

**OPTIMIZATION OF PECTIN EXTRACTION FROM  
CALAMANSI (*Citrofortunella Microcarpa*) WASTE**

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## ABSTRACT

### OPTIMIZATION OF PECTIN EXTRACTION FROM CALAMANSI (*Citrofortunella Microcarpa*) WASTE

*Citrofortunella Microcarpa* also known as calamansi is one of the fruits that rich nutrient sources. This species is commonly known under the *Rutaceae* family. Calamansi waste might increase an environmental problem for local communities. Pectin is a complex polysaccharide that can be found in middle lamella of plant cell membrane. Pectin is commercially used for gelling purpose in many industries. Therefore, this study was focused on exploring the possibility of using waste calamansi as a commercial pectin using ethanol precipitation extraction method. The extraction of pectin from calamansi wastes was used under three different conditions which are pH, temperature and time. Fourier Transform Infrared (FTIR) Spectroscopy was used in the identification of main functional group of pectin extract from calamansi waste. As a result, the optimal conditions for pectin extraction were determined as follows temperature 90°C, extraction time 60 minutes and pH 1. Under these conditions, the pectin yield was 8.95% and the degree of esterification was 48.32%. Based on the degree of esterification, calamansi wastes pectin can be categorized as low methoxyl pectin due to value degree of esterification has lower than 50%. In conclusion, the pectin extracted from calamansi waste by using ethanol precipitation extraction method could be a solution to the pollution problem. The method used is the simplest technique for extraction and its safe. Besides that, the optimized process can provide useful guidance for further studies on pectin extraction. Result obtained of calamansi waste can be used as the potential sources of pectin in industry.