

## KINETIKA PENGERINGAN DALAM PRODUKSI TEPUNG BIJI SALAK PONDOH (*Sallaca edulis* Reinw cv Pondoh) MENGGUNAKAN CABINET DRYER

### INTISARI

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Salak merupakan komoditas unggulan daerah Sleman yang memiliki masa panen sepanjang tahun. Biji salak merupakan hasil samping yang perlu diolah untuk meningkatkan nilai tambah panen salak dan mengurangi tumpukan limbah di lingkungan. Salah satu tahapan penting dalam proses pembuatan tepung biji salak agar dapat diolah menjadi produk lainnya adalah proses pengeringan. Penelitian bertujuan untuk menganalisis kadar air dan warna cacahan biji salak selama pengeringan dengan pengaruh perlakuan suhu pengering dan posisi bahan dari *plenum chamber*, menganalisis kandungan fenolik yang terdapat pada cacahan biji salak, menganalisis kinetika proses pengeringan cacahan biji salak dengan variasi suhu pengering dan posisi bahan dari *plenum chamber*, serta menganalisis secara statistik hubungan antara suhu pengering dan posisi bahan dari *plenum chamber* terhadap laju pengeringan cacahan biji salak. Proses pengeringan dilakukan pada tiga variasi suhu pengering yaitu 40°C, 50°C dan 60°C serta tiga variasi posisi peletakan bahan yaitu sisi kiri, sisi tengah, dan sisi kanan dari *plenum chamber*. Pengamatan dilakukan terhadap sampel halus (tertahan pada 30 mesh dan pan) dan sampel kasar (tertahan 8 mesh dan 14 mesh) yang dikeringkan selama 12 jam. Proses pengeringan menghasilkan cacahan biji salak kering dengan kisaran kadar air 3,99-38,84% wb; rendemen 41,509-64,898; serta nilai warna *lightness* 45,22-62,71; *redness* 6,238-17,89; *yellowness* 27,76-32,37; dan kadar fenolik 19,761-321,021 mg GAE/100 g. Nilai fenolik tertinggi dari perlakuan pengeringan diperoleh pada suhu 40°C dengan perubahan nilai fenolik setiap waktu yaitu : jam ke-3 (321,02 GAE/100g), jam ke-6 (132,96 GAE/100g), dan jam ke-12 (39,73 GAE/100g). Nilai konstanta laju pengeringan sampel halus berkisar antara 3,733-25,93 pada laju pengeringan konstan dan antara 0,0019-1,042 pada laju pengeringan menurun untuk sampel halus. Nilai konstanta laju pengeringan sampel kasar berkisar antara 0,0638 dan 0,2949 pada laju pengeringan konstan dan antara 0,0069 dan 0,8964 pada laju pengeringan menurun untuk sampel kasar. Berdasarkan nilai observasi dan prediksi, nilai regresi ( $R^2$ ) menunjukkan angka 0,77-0,99 yang artinya perhitungan sesuai dengan data aslinya.

**Kata kunci** : biji salak, karakterisasi, kinetika laju pengeringan

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## KINETICS OF DRYING IN THE PRODUCTION OF PONDOH SALAK (*Sallaca edulis Reinw cv Pondoh*) TREES TURBENT USING CABINET DRYER

### ABSTRACT

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Salak is Sleman's leading commodity that has a harvest period throughout the year. Salak seeds are a by-product that needs to be processed to increase the added value of the salak harvest and reduce piles of waste in the environment. One of the important stages in the process of making salak seed flour so that it can be processed into other products is the drying process. The study aims to analyze the moisture content and color of chopped salak seeds during drying with the effect of dryer temperature treatment and the position of the material from the plenum chamber, analyze the phenolic content contained in chopped salak seeds, analyze the kinetics of the drying process of chopped salak seeds with variations in dryer temperature and the position of the material from the plenum chamber, and statistically analyze the relationship between dryer temperature and the position of the material from the plenum chamber to the drying rate of chopped salak seeds. The drying process was carried out at three variations of dryer temperature, namely 40°C, 50°C and 60°C and three variations of the position of the material, namely the left side, the center side, and the right side of the plenum chamber. Observations were made on fine samples (retained at 30 mesh and pan) and coarse samples (retained at 8 mesh and 14 mesh) dried for 12 hours. The drying process produced dried salak seed shreds with a range of moisture content of 3.99-38.84% w.b.; yield of 41.509-64.898; as well as color values of lightness 45.22-62.71; redness 6.238-17.89; yellowness 27.76-32.37; and phenolic content 19.761-321.021 mg GAE/100g. The highest phenolic value of the drying treatment was obtained at 40°C with changes in phenolic value every time, namely: 3rd hour (321.02 GAE/100g), 6th hour (132.96 GAE/100g), and 12th hour (39.73 GAE/100g). The drying rate constant values of fine samples ranged from 3.733-25.93 at constant drying rate and between 0.0019-1.042 at decreasing drying rate for fine samples. The drying rate constant values of the coarse sample ranged between 0.0638 and 0.2949 at constant drying rate and between 0.0069 and 0.8964 at decreasing drying rate for the coarse sample. Based on the observed and predicted values, the regression value ( $R^2$ ) shows 0.77-0.99, which means that the calculation matches the original data.

**Keyword** : seeds, characterization, drying rate kinetics  
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