

GROWTH RESPONSE OF PAPAYA (*Carica papaya* L.) SEEDLINGS  
ON VESICULAR ARBUSCULAR MYCORRHIZAL (VAM)  
ROOT INOCULATION

Research Study

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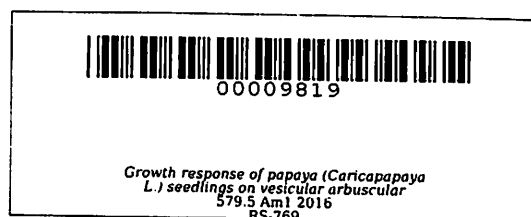
RS 579.5 Am1 2016

April 2016

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ROOT INOCULATION**

Research Study  
Submitted to the Faculty of the  
Science High School, College of Education  
Cavite State University  
Indang, Cavite

In partial fulfilment  
of the requirements for graduation



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April 2016



## ABSTRACT

**AMBAS, SAMANTHA ANGELA MARIE E., ILAGAN SOFIA NICOLE L., LEGASPI, MYKA ELIN P. Growth Response of Papaya (*Carica papaya* L.) Seedlings on Vesicular Arbuscular Mycorrhizal (VAM) Root Inoculation.** Research Study. General Science Curriculum, Science High School, College of Education, Cavite State University, Indang, Cavite. April 2016. Adviser: Dr. Adolfo Manuel Jr

This study was conducted at the Central Experiment Station of Cavite State University from October 2015 to February 2016. The study aimed to: 1. determine the effects of Vesicular Arbuscular Mycorrhizal Root Inoculant (VAMRI) on the papaya seedlings in terms of height of plants, biomass (dry weight) of roots, length of roots and number of leaves; 2. determine the percentage root infection of papaya seedlings by VAMRI; and 3. determine the number of days the seedling can survive without water. The VAM used in the study was acquired from BIOTECH, University of the Philippines Los Baños, College, Laguna.

This study used the Complete Randomized Design with four treatments and four replications with 15 samples each replication. The treatments were: Treatment 0 ( $T_0$ ) – uninoculated, unsterilized soil, Treatment 1 ( $T_1$ ) – inoculated, unsterilized soil, Treatment 2 ( $T_2$ ) – inoculated, sterilized soil, and Treatment 3 ( $T_3$ ) – uninoculated, sterilized soil.

Among the four treatments,  $T_0$  yielded the tallest plants, heaviest roots, most abundant number of leaves, and longest roots. This showed that inoculation of VAM did not affect the growth of papaya seedlings. Since  $T_0$  showed the best growth, they also survived the longest days without water. In terms of percentage root infection,  $T_1$  got the highest infection. This revealed that sterilization of soil was not needed for enhancement of fungal infection in papaya roots.

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A research study submitted to the faculty of Science High School, College of Education, Cavite State University, Indang, Cavite, in partial fulfillment of the requirements for graduation with Contribution No. SHS- 2016 - 009 . Prepared under the supervision of Dr. Adolfo Manuel Jr.

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## **INTRODUCTION**

Vesicular Arbuscular Mycorrhizal Root Inoculant (VAMRI) is composed of chopped dried plant roots infected with VAM fungi. VAM assists the plant roots in absorbing water and nutrients and thus reduces the chemical fertilizer requirement of crops.

VAMRI reduces chemical fertilizer requirement of plants, secretes growth promoting substances, increases tolerance and resistance of plants against pathogens and diseases, and generates substantial savings on the use of chemical fertilizer. It also protects the plants from root pathogens, secretes growth-promoting substances and improves soil structure and soil aggregation. Its colonization was found to improve not only the plant yield and water use efficiency, but also the quality of the crop. Most agricultural crops can perform better and more productive when well inoculated by it.