

EFFECT OF SEED CLUSTER AND GIBBERELIC ACID (GA₃)
ON THE GENDER DEVELOPMENT OF SALAK
(*Salacca edulis* REINW.)

RAZIFAH BINTI MOHD RAZALI

MASTER OF SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
MALAYSIA

2007

8/6907

1100068320

Perpustakaan Sultanah Nur Zahirah (UMT)
Universiti Malaysia Terengganu



tesis
SB 123 .R3 2007



1100068320
Effect of seeed cluster and gibberellic acid (GA3)on the gender
development of salak (Salacca edulis reinw) / Razifah Mohd
Razali.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

1100068320

1100068320		

Lihat sebelah

HAK MILIK
PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

EFFECT OF SEED CLUSTER AND GIBBERELIC ACID (GA₃) ON THE
GENDER DEVELOPMENT OF SALAK (*Salacca edulis* REINW.)

DEDICATION

I would like to dedicate this research and resulting thesis to my parents -
Papa (Haji) Mohd Razali b. Yusoff and Umi (Hajjah) Rosmahani b. Che Haniffa for
their constant support and affection that has given me the ability to go through the
hard time and reach this stage. I am eternally grateful to them for the love and support I may
need and I can do anything and achieve anything I want. With their love and guidance I may
not have been able to do today. For this, I am eternally grateful to both of them.

RAZIFAH BINTI MOHD RAZALI

Thesis Submitted in Fulfillment of the Requirement for the Degree of Master of
Science in the Faculty of Agrotechnology and Food Science
Universiti Malaysia Terengganu

September 2007

1100068320

Abstract of the thesis presented to the Faculty of Agriculture, Universiti Putra Malaysia in fulfillment of the requirements for the degree of Master of Science.

EFFECT OF SEED CLUSTER AND GIBBERELLIC ACID ON THE GROWTH AND DEVELOPMENT OF *Sesuvium portuacastrum* FRUIT

RAZIFAH MOHD RAZALI

DEDICATION

I would like to dedicate this research and resulting thesis to my parents - Papa (Haji Mohd Razali b Yusof) and Umi (Hajjah Rahimahani bt Che Hamid) for their constant support and direction that has given me the ability to go through the hard time and reveal this research project at the end. They have constantly reminded me that I can do anything that set in my mind. Without their love and guidance I may not become who I am today. For this, I am extremely grateful to both of them.

Abstract of the thesis presented to the Senate of Universiti Malaysia Terengganu
in fulfillment of the requirement for the degree of Master of Science.

EFFECT OF SEED CLUSTER AND GIBBERELIC ACID (GA₃) ON THE
GENDER DEVELOPMENT OF SALAK (*Salacca edulis* REINW.)

RAZIFAH BINTI MOHD RAZALI

September 2007

Chairman : Associate Professor Awang Soh b Mamat, Ph.D.
Member : Associate Professor Sayed Mohd Zain b S. Hassan, Ph. D.
Adzemi b Mat Arshad, Ph. D.

Faculty : Faculty of Agrotechnology and Food Science

A series of experiments on growth and development of *Salacca edulis* REINW. were conducted in the greenhouse of Universiti Malaysia Terengganu (UMT) and in the field on undeveloped agriculture land (bris soil) in Tumpat, Kelantan. The nursery study was undertaken for six months followed by a field study for 24 months. In the nursery study, seeds were soaked in 0, 10, 50 and 100 ppm gibberellic acid (GA₃) and planted in individual polybags according to their type of seed clusters which comprised one, two and three seeds per fruit. The polybags were placed under warm, moist and shady conditions to avoid stress due to dryness and over-watering. The seedlings were then left for six months in the greenhouse before they were transplanted into the field. The aim of the study was to determine the possible effect of GA₃ and seed clusters in fruit of *Salacca edulis* REINW. on sex determination of the plant at the earlier growth. The field study, GA₃ treatments was again applied in four different concentrations; 0, 10, 50 and 100 ppm. Each treatment consisting of 18 plants and were replicated three times in a randomised completed block design

(RCBD). This trait of sex determination is a major problem in *S. edulis* orchard industry where the farmers always fail in identifying male and female plants at the earlier stage. *S. edulis* is dioecious with male and female plants similar in morphological feature, except the flower which appears during the reproductive stage. Based on the results of this study, there were strong relationships between numbers of seed per fruit with sexuality of the plant. For female plants; single seed produced 20%, two seeds produced 33% and three seeds produced 42%. It was a positive correlation between number of seeds and percentage of female plant they produced. It was concluded that fruit containing three seeds gave a better combination of male and female plants of *S. edulis* as it was good for commercial planting. Application of GA₃ treatment did not give a strong effect for gender determination. The highest rate of GA₃ (100 ppm) was suitable to promote early flowering. The male flowers contain auxin: Indole-acetic-acid (IAA) and Abscisic acid (ABA) but have no Gibberellin (GA₃). Meanwhile, the female flowers contain IAA and GA but have no ABA. This finding also proves that, with proper management such as the use of right organic fertilizer and irrigation system, *S. edulis* can be successfully planted on bris soil which has poor physical and chemical properties due to its lack of clay. This trial has opened a potential opportunity in the use of new crops on bris soil for commercial proposes.