APPLICATION OF PHOSPHATE SOLUBILIZING BACTERIA ON DIFFERENT TYPE OF SOIL TOWARDS AVAILABILITY OF PHOSPHORUS

NUR FARAHA BINTI UMAR

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

JULY 2016

DECLARATION

This final year project is a partial fulfillment of the requirement for a degree of Bachelor of Science (Hons.) Technology and Plantation Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

It is entirely my own work and has not been submitted to any other University or higher education institutions, or for any other academic award in this University. Where use has been made of the work of other people, it has been fully acknowledged and fully referenced.

I hereby assign all and every right in the copyright to the Universiti Teknologi MARA, which hence forth shall be the owner of the copyright in this work and that, any reproduction or use in any form or by any means whatsoever is prohibited without a written consent of UiTM

Candidate's signature: .....

Name: NUR FARAHA BINTI UMAR

Date: 28/7/2016

I hereby declare that I have checked the project and in my opinion, this project is adequate in terms of scope and quality for award of the degree of Bachelor of Science (Hons.) Technology and Plantation Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

Signature: .....

SALWA HJ. ADAM
Koordinator Diploma
Fakulti Perladangan dan Agroteknologi
Universiti Teknologi MARA (Melaka)
Kampus Jasin, 77300 Merlimau
Melaka

Name of Supervisor: .....

Position: .....

Date: 28/7/2016

ACKNOWLEDGEMENTS

In the name of the most benevolent and merciful, praises to Allah the Almighty and peace upon his messenger. First, I want to express my thankfulness and gratitude towards blessing from The Creator for giving me idea and strength throughout the process of completing my research. I am pleased to acknowledge the support from Faculty of Agrotechnology of University Technology Mara for proposing and facilitating this obligatory subject to its student. I also wish to show my gratefulness and special acknowledgment to my supervisor, Madam Salwa Binti Adam who accepted me as one of her students for allowing me to do a research work about Soil Science and also for her well guidance, patience and cooperation in the period of finishing my work according to the stated requirement from the faculty. Lastly, with honest love and gratitude especially to the people who are involved for their valuable opinion and assistance in contributing to the success of this work.

Thank you,

NUR FARAHA BINTI UMAR

TABLE OF CONTENTS

ABSTRACT

A study was conducted to identify the availability of P through application of Phosphate Solubilizing Bacteria (PSB) on different types of soils which are peat soil, acid sulphate soil, BRIS soil and soil mixture as control treatment. The different types of soil were inoculated with bacterial strains, *Bacillus safensis* and were planted with aerobic paddy as crop indicator. Analysis on soil pH, total P and available P in soil were carried out. The growth performance of paddy such as plant height was recorded weekly whereas the root length and plant biomass were collected at week six. Research showed that the aerobic paddy planted in peat soil and acid sulphate soils were significantly increased in plant height compared to other treatments. The root length and plant biomass grow on peat soil show the highest value compared to other soils. After application of PSB, all treatments showed an increase of soil pH except for BRIS soil which the soil pH were significantly decreased. Before the application of PSB, the total P in all treatments was high especially with soil mixture and peat soil. However after the application of PSB, total P in all soils was significantly decreased due to conversion the P to available P. BRIS soil has the lowest total P and available P.

.