

**DEHIDRASI OSMOSIS DAN PENDINGINAN PADA PENGOLAHAN  
BUAH NANAS (*Ananas comosus*) KERING SERTA PERUBAHAN  
KUALITAS FISIK PRODUK SELAMA PENYIMPANAN**

**INTISARI**

**OLEH:**

**Wini Prayogi Abdila  
14/363829/TP/10854**

Nanas (*Ananas comosus*) merupakan produk hortikultura dengan jumlah produksi yang cukup besar di Indonesia. Pada umumnya nanas dikonsumsi dalam bentuk segar dan produk olahan seperti selai, jus, nanas kaleng, dan kripik nanas. Pengembangan produk olahan nanas yang berpotensi dikembangkan adalah buah nanas segar dalam bentuk kering untuk memperpanjang umur simpan. Tujuan penelitian ini adalah mengembangkan pengolahan nanas segar menjadi buah kering melalui proses dehidrasi osmosis yang dilanjutkan dengan pendinginan dan menentukan umur simpan produk yang dikemas dalam kondisi vakum. Tahapan proses pengolahan buah kering yaitu pemotongan nanas, dehidrasi osmosis dengan cara perendaman dalam larutan gula, dan pendinginan. Variasi larutan gula yang diaplikasikan pada penelitian ini adalah brix 30, 40, dan 50 dengan suhu 40°C selama 4 jam. Perubahan massa, kadar air, brix buah, brix larutan diambil setiap interval 30 menit selama 4 jam. Data-data tersebut diperoleh untuk menganalisa *water loss* (WL) dan *solid gain* (SG). Setelah dehidrasi osmosis dilakukan pendinginan untuk mengurangi kadar air buah kering, dengan kondisi suhu pendinginan 40°C selama 18 jam. Perubahan massa, suhu dan warna bahan diamati setiap interval 30 menit pada 5 jam pertama dan setiap interval 60 menit setelah 5 jam pertama. Data perubahan kadar air dan suhu digunakan untuk menentukan konstanta laju penurunan kadar air ( $k$ ) dan koefisien perpindahan konveksi ( $h$ ) pada proses pendinginan. Buah kering disimpan dalam kemasan vakum pada suhu kamar selama 16 hari. Selama penyimpanan diamati perubahan massa, kadar air, tekstur dan warna serta dilakukan uji hedonik dimana panelis melakukan uji setiap 2 hari sekali. Data yang diperoleh digunakan untuk menentukan umur simpan produk.

Hasil penelitian menunjukkan nilai WL dan SG setimbang selama dehidrasi osmosis dalam larutan gula dengan variasi brix 30-50 berkisar sebesar 25,84-29,46% dan 10,63%-18,53%. Nilai  $k$  dan  $h$  pada bahan selama pendinginan dengan variasi brix 30-50 sebesar 0,0931-0,1263 %/jam dan 0,1178-0,2424 W/m<sup>2</sup>.°C. Nilai skor uji hedonik terendah pada parameter warna, aroma, rasa, tingkat kemanisan, dan keseluruhan produk terdapat pada produk yang disimpan selama 16 hari. Umur simpan produk dengan perlakuan brix 30, 40, dan 50 berturut-turut sebesar 16,33 hari, 16,37 hari dan 17 hari.

Kata kunci: buah kering nanas, brix gula, dehidrasi osmosis, pendinginan, umur simpan

## OSMOTIC DEHYDRATION AND DRYING PROCESS FOR DRIED PINEAPPLE (*Ananas comosus*) AND PHYSICAL QUALITY CHANGE DURING STORAGE

### ABSTRACT

#### WRITTEN BY:

**Wini Prayogi Abdila**  
**14/363829/TP/10854**

Pineapple (*Ananas comosus*) is a horticulture product that is quite large production in Indonesia. In general, pineapple is consumed in the form of fresh and processed products such as jam, concentrate, canned pineapple, and pineapple chips. Pineapple processed products that potentially to be developed is fresh pineapple fruit in dry form to extend shelf life. The purpose of this research is to develop fresh pineapple processing into dried fruit through osmotic dehydration process followed by drying and determined shelf life of product packed in vacuum condition. Stages of processing of dried fruit is pineapple cutting, osmotic dehydration by soaking in sugar solution, and drying. Variations of sugar solution applied in this study were brix 30, 40, and 50 with temperature 40°C for 4 hours. Changes in mass, moisture content, fruit brix, brix solution taken every 30 minutes in 4 hours. The data were obtained to analyze water loss (WL) and solid gain (SG). Drying after osmotic dehydration process to reduce the water content of dried fruit was conditioned with 40°C temperature for 18 hours. Changes in mass, temperature, and color of the fruit were observed every 30 minutes at the first 5 hours and every 60 minutes after 5 hours. Data on changes in moisture content and temperature are used to determine the rate constant of decreasing water content (k) and convection transfer coefficient (h) in the drying process. The dried fruit is stored in vacuum packaging at room temperature for 16 days. During storage, changes in mass, moisture content, texture and color of products were observed and a hedonic test was done in which panelist tested the product every 2 days. The data obtained is used to determine the shelf life of the product.

The results showed the value of WL and SG equilibrium during dehydration osmosis in sugar solution with variation brix 30-50 ranged from 25,84-29,46% and 10,63% -18,53%. The k and h values of the material during drying with a 30-50 brix variation of 0.0931-0.1263% / hour and 0,1178-0,2424 W/m<sup>2</sup>.°C. The value of the lowest hedonic test score on color, aroma, taste, sweetness, and overall product parameters was found in the product stored for 16 days. The shelf life of the products with brix treatment 30, 40, and 50 were 16.33 days, 16, 37 days and 17 days.

Keywords: dried pineapple, sugar brix, osmotic dehydration, drying, shelf life.