

## INTISARI

Penelitian tentang optimasi suhu pregelatinasi dan waktu pengeringan pada kualitas amilum pregelatin biji nangka : aplikasi desain faktorial telah dilakukan. Tujuan dari penelitian ini untuk mengetahui faktor dominan dan kombinasi yang optimal dari suhu pregelatinasi dan waktu pengeringan untuk menghasilkan amilum pregelatin biji nangka yang berkualitas baik.

Berdasarkan desain faktorial dengan dua faktor dan dua level, diperlukan empat formula, yaitu (1) suhu pregelatinasi dan waktu pengeringan pada level rendah, (a) suhu pregelatinasi pada level rendah dan waktu pengeringan pada level tinggi, (b) suhu pregelatinasi pada level tinggi dan waktu pengeringan pada level rendah, (ab) suhu pregelatinasi dan waktu pengeringan pada level tinggi. Hasilnya diuji diameter rata – rata, indeks pengetapan, kadar air, daya serap air, kohesivitas, dan kompaktilitasnya. Berdasarkan persamaan desain faktorial  $Y = b_0 + b_1(A) + b_2(B) + b_{12}(A)(B)$  dan data yang diperoleh dapat dihitung  $b_0$ ,  $b_1$ ,  $b_2$ , dan  $b_{12}$ , serta dibuat *contour plot* sifat – sifat fisik amilum pregelatin biji nangka. Dari *contour plot* tersebut dipilih komposisi yang optimum dari suhu pregelatinasi dan waktu pengeringan.

Hasil dari penelitian ini menunjukkan bahwa suhu pregelatinasi berpengaruh dominan terhadap indeks pengetapan amilum pregelatin biji nangka. Waktu pengeringan berpengaruh dominan terhadap diameter rata – rata, kadar air, daya serap air, kohesivitas, dan kompaktilitas amilum pregelatin biji nangka. Interaksi suhu pregelatinasi – waktu pengeringan tidak berpengaruh terhadap kualitas amilum pregelatin biji nangka. Berdasarkan *contour plot*, maka diperoleh kondisi X sebagai kondisi optimal untuk pembuatan amilum pregelatin biji nangka dengan kualitas yang baik.

## ABSTRACT

The study about the optimization of pregelatinizing temperature and drying time on the quality of jack fruit seed pregelatinized starch : factorial design application had been conducted. The aims of this study were to observe the dominant factors and the optimal combination between pregelatinizing temperature and drying time to produce jack fruit seed pregelatinized starch with good quality.

Based on factorial design with two factors and two levels, four formulas were performed, i.e. formula (1) which were using pregelatinizing temperature and drying time both at low levels, formula (a) which were using pregelatinizing temperature at low level and drying time at high level, formula (b) which were using pregelatinizing temperature at high level and drying time at low level, and formula (ab) which were using pregelatinizing temperature and drying time both at high levels. Jack fruit seed pregelatinized starch were evaluated for their average diameter, tapping index, moisture content, water absorption capacity, cohesivity, and compactibility. Based on factorial design equation  $Y = b_0 + b_1(A) + b_2(B) + b_{12}(A)(B)$  and data from the experiment;  $b_0, b_1, b_2, b_{12}$  were calculated and from this equation, the contour plots were determined.

The result of this study showed that the pregelatinizing temperature was the dominant factor for the tapping index of jack fruit seed pregelatinized starch. Drying time was the dominant factor for the average diameter, moisture content, water absorption capacity, cohesivity, and compactibility of jack fruit seed pregelatinized starch. Interaction between pregelatinizing temperature - drying time had no effects for quality of the jack fruit seed pregelatinized starch. Based to the contour plot, we determined the X condition as the optimal condition to make jack fruit seed pregelatinized starch with good quality.