

INTISARI

PENGARUH VARIASI VOLUME *BATCH* DAN PENAMBAHAN GULA TERHADAP SIFAT FISIK SUSU BUBUK KAMBING PADA PROSES PENGERINGAN DENGAN PENGERING KONDUKSI

Oleh :

BERLIYANTI RACHMA RAMADHANI
14/369455/TP/11112

Susu kambing merupakan bahan makanan yang mudah rusak, karena aktivitas air yang tinggi menjadi media untuk berkembang biak mikroba. Oleh karena itu, dikembangkan cara untuk mengawetkan susu salah satunya dengan dikeringkan menjadi susu bubuk dengan alat pengering konduksi. Penelitian ini bertujuan untuk menentukan variasi volume *batch* dan variasi penambahan gula yang optimal dalam proses pengeringan menggunakan pengering konduksi. Variasi yang digunakan pada penelitian ini adalah variasi volume *batch* 2 Liter, 4 Liter, dan 6 Liter serta variasi komposisi gula 150 gr/Liter, 200 gr/Liter, dan 250 gr/Liter. Parameter yang digunakan pada penelitian berupa laju pengeringan, kadar air akhir, derajat keputihan, *compressibility*, *wettability*, *angle of repose*, kelarutan, diameter bahan, efisiensi pengeringan, efisiensi produksi, rendemen, dan kebutuhan biaya per kilogram produk kemudian dianalisis menggunakan analisis kinetik laju pengeringan, statistik anova dua arah, dan DMRT. Hasil penelitian ini menunjukkan bahwa variasi terbaik terdapat pada volume *batch* 4 Liter dengan penambahan gula 200 gr/Liter menghasilkan nilai konstanta pada laju pengeringan 1,8140 %/menit, nilai kadar air akhir 3,5299 %, derajat keputihan 68,1848%, *compressibility* 15,4 %, *wettability* 147 detik, *angle of repose* 33,6401°, kelarutan 21,52%, diameter bahan 1,1517 mm, efisiensi pengeringan 36,5838 %, efisiensi produksi 98,58 %, Rendemen 26,056 %, dan kebutuhan biaya per kilogram produk Rp. 6.134,00.

Kata kunci : kinerja alat, Kualitas produk, pengering konduksi, susu kambing.

ABSTRACT

EFFECT OF BATCH VOLUME VARIATIONS AND ADDITION OF SUGAR TO THE PHYSICAL PROPERTIES OF GOAT MILK POWDER IN THE DRYING PROCESS WITH CONDUCTION DRYER

By :

BERLIYANTI RACHMA RAMADHANI

14/369455/TP/11112

Goat milk is food that easy to damage, because high water content is the medium for microorganism growth. Therefore, we develop some method preservation of milk with drying method using conduction dryer to convert fresh goat milk to milk powder. This research aims to determine the optimum volume batch and adding sugar in drying process using conduction dryer. The variation of volume batch in this research were 2, 4 and 6 Liter and the composition of adding sugar were 150, 200, 250 Gram/Liter. Parameters observed were drying rate, final water content, whiteness index, compressibility, wettability, angle of repose, solubility, diameter of substance, efficiency of drying process, efficiency of production, yield and operational cost for 1 Kilogram milk powder. Then all parameters were analyzed using kinetic drying rate analysis, statistic two-way *anova*, and DMRT. The result of this research show that the best variation was combination of volume batch in 4 Liter with adding sugar 200 Gram/Liter then produced drying rate 1.8140%/minute, final water content 3.5299%, whiteness index 68.1848%, compressibility 15.4%, wettability 147 minute, angle of repose 33.6401°, solubility 21.52%, diameter of substance 1.1517 mm, efficiency of drying process 36.5838%, efficiency of production 98.58%, yield and operational cost for 1 Kilogram milk powder IDR 6,134.

Key word : conduction dryer, goat milk, performance, quality product