

**ANALISIS ENERGI PANAS PADA PROSES PENGERINGAN  
JAHE (*Zingiber officinale* Rosc.) MENGGUNAKAN ALAT PENGERING  
EFEK RUMAH KACA (ERK)**

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**ABSTRAK**

Penelitian ini bertujuan untuk memperoleh informasi baru dalam pengeringan dan menganalisis kebutuhan energi panas pada proses pengeringan jahe. Metode yang digunakan dalam penelitian ini menggunakan metode experimental yaitu melakukan percobaan terhadap alat pengering jahe dengan Efek Rumah Kaca (ERK) di lapangan. Pada pengujian alat tahap pertama (tanpa bahan), parameter yang diukur, yaitu suhu alat, suhu kipas, suhu lingkungan, dan intensitas cahaya matahari. Pada percobaan ini didapatkan suhu tertinggi pada alat pengering. Penyebaran suhu rata-rata pada ruang pengering mencapai 47,28°C - 49,90°C dengan rata-rata suhu keluar berkisar antara 42,45°C - 46,07°C dan rata-rata suhu lingkungan berkisar antara 30,77°C - 31,80°C. Besarnya iradiasi total tiap harinya pada alat mulai dari hari I-V berturut-turut 75736,7 W/m<sup>2</sup>; 75490,0 W/m<sup>2</sup>; 8293,3 W/m<sup>2</sup>; 88866,7 W/m<sup>2</sup>; dan 98403,3 W/m<sup>2</sup>. Jumlah total energi panas yang diterima model alat pengering yaitu sebesar 63663,8 Watt yang dimanfaatkan sebesar 29142,01 Watt dengan kehilangan panas 2100,0 Watt. Nilai efisiensi pengeringan 13,36%, 15,61%, 4,94%, 6,09%, dan 4,47% berturut-turut.

**Kata kunci:** analisis energi, efek rumah kaca (ERK), jahe, pengeringan

**HEAT ENERGY ANALYSIS IN GINGER (*Zingiber officinale* Rosc.)  
DRYING PROCESS USING GREENHOUSE EFFECT (ERK) DRYER**

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**ABSTRACT**

This study aimed to obtain new information in drying and analyze the heat energy requirements in the ginger drying process. The method used in this study was an experimental method by conducting experiments of ginger drying on Greenhouse Effect (ERK) dryer in the field. In testing the first stage of the tool (without materials), the parameters measured were the temperature of the tool, fan temperature, ambient temperature, and sunlight intensity. In this experiment the highest temperature obtained in the dryer. The spread of average temperature in the drying chamber reached 47.28°C - 49.90°C with average outlet temperature ranging between 42.45°C - 46.07°C and the average ambient temperature ranges between 30.77°C - 31,80°C. The total irradiation every day on the device starting from day I-V respectively 75736.7 W/m<sup>2</sup>, 75490.0 W/m<sup>2</sup>, 8293.3 W/m<sup>2</sup>, 88866.7 W/m<sup>2</sup>, and 98403.3 W/m<sup>2</sup>. The total amount of heat energy received by the dryer was 63663.8 Watt which was utilized as much as 29142.01 Watt with heat loss 2100.0 Watt. The drying efficiency values were 13.36%, 15.61%, 4.94%, 6.09% and 4.47% respectively.

**Keywords:** energy analysis, greenhouse effect (ERK), ginger, drying