

# Programme & Abstracts

## 25<sup>th</sup> Malaysian Society of Plant Physiology Conference

*Environmental Conservation:  
Role of Plant Physiology*

18-20 August 2015

Sunway Lost World Hotel, Tambun, Ipoh, Perak



Organized by

**MALAYSIAN SOCIETY OF PLANT PHYSIOLOGY (MSPP)**



# **MSPPC 2015 ORGANIZING COMMITTEE**

## **Chairman**

Assoc. Prof. Dr. Normaniza Osman (UM)

## **Vice Chairman**

Dr. Ahmad Nazarudin Mohd. Roseli (FRIM)

## **Secretary**

Dr. Nor Mayati Che Husin (LGM)

Ms. Siti Shuhada Shuib (LGM)

## **Finance**

Dr. Puteri Edaroyati Megat Wahab (UPM)

## **Social & Publicity**

Assoc. Prof. Dr. Siti Hajar Ahmad (UPM)

Dr. Wan Zaliha Wan Sembok (UMT)

Ms. Engku Hasmah Engku Abdullah (MARDI)

## **Venue & Logistic**

Dr. Puteri Edaroyati Megat Wahab (UPM)

## **Scientific & Technical**

Assoc. Prof. Dr. Hazandy Abdul Hamid (UPM)

Dr. Tsan Fui Ying (UiTM)

Assoc. Prof. Dr. Roohaida Othman (UKM)

Assoc. Prof. Dr. Siti Aishah Hassan (UPM)

Assoc. Prof. Dr. Siti Hajar Ahmad (UPM)

Assoc. Prof. Dr. Phebe Ding (UPM)

Dr. Zamri Ishak (MARDI)

Dr. Lok Eng Hai (FRIM)

## **Technical Visit**

Dr. Lok Eng Hai (FRIM)

Dr. Ahmad Nazarudin Mohd. Roseli (FRIM)

# Table of Contents

FOREWORD BY MSPP PATRON .....	1
FOREWORD BY MSPPC 2015 CHAIRMAN .....	2
MSPPC 2015 ORGANIZING COMMITTEE .....	3
MSPP EXECUTIVE COMMITTEE 2013-2015 .....	4
PROGRAMME .....	5

## LIST OF ABSTRACTS

### PLENARY PAPERS

PL01 Understanding Somatic Embryogenesis and Dual Rooting Functions in Non Model Plant.....	9
PL02 Environmental Protection: The Role of Plant Physiologist .....	9

### ORAL PAPERS

001 Preliminary Analyses: Effect of Different Irrigation Systems on Growth and Plant Nutrient Content in Rubber ( <i>Hevea brasiliensis</i> ) Nursery Seedlings.....	11
002 Growth Performance of Cacao Seedlings Under Different Field Capacity .....	11
003 Management of <i>Mucuna bracteata</i> with Plant Growth Regulator .....	12
004 Use of Nano Materials as a Possible Technology for Improvement of Seeds Quality --	13
005 Development of Genic-SSR Markers by Deep Transcriptome Sequencing in <i>Aquilaria malaccensis</i> .....	13
006 Sequence Analysis of endo- $\beta$ -1,3-1,4-glucanase gene ( $\beta$ glu) Isolated from <i>Bacillus</i> SP 289, an Antagonistic Bacteria Against Rice Sheath Blight Pathogen.....	14
007 Effect of Salinity Stress on Carbohydrate Metabolism in <i>Cryptocoryne elliptica</i> Cultures.....	15
008 Antioxidative Defense Mechanism of Coconut Stem ( <i>Cocos nucifera</i> ) Against the Invasive Coconut Pest, Red Palm Weevil ( <i>Rhynchophorus ferrugineus</i> Olivier) .....	15
009 Effect of Drought Stress on Morphological, Physiological and Yield Characteristics of <i>Hibiscus sabdariffa</i> .....	16
010 Effects of Supplemented Calcium on Growth and Physiological Changes of Tomato Grown under Salt Stress .....	16
011 Effects of Chlorophyll Content and Maturity on Phenolic, Flavonoid and Antioxidant Activity of Leaf of <i>Moringa oleifera</i> (Lam.) .....	17
012 Impact of Tapping Intensity on the Physiological Changes of <i>Hevea brasiliensis</i> in Clone RRIM 2025 .....	17
013 Pollination Efficiency of the Stingless Bee, <i>Heterotrigona itama</i> (Hymenoptera; Apidae) on Chili, <i>Capsicum annuum</i> in Greenhouse .....	18

## ABSTRACT: ORAL PAPERS

### 001 Preliminary Analyses: Effect of Different Irrigation Systems on Growth and Plant Nutrient Content in Rubber (*Hevea brasiliensis*) Nursery Seedlings

**Abba, N.<sup>3,\*</sup>, Christopher, T. B. S.<sup>1</sup>, Husni, M. H. A.<sup>1</sup> and Zulkefly, S.<sup>2</sup>**

<sup>1</sup>Department of Land Management, Faculty of Agriculture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

<sup>2</sup>Department of Crop Science, Faculty of Agriculture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

<sup>3</sup>Department of Soil Science, Faculty of Agriculture, Federal University Dutse, Nigeria

\*Email: [abbajv2003@gmail.com](mailto:abbajv2003@gmail.com)

The growth of rubber seedlings is greatly influenced by various conditions such as irrigation, soil or substrate quality, drainage and fertilization. BX-1 system (RB 900 and BX-1 growing media) is a new nursery planting system introduced by Humibox Sdn. Bhd, with the main purpose of replacing the traditional (polybag with soil) way of raising seedlings. The soil used was a Munchong (Tropeptic Haplorthox) soil series. Water is the main factor that controls the growth of rubber seedlings, and different water application methods will have different effects on the growth and nutrient content of the seedlings. To evaluate the effect of different irrigation systems on growth and plant nutrient content in Rubber (*Hevea brasiliensis*) seedlings; a field experiment was conducted for six (6) months under the rain shelter in field 15. Agrobio complex, Faculty of Agriculture, UPM. The study was conducted using Randomised Complete Block Design (RCBD) with three replications. The four treatments used were; BX-1 system with overhead sprinkler (SPR) as (T1), BX-1 system with drip (DRP) as (T2), Bx-1 system with capillary wick system (WCK) as (T3) and polybag-soil with capillary wick system as control (CTRL). A known amount of water was given every day. A total of 120 seedlings of RRIM 2000 were used in the experiment with each experimental unit having 10 seedlings. Destructive samples were taken every 30 days to assess growth and leaf nutrient content (N, P, K, Ca, and Mg). The soil and media analyses showed that BX-1 had more than three times the nutrients compared with Munchong (Tropeptic Haplorthox) soil series. The pH of the BX-1 was 6.4 which indicated the availability of nutrients, while the soil pH was 4.6, which is rather acidic. It also had rather higher electrical conductivity (EC) of 1.2 dS m<sup>-1</sup>, which did not affect the growth of the plant. The BX-1 media had a very low bulk density (0.135 Mg m<sup>-3</sup>) which is a good characteristic of growing media as it allows easy handling, unlike mineral soil (1.43 Mg m<sup>-3</sup>), which makes handling and transportation difficult. The available water content of this media was only 2% while the soil (Munchong) had 3%. WCK irrigation system gave the highest leaf dry weight, nitrogen content and total leaf area. This was because the WCK has higher nutrient use efficiency, lower leachate compared with SPR and DRP and consequently lower nutrient loss. The research showed that using RB 900 can be adopted in a rubber seedlings nursery with a growing media that has good water retention and adequate available nutrients (BX-1 media).

---

### 002 Growth Performance of Cacao Seedlings Under Different Field Capacity

**Rozita, O.**

Malaysian Cocoa Board Locked Bag 211, Wisma SEDCO, 88999 Kota Kinabalu, Sabah, Malaysia

\*Email: [orozita@koko.gov.my](mailto:orozita@koko.gov.my)