SELECTED RRIM 2000 SERIES RUBBER SEED CLONES IDENTIFICATION THROUGH STATISTICAL ANALYSIS USING IMAGE MANIPULATION

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ACKNOWLEDGMENT

All praises be to mighty Allah S.W.T., the Most Gracious, Most Merciful and Most Beneficent for giving me strength and blessing me throughout the entire research and completion of this project. Peace upon our Prophet Muhammad S.A.W. who has given light to mankind.

I would like to acknowledge Mr. Fairuz Nazmie Osman, the project supervisor for the important and useful guidance in completing this project. Also, special thanks to Miss Nor Ezan from the Digital Image Processing group, Faculty of Electrical Engineering for her help and valuable information. Finally, author would like to show his gratitude to his beloved family, friends and who ever that has contributed in completing this project.

ABSTRACT

The rubber tree clones can be identified through the tree branch, the tree leaves, the rubber milk, and the rubber seeds. In this paper, the research in done to recognize the clone through the rubber seed by using image manipulation techniques based on the pixel from the image of the seed. The samples of seeds used are from the Hevea brasiliensis RRIM2000 series species. There are about 33 clones in this series. However, only five of the series is selected (RRIM2002, RRIM2015, RRIM2020, RRIM2023, and RRIM2024). Samples of this rubber seeds are captured by using a digital camera under a control light, stored and later to be processed by using the Matlab software. The data extracted from the histogram produced from the Matlab is then analyzed using the SPSS software. The statistical result from the error plot and the one-way ANOVA shows that it is hardly to differentiate the clones as the clone does not show a clear differences between each clones.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Rubber tree is an important plant in the world to supply the raw material for manufacturing. In order to increase the production from rubber tree i.e. latex and heveawood, the seeds planted must be from the quality of rubber tree. Therefore, seeds planted must be from the quality rubber tree series clones *e.g.* RRIM2000 series. There are about 33 types of clone within the RRIM2000 Series [1].

At the same species source from *Hevea brasiliensis,* there were many differences of intensity of brown color and pattern feature at seed's surface based on clone series. The rubber seed's inspector just looks the surface of seeds to decide the type of clones. However, these methods will consume time, percentage accuracy and as well as cost in order to trained new worker or farmer with regards to the identification of rubber seed clones.

This project is similar from the previous project, however for this research the analysis is based on the pixel projected from the image of the rubber seed surface. The factor that influenced of the pixel usually depends to the brightness of surface material which differs in grayscale image. Application from this factor was used in order to achieve the objective of this project.