

## INTISARI

### **PENGARUH KECEPATAN PUTARAN DISINTEGRATOR DAN LAJU PENGUMPANAN BAHAN TERHADAP KUALITAS FISIK SUKUN (*Artocarpus altilis*) HASIL PENGERINGAN MENGGUNAKAN *FLASH DRYER* DENGAN MODIFIKASI POSISI *FEEDER***

Laju pengeringan dipengaruhi oleh ukuran produk yang akan dikeringkan. Disintegrator di *flash dryer* digunakan untuk mengurai bahan yang masuk untuk menghasilkan partikel yang dapat diangkat oleh udara pengeringan. Tujuan penelitian ini untuk mengevaluasi pengaruh laju pengumpanan dan kecepatan putaran disintegrator terhadap kinerja pengeringan dan karakteristik fisik sukun kering menggunakan *flash dryer*. Penelitian ini menggunakan dua laju pengumpanan dengan variasi 24 kg/jam dan 32 kg/jam, dan juga tiga variasi kecepatan putaran disintegrator 679 rpm, 830 rpm dan 983 rpm. Dalam penelitian ini, 1,5 kg sampel dikeringkan dari kadar air awal 56-57% (wb) menjadi sekitar 11-13% (wb) dalam 15 siklus. Waktu pengeringan setiap siklus dan kadar air produk diukur untuk mengevaluasi laju pengeringan. Selama proses pengeringan, beberapa parameter seperti suhu dan kelembaban lingkungan, inlet dan outlet udara pengering diukur secara berkala untuk mengevaluasi efisiensi pemanasan dan pengeringan. *Karakteristik fisik produk seperti kadar air, warna, bulk density, dan diameter dievaluasi untuk menentukan kualitas produk. Hasil penelitian menunjukkan bahwa kombinasi dari laju pengumpanan 24 kg/jam dan kecepatan disintegrator 983 rpm menghasilkan laju pengeringan tertinggi. Secara umum efisiensi pemanasan berkisar antara 89% hingga 95%, sementara efisiensi pengeringan antara 15% sampai 18%. Massa yang hilang selama pengeringan berkisar 21 - 31%. Karakteristik fisik produk seperti diameter berkisar antara 1,280 mm hingga 1,230 mm, tingkat kecerahan (l) sekitar 71,02 – 73,18, derajat keputihan (W) berkisar antara 59,92 sampai 70,47.*

**Kata kunci :** *flash dryer*, sukun, pengeringan, disintegrator, laju pengumpanan

## ABSTRACT

### **EFFECT OF DISINTEGRATION ROTATION SPEED AND FEED RATE OF MATERIAL TO PHYSICAL QUALITY OF BREADFRUIT (*Artocarpus altilis*) FROM THE PRODUCT OF DRYING BY USING A FLASH DRYER WITH MODIFICATION OF FEEDER POSITION**

*Drying rate is affected by the size of product that will be dried. Disintegrator in flash dryer is used to break input material to produce particles that can be lifted by the air drying. The objectives of this research are to evaluate the effect of feed rate and rotation speed of disintegrator on the performance of the dryer and physical characteristic of dried breadfruit which dried using flash dryer. This research was carried out using two feed rate (FR) variations of 24 kg/h and 32 kg/h, and also three variations of disintegrator rotation speed of 679 rpm, 830 rpm and 983 rpm. In this research, 1.5 kg of sample was dried from its initial water content of 56 - 57 % (wb) to about 11 – 13 % (wb) in 15 cycles. Drying time for each cycle and product water content was measured to evaluate the drying rate. During the drying process, several parameters such as temperature and humidity of environment, inlet and outlet air drying was measured periodically to evaluate the heating and drying efficiency. Physical characteristic of product such as water content, colour, bulk density, and diameter was evaluated to determine the quality of the product. The result showed that combination of 24 kg/h of feed rate and 983 RPM of disintegrator rotation speed resulted the highest drying rate. In general the heating efficiency ranged from 89% to 95%, while the drying efficiency is between 15% to 18%. Mass losses during drying is around 21 - 31%. The physical characteristic of product such as diameter ranged from 1.280 mm to 1.230 mm, the brightness level (L) was around 71.02 - 73.18, and the whiteness level (W) ranged from 59.92 to 70.47.*

**Keyword :** *flash dryer, breadfruit, drying, disintegrator, feeding rate*