

**DETERMINATION OF GENE CONTROLLING AROMA (*badh2*) AND
EVALUATION OF BACTERIAL BLIGHT RESISTANCE (*xa5*)
OF RICE IN F2 DERIVED POPULATION**

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An Undergraduate Thesis Submitted to the Faculty of the Department of Crop
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in Partial Fulfillment of the Requirements
for the Degree of

**BACHELOR OF SCIENCE IN AGRICULTURE
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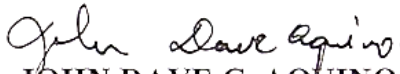
This undergraduate thesis entitled “DETERMINATION OF GENE CONTROLLING AROMA (*badh2*) AND EVALUATION OF BACTERIAL BLIGHT RESISTANCE (*xa5*) OF RICE IN F2 DERIVED POPULATION”, prepared and submitted by EDELYN M. GALINGAN, in partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN AGRICULTURE (CROP SCIENCE – AGRONOMY), is hereby accepted:


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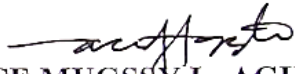
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BIOGRAPHICAL SKETCH

Edelyn M. Galingan was born on February 1, 1999 in San Jacinto, Victoria, Tarlac. She was the eldest child of Mr. Joselito B. Galingan and Mrs. Erly M. Galinagan. She has a brother named Joselito B. Galingan Jr. that was recently graduated in Junior High School and now was in his Senior High School.

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ABSTRACT

GALINGAN, EDELYN M., Department of Crop Science, College of Agriculture, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **January 2020**, **DETERMINATION OF GENE CONTROLLING AROMA (*badh2*) AND EVALUATION OF BACTERIAL BLIGHT RESISTANCE (*xa5*) OF RICE IN F₂ DERIVED POPULATION**

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Aromatic rice varieties constitute a small but special group of rice and demand a premium price in local and international market. However, they are often characterized for having undesirable agronomic characteristics. This study was conducted to identify and select breeding lines with aroma (*badh2*) and resistance to bacterial blight (*xa5*) through genotyping and phenotyping. The F₂ population derived from the crosses NSIC Rc222 x MS16 and NSIC Rc222 x Pandan were used in the study. The result of Chi-square analysis for aroma and R-gene *xa5* inheritance in both crosses did not correspond with the expected 1:2:1 Mendelian ratio for a single recessive gene. This prove the recent studies for aroma gene, which suggest that due to the difference of materials used in the study while interaction with the environment is a possible reason to the segregation distortion of R-gene *xa5*. A total of 17 and 42 plants from the cross between Rc222 x MS16 and Rc222 x Pandan respectively, were identified to both *badh2* and *xa5* genes, and resistant against bacterial leaf blight were selected. From this, lines that were selected can be subject into further evaluation immediately, reducing the time utilized in selection process of the breeding programme.

Keywords: Aromatic rice; bacterial leaf blight; betaine aldehyde dehydrogenase2 (*badh2*) gene; R-gene *xa5*

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