EXTRACTION OPTIMIZATION AND CHARACTERIZATION OF PECTIN FROM PEELS OF SOME INDONESIAN CITRUS VARIETIES

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Pectin production from citrus peels is a potential way to manage waste from citrus industries. In this research, various method was developed in optimizing the pectin extraction from three variant of local citrus peels (Baby Jaffa, Bali Madu, Keprok). Pectin was extracted by comparing two different methods, pretreatment with drying (microwave and tray drier) and extraction with the same extraction reagent (citric acid) for 1 hour at 1.5 pH (addition of sodium hexametaphosphate at 80^{o}C and without the addition sodium hexametaphosphate at 90^{o}C). The chosen method was further purified with several adjustment methods. The development of purification method was based on variables such as pretreatment method, separation of liquid-solid, washing process, re-coagulation, and pH adjustment. The best extraction method was dried under microwave and extracted with citric acid and addition of sodium hexametaphosphate at 90^{o}C for 1 hour at 1.5 pH. The best purification method was by re-coagulation while the pH was adjusted. The yield of pectin varied from 6.13% to 14.05%. The character of pectin regarding equivalent weight varied from 752.03 g/mol to 1201.41 g/mol, methoxyl content from 8.46% to 9.37%, total anhydrouronic acid from 67.38% to 71.03%, degree of esterification from 67.09% to 77.86%, moisture content from 0.96% to 3.50%, and ash content 5.26% to 6.39%.

Keywords: *Citrus peel, Pectin, Pretreatment, Extraction, Purification, Yield, Equivalent Weight, MeO, AUA, DE, Moisture Content, Ash Content*

DEDICATION

I dedicate this thesis work for Jesus Christ, my family, and friends.

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