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MSc

January 2018

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Thesis submitted in fullfillment
of the requirements for the degree of
Master of Science
(Agro-Biotechnology)

Faculty of Plantation and Agrotechnology

January 2018

ABSTRACT

Raw materials for local uses and herbal products are insufficient as the demand is keep increasing by year. Most of the raw materials used are imported and very few from wild. This situation will lead to adulteration with low quality planting materials. Mass production of *Labisia pumila* clones is one alternative to overcome this shortage. Since these clones are not yet produced locally, it is important for this species to undergo propagation and testing at different environment in different locations. It is for choose only stable clones that have good mean performance over a wide range of environments. The objectives of this study are: i) to investigate the effects of rooting ability in leaf cuttings of eight clones of *L. pumila* by using different leaf parts, ii) to evaluate genotype and environment interaction (GxE) and its phenotypic stability of eight clones of *L. pumila* planted at four different locations and iii) to determine the amounts of total phenolic content (TPC) from *L. pumila* leaves extracts planted at four different locations. At early stage of study, eight selected clones of *L. pumila* (KF01, KF02, KF03, KF04, KF05, KF06, KF07 and KF08) were propagated using leaf cuttings to produce many uniform ramets. Three different leaf parts (top, middle, and bottom) were used. All the clones have high ability for rooting. The percentage of rooting is more than 80% and mean of root lengths for all the clones are more than 3.0 cm. For the root length versus leaf parts, results have showed bottom leaf part has high ability compared to middle and top part. However, clone KF01 have showed the high mean of root length. Results for root length in ascending order are middle leaf part (8.41 cm ± 0.83) > bottom leaf part (7.62 cm ± 0.75) > and top leaf part (6.45 cm ± 0.65). After have been raised nine months at Nursery, the eight clones selected are tested at four different FRIM Research Sub-Stations; SPF Mata Ayer, Perlis; SPF Maran, Pahang; SPF Setiu, Terengganu; and FRIM Kepong, Selangor. A randomized complete block design (RCBD) with 3 blocks is used. Plant spacing is 0.7 x 0.4 m in area of 0.0014 ha. Plant growth characteristics such as height (cm), leaf number, leaf length (cm), leaf width (cm) and collar diameter (mm) of *L. pumila* are evaluated. The data are analyzed using analysis of variance (ANOVA) to quantify the variation existing among clones for various plant growth characters. At individual location, clones main effect is found in giving high contribution for the growth of eight clones *L. pumila* as well as for across the locations. However, interaction between clones and location main effects across the locations has showed high significant differences of mean square. Thus, interaction exist has raised the need to use regression analysis by Eberhart and Russell (1966) and method of means by Francis and Kannenberg's to predict the stability. Results have showed both clones KF07 and KF08 are well adapted across locations and showed its superiority in growth as both present in Group I of scattergram by Francis and Kannenberg's method. At the end of study, it is clearly showed the trend of TPC for eight clones *L. pumila* are different and inconsistent between four trial locations. Clone KF03 from SPF Setiu have high mean of TPC, 1200 mg/100g GAE followed by clone KF01 (900 mg/100g GAE). Whereas, clone KF07 and KF08 has been recorded in low mean of TPC from the four trial locations by produce less than 400 mg/100g GAE. Thus, it is hoped that the results of this study will be used to optimize the growing conditions of selected *L. pumila* clones for produce better growth and rich with TPC at future commercial cultivated area.

ACKNOWLEDGEMENT

Alhamdulillah, thanks to Allah SWT whom with His willing giving me the opportunity to complete this master project entitled "Genotype by Environment Interaction and Phenotypic Stability Analysis of Eight Selected Clones Kacip Fatimah".

First and foremost, I want to thank my main supervisor Prof Dr. Mohamad Osman whom taught me lots about statistics and plant breeding. I am really respect him as he gave all his contributions of time and ideas to make my master accomplished though his daily schedule as a lecturer are tight. Besides, my second supervisor Dr. Shamsiah Abdullah whom always encouraged, guide and support me to accomplish the final stage of thesis. She also inspired and motivate me to explore more in plant breeding works as she has joy, passion and enthusiasm too in genetics and plant breeding.

I would like to express my deep and sincere gratitude to my head unit of Herbs Improvement at Forest Research Institute of Malaysia (FRIM), Dr. Farah Fazwa Md. Ariff for giving me opportunity to work while studying at this unit for these three years. She also acts as my co-supervisor whom always support and assist me in completing my research project and training me as a plant breeder. She is very good because always want me constantly in the track and kept thing moving during trial plot establishment and data collection in field.

The most important I would like to thank Ministry of Agriculture and Agro Based Malaysia (MOA) who gave funding under NRGS funds to conduct this herbal project of *Labisia pumila* (Kacip Fatimah) so successful. I am also grateful and deepest thanks to myBrain15 for providing financial support during my earlier stage of Msc.

Deepest thanks and appreciation to Herbs and Plant Improvement staffs (Muhammad Asri, Samsuri Toh Harun, Rosli Izhar, Ahmad Hasim, Halim Man, Noor Azmy, Rohaidah Ngah, Mohd Zaini, Yahaya Hamid, Mohd Azhar and Amran Haron) for their full efforts, energy and time in helping the works on multiplication of *L. pumila* (Kacip Fatimah), identification of sites, trial plot establishment, soil sampling, planting and inventory process. Then, special thanks to FRIM Sub-stations's staffs from Mata Ayer (Perlis), Maran (Pahang) and Setiu (Terengganu) who helped care the plants, monitoring water conditions if drought occurs, help in fertilizing, weeding and report the situations if we missed the opportunity to go to the field. Not least, I sincerely thank to students of industrial training that much help in this project

Last but not least, two persons who are very meaningful in my life, which is my parents for their love and encouragement throughout my study period. Thank you, mom and dad, for giving me strength to reach for the stars and chase my dreams. Finally, I dedicated this thesis to my husband, and my only son as appreciations for their smile, joke, love, support and understanding throughtout my difficult time of thesis writing.

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