

**GENOTYPIC VARIATION AND ESTIMATION OF BLAST RESISTANCE
GENES ON BACKCROSS INBRED LINES (US-2*2/MALAY 2) USING
RICE BLAST DIFFERENTIAL SYSTEM**

KARLA TRISHA FERNANDEZ ALEJANDRO

An undergraduate thesis manuscript submitted to the faculty of the Department of Crop
Protection, College of Agriculture, Central Luzon State University
Science City of Muñoz, Nueva Ecija, Philippines
in partial fulfillment of the requirements
for the degree of

**BACHELOR OF SCIENCE IN AGRICULTURE
(Crop Protection – Plant Pathology)**

MAY 2018

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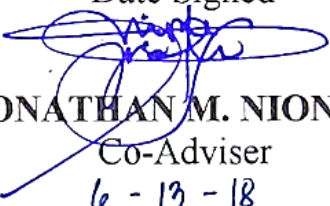
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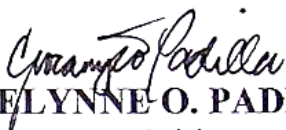
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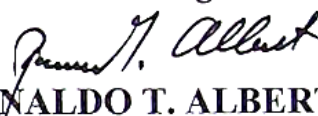
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major in Crop Protection

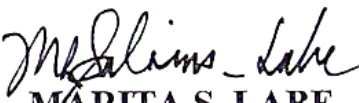
APPROVED:


RONALDO T. ALBERTO
Adviser
6-13-18
Date Signed

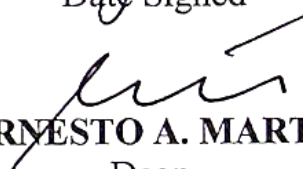

JONATHAN M. NIONES
Co-Adviser
6-13-18
Date Signed


CELYNNE O. PADILLA
Critic
6-13-18
Date Signed

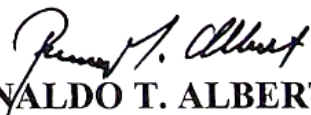

RONALDO T. ALBERTO
Department Research Coordinator
6-13-18
Date Signed


MARITA S. LABE
Department Chairperson
13 June 2018
Date Signed

ACCEPTED:


ERNESTO A. MARTIN
Dean
6-13-18
Date Signed

RECORDED:


RONALDO T. ALBERTO
College Research Coordinator
6-13-18
Date Signed

BIOGRAPHICAL SKETCH

The author, Karla Trisha F. Alejandro was born on December 3, 1998 at their humble home in Barangay Mauban, Balungao, Pangasinan. She is the third among the four children of Engr. James P. Alejandro and Mrs. Marivic F. Alejandro.

She started her primary education at the Mauban Elementary School and graduated as the class Valedictorian in the year 2010. She then took her secondary education at Rosales National High School where she also graduated as the class Valedictorian in the year 2014.

She pursued her dreams and enrolled at the Central Luzon State University (CLSU) where she took Bachelor of Science in Agriculture major in Crop Protection specialized in Plant Pathology.

She received the Certificate of Agricultural Science embracing With Honors Award in the year 2016. And during her college years, she was an academic scholar for several semesters.

She is one of the scholars of the Department of Agriculture - Agriculture Competitiveness Enhancement Fund (DA-ACEF) for her whole college years (2014-2018) and also a Tulong Dunong – Schools, Universities and Colleges (TD-SUC) scholar for a year (2017-2018). She is a proud member of the Pest Management Society (PMS).

Finally, she obtained her degree Bachelor of Science in Agriculture in the year 2018.

ACKNOWLEDGEMENT

The author extends her sincerest appreciation to all those people who have helped her in the completion of this study. Without them, this paper might not have been written.

Her earnest gratitude to Dr. Ronaldo T. Alberto, for serving as her thesis adviser, for all the knowledge, continuous support, guidance and inspiration he contributed to the author throughout the writing of this study.

She would also like to express her deep gratefulness and respect to Dr. Jennifer T. Niones and Dr. Jonathan M. Niones, her co-advisers from PhilRice, for building the foundation of this study, for continuously keeping her at the right track and for extending their patience and personal time for the enhancement of the study.

Also, her genuine thanks to Mrs. Celynne O. Padilla, her critic and Dr. Marita S. Labe, the department chairperson, for their helpful suggestions and technical expertise that led to the better improvement of the paper.

Her most appreciation to Ms. Juliet P. Rillon, Mr. Marlon Garcillano and Ms. Llewelyne Jain of the Crop Protection Division and Ms. Teodora E. Mananghaya of the Genetic Resource Division in PhilRice and to all their colleagues, for helping her professionally and for teaching her all the twists and turns during the conduct of the study. It was indeed a great opportunity to have worked with them as the author learned a lot and enjoyed their company at the same time. This study is the fruit of their teamwork.

And her candid gratitude to the DA-ACEF scholarship program. It is a great privilege to be a government scholar. Thank you for the support in her undergraduate studies and hoping that the program will help more aspiring students like the undersigned.

And also, a special thanks to Philippine Rice Research Institute (PhilRice) for sponsoring and funding this study.

Her board mates Ma. Niña, Carl Vincent and Jeff Michael, for always making the author laugh when she is feeling down on some circumstances on her thesis, for accompanying her in some activities before and during her thesis conduct, for encouraging her to do her best and for letting her ride on their motorcycles most of the time; Leandro, for helping her to weed her area during her nursery evaluation; Renalyn, for helping her prepare her seeds, for coming along with her early in the morning to evaluate her area and for always supporting her and believing that she can; and mostly Mr. Emman Gandalera for lending the author his thesis manuscript in his master's degree to guide her in writing her manuscript.

Her friend Shayne Danielle, for helping the author during the consolidation of her data, for assisting her together with Bobby during her thesis defense, and for helping her during her last evaluation and collection of leaf samples together with Rizajoy, Angelica and Kenneth;

Her Campo Buddies PJ, Ray, April, Maybelle, Eldrinne, Anna and Abi for the motivation and for always listening to her rants;

Her bestfriend Paps Agatha Faye, for the unending love, support and trust, for always being there at her side during her ups and downs, and for sharing memorable experiences during the author's stay at the University.

Her personal doctor, Dr. Mayumi Chua for always checking on her health to maintain her healthy mind and body.

Her Mother Marivic and Father James, for their moral and financial support and also to her siblings Antonette, Rekha and Miles, for always cheering her up. Her family is the source of strength and inspiration throughout her life. Thank you for the unending love and for always believing and supporting the author.

And most especially to the one above, Father God, for all the provisions and unexpected blessings, for the strength, knowledge and wisdom, for His continuous guidance, for the gift of friends, for all the challenges that make her stronger, and for everything she has, highest thanks and praises are offered to Him.

To all the rest not mentioned, thank you in many ways for the help. Thank you very much. May the Lord God bless you!

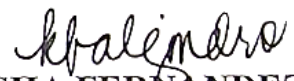

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by

KARLA TRISHA FERNANDEZ ALEJANDRO

ABSTRACT

Resistance estimation of gene of the BC₁F₃ mapping population derived from US-2*2/Malay 2 crosses was conducted at PhilRice-CES blast nursery. Two types of evaluation were performed: leaf infection type evaluation conducted at 35 and 60 days after sowing (DAS) and percent severity evaluation conducted at 35 DAS. For the leaf infection type evaluation, 25% of the mapping population were resistant, 64.53% were susceptible. For percent severity evaluation, 6.98% were resistant, 20.93% were intermediate and 72.09% were susceptible. Comparing the disease reaction of US-2*2/Malay 2 mapping population with the reaction of blast differential varieties, five genes, namely: *Pik-m*, *Pib*, *Pish*, *Pi3*, *Pi19(t)* were estimated to be possibly carried by the population associated to blast resistance. The estimated R genes were validated by inoculating the 15 blast resistant lines with two differential isolates, M101-1-2-9-1 and JMB8401. These two blast isolates have shown differentiating ability against the estimated R genes. Following inoculation with differential isolates, *Pik-m*, *Pib*, *Pish* and *Pi3* genes were confirmed to be present in the BC₁F₃ mapping population of US-2*2/Malay 2.

^{1/}An undergraduate thesis manuscript presented in partial fulfillment of the requirements for graduation with the degree of Bachelor of Science in Agriculture major in Crop Protection from Central Luzon State University, Science City of Munoz, Nueva Ecija. Prepared in the Department of Crop Protection under the supervision of Dr. Ronaldo T. Alberto, Dr. Jonathan M. Niones and Dr. Jennifer T. Niones with Research Contribution No. CA-03-17-0006.

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