KARAKTERISTIK SIFAT FISIKOKIMIA PATI SUWEG (*Amorphophallus campanulatus*) TERMODIFIKASI DENGAN METODE *CROSS LINKING*

INTISARI

Umbi Suweg (*Amorphophallus campanulatus*) merupakan salah satu jenis umbi – umbian yang cukup potensial di Indonesia, namun hingga saat ini masih dipandang sebelah mata, karena dianggap sebagai tanaman liar yang berbunga bangkai. Umbi suweg memiliki kandungan pati yang tinggi sehingga berpotensi untuk dapat dijadikan alternatif bahan tambahan pangan. Sayangnya sifat fisikokimia pati suweg alami memiliki banyak kekurangan, seperti warna kurang cerah, tidak tahan terhadap perlakuan panas dan asam, granula pati mudah pecah dan kandungan amilosa/amilopektin yang masih rendah. Modifikasi pati dapat menjadi solusi untuk memperbaiki sifat alami pati suweg sehingga lebih sesuai untuk diaplikasikan pada industri. Tujuan dari penelitian adalah untuk mengetahui pengaruh kombinasi penambahan *Sodium Tripolyphosphate* (STPP) dan waktu pengadukan dengan meode modifikasi *cross linking* terhadap sifat fisikokimia pati suweg.

Penelitian dilakukan dengan menggunakan 2 faktor perlakuan yaitu penambahan konsentrasi *Sodium Tripolyphosphate* (STPP) sebanyak 1% dan 2% serta waktu pengadukan 30 menit dan 60 menit. Metode penelitian menggunakan Rancangan Acak Kelompok (RAK) 2 faktorial, yaitu faktor pertama adalah konsentrasi *Sodium Tripolyphosphate* (STPP) dan faktor kedua adalah lama waktu pengadukan. Analisis yang dilakukan meliputi kadar air, kadar abu, uji warna L, a^* dan b*, kadar amilum, kadar amilosa, kadar amilopektin, *swelling power* dan solubilitas. Data yang diperoleh dilakukan uji statistik ANOVA dan jika berbeda nyata akan dilanjutkan dengan uji Duncan Multiple Range Test pada tingkat kepercayaan α 5%.

Hasil penelitian menunjukkan bahwa modifikasi teknik *cross linking* pada pati suweg alami dengan faktor penambahan *Sodium Tripolyphosphate* (STPP) 2% serta waktu pengadukan 30 menit mampu memperbaiki karakteristik sifat fisikokimia pati suweg alami pada parameter pengujian nilai L, a^*, b^*, kadar amilum, kadar amilosa, kadar amilopektin, dan solubilitas, dan belum terbukti memperbaiki parameter kadar air, kadar abu dan *swelling power*. Adapun hasil terbaik memiliki karakteristik sebagai berikut : nilai L 90,75 ; nilai a^* 1,77 ; nilai b^* 4,52, kadar air 13,78% bk ; kadar abu 0,43% bk ; kadar amilum 88,16% ; kadar amilosa 26,39% ; kadar amilopektin 59,44% ; *swelling power* 3,74 g/g, dan solubilitas 1,58%.

Kata kunci : Pati suweg, *cross linking*, STPP, waktu pengadukan

PHYSICOCHEMICAL CHARACTERIZATION OF SUWEG (*Amorphophallus campanulatus*) STARCH MODIFIED BY CROSS LINKING METHOD

ABSTRACT

Suweg (*Amorphophallus campanulatus*) is one of the most promising kinds of tubulles in Indonesia, but still being underestimated because it's considered as a wild plant with flowering carcasses. Suweg bulbs has high concentration of starch so that it potentially to be used as an alternative for food additives and food products as a step for diversification of local food and the use of tubers on a massive scale. Unfortunately the pHysicochemical properties of natural starch , which is in this case is suweg bulbs, has many disadvantages such as the pale color, can't resistant for heat and acid treatment, starch granules are easily broken and low contain of amylose/amylopectin. Cross linking modification could be a solution to fix the disadvantages of starch so that it can more suitable for application on the industry as a raw material. This study aimed to find out the effect of the combination of *Sodium Tripolyphosphate* (STPP) and stirring time using cross linking modification method into the pHysiochemical Suweg starch properties.

The study was conducted using 2 treatment factors, namely the addition of *Sodium Tripolyphosphate* (STPP) concentrations in 1% and 2% level and stirring time for 30 minutes and 60 minutes. The research method use 2 factorial Randomized Block Design (RBD), which is the first factor is concentration of *Sodium Tripolyphosphate* (STPP) and the second factor is the time of stirring. The analysis included water content, ash content, color test L, a* and b*, starch content, amylose content, amylopectin content, swelling power and solubility. The data obtained was performed by ANOVA statistical tests and if the result significantly different it would be followed by the Duncan Multiple Range Test at a 5% confidence level.

The results showed that the cross linking modification technique on natural suweg starch with the addition of 1% *Sodium Tripolyphosphate* (STPP) and 30 minutes stirring time were able to improve the pHysicochemical characteristics of natural suweg starch on the testing parameters of L, a*, b*, starch levels, amylose levels, amylopectin levels, and solubility, and have not been proven to improve the parameters of water content, ash content and swelling power. The best results have the following characteristics such as L 90.75; a* 1.77; b* 4.52, moisture 13.78% db; ash content 0.43% db; starch 88,16%; amylose 26.39%; Amylopectin 59.44%; swelling power 3.74 g/g, and solubility 1.58%.

Keywords : Suweg starch, *cross linking*, STPP, stirring time