

**EFFECT OF DIFFERENT PRETREATMENTS IN SOLAR DRIED
TOMATO (*Solanum lycopersicum*)**

KRISTINE MARILOU O. RAMOS

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**BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS
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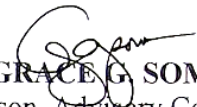
This undergraduate thesis entitled **“EFFECT OF DIFFERENT PRETREATMENTS IN SOLAR DRIED TOMATO (*Solanum lycopersicum*)”** prepared and submitted by **KRISTINE MARILOU O. RAMOS**, in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS ENGINEERING**, is hereby accepted:


RUEL G. PENEYRA, M.Sc.
Member, Advisory Committee

6/13/19
Date Signed



JEFFREY A. LAVARIAS, Ph. D.
Member, Advisory Committee

6/11/19
Date Signed

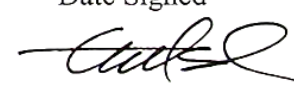

CAROLYN GRACE G. SOMERA, M.Sc.
Chairperson, Advisory Committee

6/11/19
Date Signed

Accepted as partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS ENGINEERING (BIOPRODUCTS PROCESS ENGINEERING)**:


MARVIN M. CINENSE, Ph. D.
Officer-in-Charge, Department of Agricultural
and Biosystems Engineering

6/13/19
Date Signed


VICTORINO T. TAYLAN, Ph.D.
Dean, College of Engineering

6/13/19
Date Signed

BIOGRAPHICAL SKETCH

The author, Kristine Marilou O. Ramos, was born on the 11th day of February 1998, in Aliaga, Nueva Ecija. She is the fourth among the six children of Mr. Rainierio Mario V. Ramos and Mrs. Arlyne O. Ramos. She and her siblings were raised in a God-fearing and simple family in the well-known Bibiclat, Aliaga, Nueva Ecija.

She finished her elementary education at Bibiclat Elementary School and graduated as Class Valedictorian in 2010. She completed her secondary level at CLSU- Laboratory High School – Bibiclat as 1st honorable mention in 2014. During her high school years, she was active in various school organizations where she has built a foundation of leadership and has established a character suited for her chosen field. She was a leader and member of different academic organizations, the President of Future Agricultural Homemakers of the Philippines (FAHP), treasurer of Science Club and also a member of the School Paper.

She pursued her tertiary education at Central Luzon State University and took Bachelor of Science in Agricultural and Biosystems Engineering. She did not join any organization to focus on her studies but still attended on the University events like Intramurals, Lantern Festival, University Week, and others.

Outside academics, she was one of the volunteer-organizers for the first ever Innovation and Technopreneurship Forum led by the Technopreneurship Hub Central Luzon State University held on March 2019 at the CLSU RET Ampitheater.

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ABSTRACT

RAMOS, KRISTINE MARILOU O., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **June 2019. EFFECT OF DIFFERENT PRETREATMENTS IN SOLAR DRIED TOMATO (*Solanum lycopersicum*).**

Adviser: CAROLYN GRACE G. SOMERA, M.Sc.

Without application of pretreatments when drying of fruits can often result to darkening of the product after the operation. Thus, the study focused on the effects of sodium metabisulfite, sodium benzoate and honey in solar dried tomato. The specific objectives were to determine the drying characteristics of tomato using different pretreatments; to conduct a sensory evaluation in dried tomato; and determine the water activity of the dried tomato.

Drying were done using a Multi-Commodity Solar Tunnel Dryer. The drying characteristics, physical attributes and water activity of dried tomato were studied at different pretreatments. For drying characteristics, the samples were dried for 2 days with a total of 12 hours. The temperature inside the multi-commodity solar tunnel dryer starts to rise at 10:00 AM and hit its peak at 12:00 NN, at 2:00 PM the temperature starts to decline. The samples were weighed every 30-minute interval. For determining the physical attributes, surface color change was measured using color meter while sensory evaluation was conducted to define the overall acceptability and degree of likeness in terms of color, aroma, taste and texture. Water activity was measured and analyzed in CLSU-AFTBI laboratory using a water activity meter. The ideal pretreatment was based on the results of drying characteristics, physical attributes and water activity.

The study was laid out following the Randomized Completely Block Design (RCBD). Data were analyzed using Analysis of Variance (ANOVA) and Comparison Among Means (CAM) was done using Least Significant Difference (LSD) at 5% level of significance.

Samples pretreated with sodium benzoate gave the highest drying rate of 1.64 $g_{\text{water}}/g_{\text{solid}}$ per hour. Results revealed that samples pretreated with sodium metabisulfite of 3.4843. For the sensory evaluation, samples pretreated with honey shows better results than the other treatments of 5.62 for overall acceptability, 6.54 for degree of likeness on aroma, degree of likeness on taste with 5.60, and honey has the highest mean value for the degree of likeness on texture with 5.34. All water activity of different pretreatments fall under the safe range.

Keywords: tomato; pretreatments; multi-commodity solar tunnel dryer; drying characteristics

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