of this study showed that Congo Red was the most decolorized dye among the three dyes with percentage of decolorization up to 70%. The optimum condition for *Pseudomonas sp.* to perform degradation on Congo Red based on carbon and nitrogen source could not be chosen as carbon and nitrogen source parameters have showed no significant different. However, there is significant different for optimum condition for *Pseudomonas sp.* to perform degradation on Congo Red based on dye concentration and inoculum size parameters which are 10mg/L and 10% (v/v) respectively. Throughout the study, decolorization of Congo Red has reached up to 70% by the action of *Pseudomonas sp.* with optimum dye concentration of 10mg/L and inoculum size of 10% (v/v).