

MODIFIKASI PATI AREN (*Arenga pinnata*) MENGGUNAKAN RADIASI

***MICROWAVE* DAN ASETILASI TERHADAP KARAKTERISTIK**

FISIKOKIMIA: PENGARUH KADAR AIR DAN DAYA *MICROWAVE*

INTISARI

Pati aren alami dapat dimanfaatkan untuk produk pangan maupun non pangan. Akan tetapi, pati aren alami memiliki permasalahan seperti, mudah mengalami retrogradasi, tidak stabil terhadap panas dan asam, serta ketahanan pasta yang rendah. Oleh sebab itu perlu dilakukan modifikasi pati aren dengan *microwave* dan asetilasi untuk memperbaiki karakteristik fisikokimianya. Modifikasi menggunakan *microwave* dilakukan pada kadar air 13%, 18%, 23%, dan 28%, dengan daya sebesar 200 W, 300 W, dan 399 W. Hasil modifikasi menggunakan *microwave* dengan kadar air 13% dan daya 300 W mampu mengecilkan ukuran partikel pati, meningkatkan kadar pati, meningkatkan kadar amilosa, meningkatkan kadar amilopektin, menurunkan kemampuan *swelling power* pati aren dan meningkatkan nilai *solubility* pati aren. Modifikasi pati aren menggunakan asetilasi dikombinasikan dengan modifikasi *microwave* pada kadar air 13% dan daya 300 W. Hasil modifikasi pati aren asetilasi dan *microwave* mampu meningkatkan kadar pati aren, meningkatkan kadar amilosa, meningkatkan kadar amilopektin, menurunkan nilai *swelling power* pati, meningkatkan nilai *solubility* pati, dan memperbesar ukuran granula pati.

Kata kunci : pati aren, *microwave*, asetilasi, kadar air, daya,

**MODIFICATION OF PALM STARCH (*Arenga pinnata*) USING
MICROWAVE RADIATION AND ACETYLATION ON
PHYSICOCHEMICAL CHARACTERISTICS: EFFECT OF WATER
CONTENT AND MICROWAVE ENERGY**

Abstract

Sugar palm starch (*Arenga pinnata*) can be used for food and non-food products. However, natural sugar palm starch has easy retrogradation problems, unstable to heat and acid, and has low paste resistance. Therefore, modifying sugar palm starch is necessary to improve its physicochemical characteristics. Microwave and acetylation are the effective modification methods that have been reported. In this research, modification using a microwave was carried out at 13%, 18%, 23%, and 28% moisture content, with a power of 200 W, 300 W, and 399 W. The results showed that the starch's moisture content of 13% and a power of 300 W could reduce the particle size and the swelling power. This variation improved starch content, amylose content, amylopectin content, and the solubility of palm starch. Dual modification using acetylation combined with microwave at 13% moisture content and power of 300 W could increase starch content, amylose content, amylopectin content, solubility, and granular size. However, it decreased the swelling power of the starch.

Keywords: sugar starch, microwave, acetylation, energy, modification