

**INFLUENCE OF ACOUSTIC WAVES ON THE SHELF LIFE QUALITY OF  
STRAWBERRY (*Fragaria ananassa* Duch.)**

**DOMINIC P. PANINGBATAN**

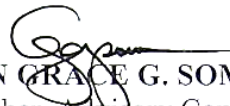
An Undergraduate Thesis Submitted to the Faculty of the Department of Agricultural and  
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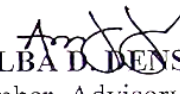
**BACHELOR OF SCIENCE IN AGRICULTURAL  
AND BIOSYSTEMS ENGINEERING  
(Agricultural and Bio-Process Engineering)**


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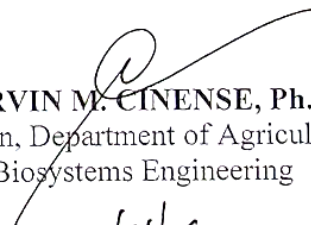
  
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## **BIOGRAPHICAL SKETCH**

Dominic Padua Paningbatan, born on August 3, 1997 in San Carlos City, Pangasinan, is the youngest son of Alejandra Padua and Diosdado Paningbatan. He, along with his brother and two sisters, whose names are Emmanuel Paningbatan, Mariane Paningbatan and Andrea Paningbatan are currently residing at the same city where he was born in.

He finished primary school at Ednas School of San Carlos in 2010 where he was given the Scholastic Book Club Awardee and finished secondary education at Mary Help of Christians Seminary in 2014 at Binmaley, Pangasinan where he placed as an Outstanding Seminarian. He was a little indecisive in his life when he graduated at the seminary so his father suggested that he should take any agricultural-related course so he chose to study Bachelor of Science in Agricultural and Biosystems Engineering at Central Luzon State University.

Beyond academics, he is involved in organizational activities. He was a founding member of Organization of Progressive Musicians (OPM-CLSU) where he showcases his talent inside and outside the university by singing in events like acoustic sessions and music fests to express his love in music.

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## ABSTRACT

**PANINGBATAN, DOMINIC P.**, Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **June 2019, INFLUENCE OF ACOUSTIC WAVES ON THE SHELF LIFE QUALITY OF STRAWBERRY (*Fragaria ananassa* Duch.)**.

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Strawberry is an aggregate fruit that puts up a high value in the economy that requires an intensive post-harvest handling and techniques to prolong its shelf life. Acoustic wave is one of the newest secondary metabolism defense methods to prolong the shelf life of a certain commodity during storage. The purpose of this study was to test the effectiveness of acoustic waves treatment in extending the shelf life quality of strawberry.

Strawberries were exposed to acoustic waves with a frequency of 1 kHz and amplitude of 90 dB acoustic waves produced by a sound transducer in a sound-proof chamber to prevent unnecessary noise. Strawberry samples were exposed to: 0 hour (T<sub>1</sub>); 4 hours (T<sub>2</sub>); 6 hours (T<sub>3</sub>) and 8 hours (T<sub>4</sub>) and pretreatment factors. After exposure of acoustic waves, strawberries were placed in a refrigerated condition at 8°C then the surface color, total soluble solid, flesh firmness and the shelf life were monitored every after three days.

Results showed that strawberry samples exposed to acoustic waves showed significant effect on its quality in terms of surface color, total soluble solid and flesh firmness compared to strawberries with zero exposure.

Results revealed that exposing acoustic waves to the strawberry at 1 kHz, 90 dB for 6 hours prolonged its shelf life quality relating to its surface color, flesh firmness and total soluble solids. Strawberry usually has 5-7 days shelf life under refrigerated condition. The acoustic wave gave a potential benefit of extending the shelf life of strawberry up to 12 days at 8°C refrigerated condition thereby extending the marketable quality of strawberry for 5 more days.

**Keywords:** strawberry, shelf life, acoustic wave

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