ASEAN Plus Three
Graduate Research Congress

2nd APGRC

5-7 Feb 2014, Bangkok, Thailand

Program and Abstract Book

RESEARCH AND INNOVATION IN ASEAN PLUS THREE

Organized by
Faculty of Graduate Studies
Mahidol University
and
Council of the Graduate Studies
Administrators of Public and
Autonomous Universities

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2nd ASEAN PLUS THREE GRADUATE RESEARCH CONGRESS

February 5-7, 2014

Venue: S31 Sukhumvit Hotel, Bangkok, Thailand

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Message from the President of Mahidol University

Rajata Rajatanavin, M.D.
Professor

It is my great pleasure and honor to join the Opening Ceremony of the 2nd ASEAN Plus Three Graduate Research Congress.

Mahidol University has a long-standing policy to create and support quality graduate studies and research that have the potential for successful application and competition in the international arena. We deeply realize the importance of doing research to develop knowledge and innovation for the benefits of the society. We also emphasize as our main function to generate and nurture young researchers, to make the best use of our knowledge, and to encourage the dissemination of research results to the public.

The 2nd ASEAN Plus Three Graduate Research Congress is a good opportunity for graduate students to present the results of their hard work. This event will allow them to obtain expert opinions and suggestions from academic professors in related fields of study. Furthermore, graduate students can share their experience with other researchers from different faculties or different academic institutions. It is our hope that they will benefit by obtaining creative ideas and guidelines for conducting research and by expanding their network with other researchers to help enhance the quality of graduate students' research. Furthermore, the Congress also provides a platform for sharing of knowledge and experience among graduate studies administrators in the ASEAN Plus Three countries to strengthen our academic collaboration and bring about a brighter future in graduate education.

On behalf of Mahidol University, I would like to thank the Consortium of the Graduate Studies Administrators of Public and Autonomous Universities, the Office of the Higher Education Commission, the Faculty of Graduate Studies, Mahidol University and other parties involved for making the event possible.

At this auspicious moment, I would like to declare open the 2nd ASEAN Plus Three Graduate Research Congress. I wish you all a successful and meaningful Congress.

SCIENTIFIC COMMITTEE

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PROGRAM

Wednesday, February 5th, 2014

15.00-18.00 **Registration** (Foyer 5th level)

15.00-19.00 **Poster Set Up: All Groups** (Ballroom 2)

Thursday, February 6th, 2014

07.00-17.00 **Registration** (Foyer 5th level)

08.30-09.00 **Congress Opening** (Grand Ballroom)

Welcome Address by Professor Banchong Mahaisavariya
President, Council of the Graduate Studies Administrators of Public and Autonomous Universities (CGAU) and Dean, Faculty of Graduate Studies, Mahidol University

Address by Assoc. Prof. Kamjorn Tatiyakavee
Deputy Secretary-General, Commission,on Higher Education, Ministry of Education, *THAILAND*

Opening Remarks by Professor Rajata Rajatanavin
President, Mahidol University

Moderator: Anadi Nitithamyong, Deputy Dean for International Affair, Faculty of Graduate Studies, Mahidol University

09.00-09.30 **Keynote Lecture 1** (Grand Ballroom)
Postgraduate Education and Research Excellence
M.R. Jisnuson Svasti
Chulabhorn Research Institute, Thailand

09.30-10.00 **Keynote Lecture 2** (Grand Ballroom)
ASEAN University Networking and Initiatives for ASEAN 2015
Nantana Gajaseni
ASEAN University Network Executive Director, Thailand

10.00-10.30 **Coffee Break**

O-BS011

PHENOTYPIC RESPONSES OF THAI JASMINE RICE (*Oryza sativa* L. KDML105) AND ITS MUTANTS TO SODIUM CHLORIDE STRESS

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Abstract

Salt stress is a major abiotic stress affected morphology and physiology of crop plant, leading to reduction in crop productivity. The objective of this study is to evaluate the morphology and physiology of KDML 105 rice and its mutants under sodium chloride stress by focusing at booting stage of plant development. Plant materials were prepared by micropropagation prior to acclimated and transplanting into pots and cultivated until the booting stage of development was observed. They were then treated with salt stress by drenching the pots with with 0 or 150 mM NaCl solution for 15 days. At 10 days after treatment it was found that salt stress reduced net photosynthetic rate (NPR) of all plant line KDML105, MT4, MT5 and MT6 by 46.8±9.6%, 45.2±10.6%, 30.9±16.4% and 46.5±13.0%, respectively. Compare to its mutants, KDML 105 had more percentages of pigment reduction in leaves after treated with 150 mM NaCl. The reduction of chlorophyll a and chlorophyll b in KDML 105 was 64.4±3.8% and 72.7±7.5%, respectively when compared to control without NaCl (0 mM).

The total numbers of spikelet per plant were not affected by sodium chloride stress at booting stage. However, salt stress at booting stage for 15 days could significantly reduced the total grain weight per plant, which was observed in KDML 105 (72.2%), MT4 (66.7%), MT5 (45%) and MT6 (40%) when compared with condition without salt. This result indicated that the mutants had differently performed their phenotypic responses to salt stress than KDML105. These responses also effect to seed fertility and their productivity when salt stress was applied at booting stage. According to this present study, it was suggested that MT5 and MT6 shows their interesting phenotypes in response to salt stress and can further be used as candidate plant material for breeding program of Thai rice.

Keywords: KDML 105, Mutant, Salt stress, Chlorophyll, Grain weight

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