

# UJI PERFORMANSI ALAT DESTILASI BERTEKANAN UAP PADA PENYULINGAN MINYAK ATSIRI DAUN CENGKEH

*Performance test of pressure steam distillation in clove leaf essential oil refinery*

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## ABSTRAK

Tujuan penelitian ini untuk melakukan uji performansi alat destilasi bertekanan uap, mengetahui produktifitas minyak atsiri yang dihasilkan serta mengetahui efisiensi kerja alat destilasi bertekanan uap pada penyulingan minyak atsiri daun cengkeh. Metode penelitian ini adalah metode eksperimental dengan percobaan menggunakan alat destilator. Parameter penelitian yaitu berat bahan, suhu, volume kondensat, rendemen dan efisiensi alat destilasi. Hasil penelitian menunjukkan bahwa alat destilasi mampu melakukan proses penyulingan dengan menggunakan metode destilasi air berdasarkan proses kondensasi bahan yang menghasilkan minyak atsiri daun cengkeh pada masing-masing waktu perlakuan selama 2 jam. Proses destilasi pada bahan 300 gram daun cengkeh dan 6000 ml air didapatkan jumlah minyak atsiri 4.06 ml dengan nilai rendemen sebesar 0.064%, berat bahan 350 gram daun cengkeh dan 7000 ml air didapatkan jumlah minyak atsiri 5.05 ml dengan nilai rendemen sebesar 0.071% dan pada perlakuan bahan 400 gram daun cengkeh dan 8000 ml air didapatkan jumlah minyak atsiri 6.03 ml dengan nilai rendemen sebesar 0.075%. Efisiensi alat destilasi berdasarkan proses penguapan bahan yang dilakukan didapatkan rata-rata nilai kurang dari 80%. Efisiensi tertinggi berada pada perlakuan bahan 300 gram daun cengkeh dengan 6000 ml air yang menghasilkan nilai efisiensi 60.32%. Sedangkan untuk perlakuan 350 gram daun cengkeh dengan 7000 ml air sebesar 54.42% dan 400 gram daun cengkeh dengan 8000 ml air sebesar 50%. Hal ini disebabkan oleh kurang maksimalnya penguapan yang dilakuakn selama waktu penyulingan 2 jam dibandingkan dengan perlakuan paing sedikit yaitu 300 gram daun cengkeh dengan 6000 ml air.

**Kata kunci:** daun cengkeh, destilasi, minyak atsiri, performansi

## ABSTRACT

*The purpose of this study was to test the performance of the steam pressure distillation apparatus, to determine the productivity of the essential oil produced and to determine the work efficiency of the steam pressure distillation apparatus in the distillation of clove leaf essential oil. This research method is an experimental method with experiments using a distiller. The research parameters are material weight, temperature, condensate volume, yield and efficiency of the distillation apparatus. The results showed that the distillation apparatus was capable of carrying out the distillation process using the water distillation method based on the condensation process of the material which produced clove leaf essential oil at each treatment time of 2 hours. The distillation*

*process on the ingredients of 300 grams of clove leaves and 6000 ml of water obtained the amount of essential oil 4.06 ml with a yield value of 0.064%, the weight of the material 350 grams of clove leaves and 7000 ml of water obtained the amount of essential oil 5.05 ml with a yield value of 0.071% and in the treatment Ingredients 400 grams of clove leaves and 8000 ml of water, the amount of essential oil is 6.03 ml with a yield value of 0.075%. The efficiency of the distillation apparatus based on the material evaporation process carried out obtained an average value of less than 80%. The highest efficiency was in the treatment of 300 grams of clove leaves with 6000 ml of water which resulted in an efficiency value of 60.32%. As for the treatment of 350 grams of clove leaves with 7000 ml of water by 54.42% and 400 grams of clove leaves with 8000 ml of water by 50%. This was caused by the less maximal evaporation that was carried out during the 2 hour distillation time compared to the least treatment, namely 300 grams of clove leaves with 6000 ml of water.*

**Keyword:** *clove leaves, distillation, essential oil, performance*