

**ANALISIS ENERGI PANAS PADA PROSES PENGERINGAN
DAUN KELOR (*Moringa oleifera*) MENGGUNAKAN ALAT PENGERING
EFEK RUMAH KACA (ERK)**

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ABSTRAK

Tujuan dari penelitian ini adalah untuk mempelajari analisis energi panas pada proses pengeringan daun kelor dengan menggunakan alat pengering tipe efek rumah kaca (ERK). Metode yang digunakan dalam penelitian ini yaitu metode eksperimental yaitu melakukan percobaan terhadap alat pengering daun kelor dengan Efek Rumah Kaca (ERK) di lapangan dengan dianalisis menggunakan pendekatan kesetimbangan massa dan kesetimbangan energi. Pada penelitian ini dilakukan 2 perlakuan yang berbeda terhadap daun kelor, yaitu tanpa digilas dan digilas. Hasil pengujian alat ini diperoleh nilai kadar air dengan perlakuan tanpa digilas dan digilas berturut-turut kadar air awal 74,9%bb dan 71,4%bb, kadar air daun kelor 300,12%bb dan 251,82%bb. Total energi yang masuk alat pengering 7415038,8 kJ dan 7780575,4 kJ, total energi berguna 767089,470 kJ dan 2171369,143 kJ, total energi yang keluar melalui outlet/ventilasi dan hilang melalui dinding berturut-turut adalah 4148,222 kJ; 5718,912 kJ; 8.924 kJ; dan 7.194 kJ serta energi yang hilang dari buka tutup pintu berturut-turut sebesar 771246,62 kJ dan 2177095,25 kJ. Massa *input* 0,75 kg dan 1,35 kg, massa *output* 0,180 kg dan 0,391 kg. Nilai efisiensi pengeringan adalah 18,25% dan 29,26%.

Kata kunci: daun kelor, pengering tipe efek rumah kaca, pindah massa dan panas

**ANALYSIS OF HEAT ENERGY IN THE DRYING PROCESS OF
MORINGA (*Moringa oleifera*) LEAVES USING A GREENHOUSE EFFECT (ERK)
TYPE DRYER**

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ABSTRACT

The purpose of this research is to study the analysis of heat energy in the drying process of moringa leaves using a greenhouse effect (ERK) type dryer. The method used in this study was an experimental method that is conducting experiments on moringa leaf dryer with the Greenhouse Effect (ERK) in the field by analyzing it using the mass balance and energy balance approach. In this study, two different treatments were carried out on moringa leaves, namely without being crushed and crushed. the results of testing this tool obtained the value of water content by treatment without being crushed and crushed respectively the initial water content of 74.9% bb and 71.4% bb, the moisture content moringa leaves 300.12%bb and 251.82%bb. the total energy entering the dryer 7415038.8 kJ and 7780575.4 kJ, the total useful energy of 767089,470 kJ and 2171369,143 kJ, the total energy that exits through the outlet (ventilation) and was lost through the walls respectively was 4148,222 kJ, 5718,912 kJ, 8,924 kJ and 7,194 kJ, and the total energy that goes out through the outlet (ventilation) and was lost through the walls was 4148,222 kJ, 5718,912 kJ, 8,924 kJ and 7,194 kJ, missing from opening and closing doors respectively 771246.62 kJ and 2177095.25 kJ. The input mass was 0.75 kg and 1.35 kg, the output mass was 0.180 kg and 0.391 kg. Drying efficiency values were 18.25% and 29.26%.

Keywords: moringa leaves, greenhouse effect type dryer, mass and heat transfer