ANATOMICAL DEVELOPMENT OF KEMUNTING (*Rhodomyrtus tomentosa* (Aiton) Hassk.) SEED

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2002

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By

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This project report is submitted in partial fulfillment of the requirements for the degree of Bachelor of Science (Biology)

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2002

This project report should be cited as:

Loh, S.Y. 2002. Anatomical development of kemunting (*Rhodomyrtus tomentosa* (Aiton) Hassk.) seed. Undergraduate thesis, Bachelor of Science (Hons) in Biology, Faculty Science and Technology, College University Science and Technology Malaysia (University Putra Malaysia Terengganu), Terengganu, Malaysia. 60 p.

ACKNOWLEDGEMENTS

This final year project required much work, and I am grateful to many people for their help. I specially thank to my supervisor Assoc. Prof. Dr. Sayed M. Zain bin S. Hasan, for his excellent advice and guidance to eliminate my uncertainty during the whole study and led me to complete my study successfully.

A very deeply thank you is dedicated to Mr. Mohammad Embong, the laboratory assistant of Histology Laboratory, Faculty Science and Technology, College University Science and Technology Malaysia (KUSTEM). His generous contribution and undeserved patience especially during the laboratory work of my study, make me possible complete my work punctually and correctly.

The professional opinions and advice from the lecturers of Faculty Science and Technology, KUSTEM, by reviewing my study and commanded during my presentation is highly appreciated. A special thank you to Dr. Siti Aishah for spending her time to held the seminar for final draft writing. The contribution of the coordinator for course BIO 4999, Dr. Aziz bin Ahmad is also appreciated, without his coordination this project would not be complete on time.

I also thank my course mates and friends for their help and ongoing encouragement to me. Besides, I appreciate the generous and helpful of those laboratory assistants of Faculty Science and Technology, KUSTEM and other staffs of KUSTEM and University Putra Malaysia, especially the librarians, to make my job much easier.

I remain the deeply grateful to my parents and my family especially my grandmother, without their support I could hardly complete this study. And finally, I thank to everyone whose has helped me complete this study directly or indirectly.

Thank you very much.

ABSTRACT

The anatomical development of kemunting (*Rhodomyrtus tomentosa* (Aiton) Hassk.) seed, a tropical shrub species, was investigated by using histological techniques. This anatomical study was conducted in order to provide a more complete understanding of kemunting seed development in the wild. The morphology features and the ovary sizes of kemunting flower buds and fruits were correlated with the anatomy of seed development. The earlier stages of ovule development were not highly differentiated histologically until the fertilization occured. The ovary had undergone its major histological differentiation when it developed into fruit. Embryogenesis and ontogenesis of kemunting after fertilization proceeded five remarkable events: (1) zygotic polarization and zygotic cell division; (2) proembryo and growth of the embryo; (3) nucellus and cotyledon development; (4) differentiation of integuments to tegmen and testa; (5) development of funiculus to hilum. The structures of the ovule before fertilization were differentiated into functioned organs when fertilization occured. The megaspore within the embryo sac had developed into the mature embryo and cotyledon; the inner integument and outer integument had developed into tegmen and testa respectively; the funiculus had become hilum in the late stage of development. The microplye remained unchanged from the early stage till the final stage. A description of seed development of kemunting reveals a closer insight of seed development for this species.

ABSTRAK

Perkembangan biji benih kemunting (*Rhodomyrtus tomentosa* (Aiton) Hassk.), sejenis spesis renek tropikal telah dikaji dengan menggunakan teknik histologi. Kajian anatomi ini telah dijalankan untuk memberi satu pemahaman yang lengkap tentang perkembangan biji benih kemunting dalam keadaan liar. Ciri-ciri morfologi dan saiz ovari pada tunas bunga dan bunga kemunting telah dikaitkan dengan perkembangan biji benih. Peringkat awal perkembangan oviul mengalami perbezaan yang kurang nyata secara histologi sehingga persenyawaan berlaku. Oviul mengalami perbezaan histologi yang utama pada masa perkembangan buah. Embryogenesis dan ontogenesis kemunting selepas persenyawaan mengalami lima perkara yang istimewa: (1) polarisasi zigot dan pembahagian sel zigot; (2) proembrio dan pertumbuhan embrio; (3) perkembangan nucellus dan kotiledon; (4) perbezaan integumen kepada tegmen dan testa; (5) perkembangan funikulus kepada hilum. Struktur oviul sebelum persenyawaan telah berkembang kepada organ berfungsi apabila persenyawaan berlaku. Megaspora di dalam kantung embrio telah berkembang kepada kotiledon serta embrio yang matang; integumen dalam dan integumen luar masing-masing berkembang kepada tegmen dan testa; funikulus berkembang menjadi hilum pada peringkat akhir perkemnbangan. Mikrofil kekal pada peringkat awal hingga ke peringkat akhir. Penghuraian tentang perkembangan biji benih mendedahkan satu pemahaman perkembangan biji benih yang mendalam untuk spesis ini.