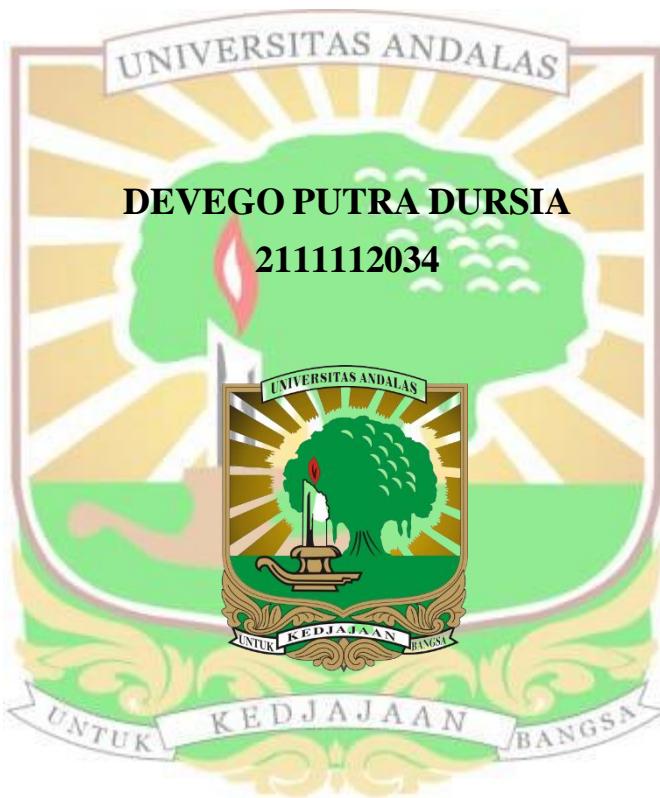


**ANALISIS TERMOEKONOMI DALAM  
PENGOLAHAN TEH DAUN GAMBIR DI  
KELOMPOK USAHA BERSAMA PERMATA  
HIJAU PANGKALAN KOTO BARU**



**FAKULTAS TEKNOLOGI PERTANIAN  
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# **ANALISIS TERMOEKONOMI DALAM PENGOLAHAN TEH DAUN GAMBIR DI KELOMPOK USAHA BERSAMA PERMATA HIJAU PANGKALAN KOTO BARU**

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## **ABSTRAK**

Penelitian ini bertujuan untuk menganalisis aspek termoekonomi dari mesin pencacah daun gambir dalam proses produksi teh gambir di KUB Permata Hijau, Pangkalan Koto Baru. Analisis mencakup aspek teknis, energi, dan ekonomi, serta dampak lama pengeringan daun terhadap performa mesin. Tiga perlakuan pengeringan diuji, yaitu 4, 5, dan 6 hari. Hasil menunjukkan bahwa pengeringan hari ke-6 memberikan performa terbaik dengan kadar air daun 9,08%. Kapasitas kerja mesin tertinggi dicapai sebesar 18,14 kg/jam, kualitas cacahan terbaik mencapai 94,19%, efisiensi penerusan daya sebesar 97,21%, dan konsumsi bahan bakar terendah sebesar 1,21 liter/jam. Tingkat kebisingan mesin terendah terjadi pada pengeringan hari ke-6 dengan rata-rata 88,60 dB, masih di bawah ambang batas kerja. Analisis energi menunjukkan kebutuhan energi manusia saat pengeringan hingga 1.704.028 joule, dan energi bahan bakar sebesar 4,63 MJ/kg. Secara ekonomi, biaya pokok pencacahan mencapai Rp 2.532/kg, dan titik impas (BEP) sebesar 4.717,03 kg/tahun.

**Kata kunci:** gambir, mesin pencacah, teh gambir

# **THERMOECONOMIC ANALYSIS IN THE PROCESSING OF GAMBIR LEAF TEA AT PERMATA HIJAU JOINT BUSINESS GROUP, PANGKALAN KOTO BARU**

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## **Abstract**

This study aims to analyze the thermoeconomic aspects of a gambir leaf chopping machine in the production process of gambir tea at the Permata Hijau Joint Business Group (KUB), Pangkalan Koto Baru. The analysis covers technical, energy, and economic aspects, as well as the effect of drying duration on machine performance. Three drying treatments were tested: 4, 5, and 6 days. Results show that the 6-day drying treatment provided the best performance, with a leaf moisture content of 9.08%. The highest machine capacity reached 18.14 kg/hour, with the best chopping quality at 94.19%, power transmission efficiency at 97.21%, and the lowest fuel consumption of 1.21 liters/hour. The lowest noise level was recorded on the 6th day of drying at an average of 88.60 dB, still below the occupational threshold. Energy analysis showed human energy requirements during drying reached 1,704,028 joules, and fuel energy consumption was 4.63 MJ/kg. Economically, the unit cost of chopping was IDR 2,532/kg, with a break-even point (BEP) of 4,717.03 kg/year.

**Keywords:** chopping machine, gambir, gambir tea