

This Final Year Project Report entitled "The Effectiveness of Different Aquatic Plants as a Bioremediation Agent" was submitted by Farah Eleena Shamsualharis, a student of the Faculty of Applied Sciences, Universiti Teknologi MARA, and was approved by the Project Coordinator.

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

JULY 2013

ACKNOWLEDGMENTS

I hereby express my gratefulness and gratitude that I have completed my research project in time. My accomplishment was not done by me alone. There are a lot of good spirits who guided and motivated me along the way. I would like to take this opportunity to thank each and every one of them.

My most sincere gratitude toward my supervisor, Mr. Ajimi bin Jawan for his guidance throughout this project which incurred almost two semesters with his helpful comments and supports.

I also would like to thank other lecturers who spontaneously give valuable suggestions and advices to improve in every way to make this study reasonable. And I would like to extent my appreciation to laboratory assistances, most of it, Miss Ezawaniee Moulton with her technical assistance.

My sincere appreciation also goes to my parents for financial aid supporting this research. Lastly, I would like to thank all my friends who had given me lots of support and encouragement, physically and mentally.

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ABSTRACT

THE EFFECTIVENESS OF DIFFERENT AQUATIC PLANTS AS A BIOREMEDIATION AGENT

The study conducted to access the solution to reduce the level of heavy metals in surface water which can effects human health regularly. The ability of three different species of water floating plants which are water hyacinth (*Eichhornia crassipes*), water lettuce (*Pistia stratiotes*), and salvinia (*Salvinia natan*) to absorb cadmium (Cd) and iron (Fe) was compared to identified the most effective bioremediation agent. The study was done in 4 weeks in a row and data collected for each week. The test was studied by collecting the water sample contained different plants studied and undergo the process of plant samples extraction. The comparison between initial and final reading of the metals have been performed where the Transection Models were placed. The heavy metals present in water and plants were analyzed using the Atomic Absorption Spectrophotometer (AAS). Then, the data were used to calculate on the Bioconcentration Factor (BCF) to access absorption ability was defined as the quantity of Cd and Fe absorbed in the plant's tissues, and was expressed as a root/shoot ratio. *Pistia stratiotes* had the highest Bioconcentration Factor of these trace elements when grown in water environments with low concentrations of the two elements. The concentrations in the shoot were in the order of Fe (6 ppm) > Cd (1ppm). As for root, the concentration were found in the order of Fe (15 ppm) > Cd (0.7ppm). Generally, the concentration of these two elements in the roots was 3 to5 times higher than those in the shoots. This study shows water lettuce to be a promising candidate for phytoremediation of surface water polluted with Fe and Cd.