

**MICROWAVE-ASSISTED EXTRACTION AND EVALUATION OF PECTIN
FROM CALAMANSI AND LAKATAN BANANA PEELS**

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An Undergraduate Thesis Submitted to the Faculty of the Department of Agricultural and
Biosystems Engineering, College of Engineering, 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 AGRICULTURAL AND BIOSYSTEMS
ENGINEERING
(AB Process Engineering)**

JUNE 2023

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ABSTRACT

CLAUDIO, JOANNE A. and CRISOSTOMO, MARIA LOURDES DC.,
Department of Agricultural and Biosystems Engineering, College of Engineering, **June 2023, MICROWAVE-ASSISTED EXTRACTION AND EVALUATION OF PECTIN FROM CALAMANSI AND LAKATAN BANANA PEELS.**

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This study aimed to extract pectin from Calamansi peels and Lakatan banana peels using microwave-assisted extraction and investigate the influence of pH on the yield and quality of the extracted pectin. The findings revealed that pH played a significant role in determining the pectin yield and characteristics for both sources.

Calamansi peels exhibited the highest pectin yield (8.67%) at pH 1.5, while Lakatan banana peels showed the highest yield (11.53%) at pH 1.5. The gel strength of pectin extracted from both sources was strongest at pH 1.5. Calamansi pectin displayed transparency, while Lakatan banana pectin had a yellow color.

The study concluded that a slightly acidic environment (pH 1.5) was most favorable for pectin extraction from Calamansi peels and Lakatan banana peels. Additionally, microwave-assisted extraction was found to be a convenient and accessible method for pectin extraction, utilizing locally available equipment. These findings highlight the importance of pH optimization during the extraction process to obtain higher yields of pectin with desirable characteristics and the potential of Lakatan banana peels as a rich source of pectin. Additionally, based on the observations made during the experiment in the application of extracted pectin, particularly the Lakatan banana pectin, has a positive impact on the shelf life extension of tomatoes. The treated tomatoes

showed a slower rate of decay, preserved their color for a longer duration, and exhibited certain changes in weight and skin texture.

Keywords: pectin, calamansi, lakatan banana, shelf life extension, microwave extraction

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