



**UNIVERSITI PUTRA MALAYSIA**

***EFFECT OF DIFFERENT CONCENTRATION OF 6- BENZYL AMINO  
PURINE (BAP) ON SHOOT MULTIPLICATION OF SHOOT TIP EXPLANT  
OF F1 HYBRID ROCK MELON (*Cucumis melo. L*)***

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A Project report submitted to the Faculty of Agriculture Universiti Putra Malaysia in partial fulfillment of the requirement of the Research Project (PRT4999) for the award of the degree in Bachelor of Horticultural Science

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## CERTIFICATION

This project title ‘ Effect of different concentration of 6- Benzyl Amino Purine (BAP) on shoot multiplication of shoot tip explant of F1 hybrid rock melon (*Cucumis melo. L*)’ prepared by Nazila binti Che Mat ( 175164) and submitted to the Faculty of Agriculture in partial fulfillment of the requirement of the Research Project (PRT4999) for the award of the degree in Bachelor of Horticultural Science.

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## LIST OF ABBREVIATIONS

The following abbreviations were used in the text.

BAP	6- benzylaminopurine
Mg/L	Miligram per litre
%	Percentage
°C	Degree celcius
L	Litre
MS	Murashige and Skoog
MS	mean of Square
SS	Sum of square
F	Degree of freedom
pH	hydrogen ion concentration $-\log (H)$
RCBD	Randomized Complete Block Design
ANOVA	Analysis of Variance

## ABSTRACT

*Cucumis melo* L. which belonging to the family Cucurbitaceae is conventionally propagated by seeds. Low rate of seeds germination, expensive seeds for F1 hybrid and lacking of good parent materials for hybridization are the major problems faced by commercial growers. *In vitro* propagation method is the best way to produce large number of planting materials and under aseptic condition in controlled environment. The objective of this study was to determine the best concentration of BAP on multiple shoot formation from shoot tip explants of F1 hybrid rock melon. The experiment was conducted Randomized Complete Block Design (RCBD). The seed of F1 hybrid rock melon were germinated aseptically under *in vitro* conditions in order to obtain its shoot tip. The shoot tip was used to induce shoot multiplication under *in vitro* condition. The shoot tip was cultured in Murashige and Skoog (MS) medium supplemented with different concentration of BAP (0.0, 0.5, 1.0, 2.0, 5.0 and 10.0 mg/L). All treatment produced between 50- 100% shoot formation after 7 weeks culture. Treatment BAP concentration at 1.0 mg/L induced the highest mean number of shoots per explant .

## ABSTRAK

*Cucumis melo* L. tergolong dalam famili Cucurbitaceae yang dibiakkan melalui biji benih secara konvensional. Kadar percambahan yang rendah, biji benih yang mahal dan kekurangan bahan induk untuk penghibridan menjadi masalah besar bagi pengusahaan secara komersial. Kaedah pembiakan secara in vitro merupakan kaedah penghasilan bahan tanaman dengan jumlah yang besar di bawah keadaan persekitaran yang terkawal. Ojektiv bagi kajian ini ialah bagi menentukan kepekatan hormon BAP yang terbaik bagi menggendakan pembentukan tunas dari mercu pucuk sebagai eksplan bagi tanaman hibrid rock melon. Eksperimen ini dijalankan menggunakan RCBD. Biji benih hibrid rock melon dicambahkan secara aseptik di bawah keadaan in vitro bagi tujuan mendapatkan mercu pucuk. Mercu pucuk dikultur dalam media Murashige and Skoog yang ditambah dengan kepekatan BAP hormon yang berbeza (0.0, 0.5, 1.0, 2.0, 5.0 and 10.0 mg/L). Kesemua rawatan menghasilkan antara 50- 100% pertumbuhan pucuk selepas 7 minggu dikultur. Rawatan BAP hormon yang ditambah dengan BAP hormon pada kepekatan 1.0 mg/L menghasilkan jumlah min pucuk yang tertinggi.

## CHAPTER 1

### 1.0 INTRODUCTION

Rock melón (*Cucumis melo L.*) which is also known as Cantaloupe is a species that belongs to the family Cucurbitaceae. Its fruit is round or sometimes oval in shape and has a skin that looks like it's wrapped in a net. Its flesh is a mixture of yellow and orange and is soft, succulent and sweet. The fruit size ranged from 0.5 kg to 5.0 kg. There are various varieties of rock melón and each can be differentiated from the other based on individual fruit shape, size, and colour of the fruit pulp and fruit skin. The fruit provides a valuable alternative source of vitamin C, calcium and  $\beta$  carotein (Kirkbride, 1993).

Originally, cantaloupe referred only to the non-netted orange- fleshed melons of Europe. However, in more recent usage it has come to mean any orange- fleshed melón (*Cucumis melo L.*). The origin of melon was from India and Africa. It was originally cultivated by the Egyptians and later the Greeks and Romans. According to Andres and Marta (2008), currently, the plant is commercially planted in the United States, Mexico and in some places in Canada.

Melon can be planted at any time throughout the year, but the fruit produced during the dry period is superior. It is recommended to plant melón on ridges 30-40 cm high during the wet period. Seeds are planted no deeper than 2.5 cm below the soil in groups of 3-4 every 60 cm if grown on the ground or every 30 cm if trellised. Plants are thinned out when they reach the 2 leaf stage (Ahad et al., 1994)

The seed of F1 hybrid rock melón are very expensive in price and the percentage of germination is low. The production of hybrid seed of rock melón in Malaysia is also not possible due to the parent materials for hybridization are not available. Therefore, *in vitro* propagation of plantlets could be an alternative way for planting materials production which can maintain the characteristics of F1 hybrid plants and fruit of the rock melón (Chan and Lok, 2005)

Currently, *in vitro* of rock melón is not carried out extensively. Thus, clonal methods for propagation can overcome some difficulties in cultivation of the rock melón and make many improvement. At present, not much has been reported on the success of *in vitro* shoot regeneration of rock melón. Therefore, this experiment is conducted with the objective to determine the most suitable concentration of BAP on shoot regeration from shoot cultura of F1 hybrid of rock melón.

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