KARAKTERISASI PATI UBI JALAR UNGU (*Ipomea batatas*) YANG TERPROPILASI DAN TERGELATINASI

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ABSTRAK

Telah dilakukan isolasi pati dari pati ubi jalar ungu dengan cara ubi jalar ungu yang telah dikupas, diparut, diperas dan hasil perasan didiamkan. Untuk mendapatkan pati dilakukan proses enap tuang sampai airnya jernih. Pati yang didapatkan kemudian dikeringkan. Rendemen yang didapatkan yaitu sebesar 8,44%. Selanjutnya dilakukan proses modifikasi pada pati yaitu gelatinasi dan propilasi dengan asam propionat. Proses gelatinasi dengan cara memanaskan suspensi pati 10% b/v hingga mencapai suhu 70^{o} C. Pati tergelatinasi kemudian dikeringkan menggunakan oven pada suhu 40^{o} C, digiling dan diayak (mesh 60). Proses propilasi pati dengan cara menambahkan asam propionat 15% dari berat pati, pada pH terkontrol 8 - 8,4 dengan penambahan NaOH 0,5 N, lama reaksi 90 menit. Modifikasi selanjutnya dilakukan gelatinasi pada pati terpropilasi. Hasil pemeriksaan dibawah sinar-X menunjukkan bahwa pati yang dimodifikasi lebih menunjukkan pola amorf dibandingkan pati yang tidak dimodifikasi.

Jenis pati ubi ungu yang didapatkan adalah pati ubi ungu alami, pati tergelatinasi, pati terpropilasi dan pati propilasi yang tergelatinasi. Pada keempat jenis pati tersebut dilakukan karakterisasi dengan mikroskop polarisasi. Dari hasil foto dengan mikroskop polarisasi masing-masing pati merefleksikan cahaya terpolarisasi dengan warna kuning dan biru dan memperlihatkan gambar yang berbeda antara pati alami, pati tergelatinasi, pati terpropilasi dan pati terpropilasi yang digelatinasi. Tetapi pada pati yang telah dimodifikasi masih terlihat adanya pati alami, yang berarti modifikasi masih belum sempurna, hal ini disebabkan proses reaksi yang terjadi belum optimal.

Kata kunci: ubi jalar ungu, pati modifikasi, propilasi, gelatinasi, mikroskop polarisasi,

ABSTRACT

An experimen has been done on an isolation of starch made from purple sweet potato. The purple sweet potato was peeled, shredded and squeezed and the outcome was let in room temperature for several hours. To get the starch, by means of fresh pour (enap tuang) process was made until the starch water became clear. The achieved starch then be dried and the obtained rendemen was 8.44%. The next process was modification prosess. First modification was gelatination, 10% b/v suspense of starch was heated until it reached 70^{o} C, the suspense was drained by the oven in 40^{o} C, milled, and filtered with the sieve. Second modification was propilation, with added propionate acid 15% from the weight of starch. The addition of propionate acid done in controlled of pH 8-8.4 by added NaOH 0.5 N. Time of reaction was 90 minutes. The last modification process made was gelatination of propilation starch. The examination under X-rays result showed more amorphous patterns in the modified starch in compared to the natural starch. Measurement of specific gravity of each starch showed decrease in number between natural starch, propilation starch, gelatination starch, and propilation starch that was gelatinize.

The experiment resulted in 4 types of starches, which were natural starch, propilation starch, gelation starch, and propilation starch that was gelatinized. The 4 types of starches then characterized using microscope polarization. From the photo result using microscope polarization, each starches reflected polarization light in yellow and blue but showed different pictures. However, the original starches was still visible in modified starches, which means the modification was still imperfect because the reaction process was not optimal yet.

Keywords: Purple sweet potato, modified starch, gelatination, propilation, microscope polarization,