SCREENING AND ISOLATION OF EFFECTIVE MICROBES FOR DECOMPOSITION PROCESS AMONG DIFFERENT OF ORGANIC WASTES

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Plantation Management and Technology
in the Faculty of Plantation and Agrotechnology
Universiti Teknologi MARA

JULY 2019

ACKNOWLEDGEMENTS

Alhamdulillah and thanks to Allah S.W.T. all of the Almighty for the endless blessings for me in completing my final year project entitled SCREENING AND ISOLATION OF EFFECTIVE MICROBES FOR DECOMPOSITION PROCESS AMONG DIFFERENT OF ORGANIC WASTES successfully, as a partial requirement to get award of Degree of Bachelor of Science (Hons.) Technology and Plantation Management in Faculty of Plantation and Agrotechnology at Universiti Teknologi MARA.

It is with the great appreciation that I acknowledge the contribution and support of many participants in completing this project. Firstly, I would like to express my deepest gratitude to my supervisor, Sir Muhammad Nuruddin Bin Mohd Nor as he has projected an exemplary guidance, exposure and constant encouragement throughout my research work. The motivation and guidance had inspired me to improve my knowledge and work harder in order to achieve success.

I also want to take this opportunity to acknowledge my parents and family for their continuous love, understanding and willingness to share their thought, in order to help me keep improving my research work and tackle any problems that occurred. I am really grateful to get helps, support and cooperation from all lecturers, staff and my friends because these contribute in many ways to the success of this project.

Lastly, I would like to thank to everyone who had directly and indirectly involved in completing this final year project. I believed that all experiences and skills that I gained will be very useful and I feel looking forward to discover more knowledge onwards.

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ABSTRACT

SCREENING AND ISOLATION OF EFFECTIVE MICROBES FOR DECOMPOSITION PROCESS AMONG DIFFERENT OF ORGANIC WASTES

The organic waste is the biodegradable material that comes from either the plant or animal. It can be decomposed over time by microbes into carbon dioxide, water, methane and other simple organic molecules. Microorganism especially bacteria and fungus are able to decompose cellulose by an enzyme known as cellulase that produced by itself. Since plant are made up from cellulose, the study is focused on isolating and identifying the microbes that are responsible in decomposing the organic waste by screening for the microorganism that are able to produce cellulose enzyme. In this experiment, we isolate the bacteria from three different samples, which are; compost product, decayed wood and empty fruit bunch mix with oil palm frond. The samples collection is only taken from the fresh decomposing organic waste. The samples undergo serial dilution, screening of ability of the microorganism to solubilize phosphate by using National Botanical Research Institute's Phosphate (NBRIP), screening of ability of the microorganism to produce cellulose enzyme by using Carboxymethyl Cellulose Media (CMC) and treated with Congo Red and NaCl for confirmation of the targeted effective microbes. The result shows that the targeted effective microbes will produce the halo zone or clear zone formation after treated with Red Congo and NaCl solution. In this experiment, we manage to isolate and identify the bacteria that responsible in producing cellulase enzyme and solubilizing phosphate and known as *Streptomyces sanglieri.* The use of these organic waste for supply the nutrient to the plant should be practiced because the microbes are cultured in NBRIP that proven can be solubilize phosphate. In the other words, the effective microbes will promote the plant uptake due to its ability in converting the nutrient into available form to the plant.

Keywords: cellulose producing bacteria, phosphate solubilizing bacteria, effective microorganism.