

OPTIMIZATION OF VACUUM FRACTIONAL DISTILLATION TECHNIQUE OF CITRONELLA OIL

ABSTRACT

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Components of compounds in citronella oil can be separated based on differences in boiling point using a vacuum fractionation distillation technique. The purpose of this study was to determine the composition and content of citronella oil compounds at 40: 1 reflux ratio (method 1) with 20: 1 (method 2) and find out the results of comparative analysis on the method 1 and the method 2. Reflux ratio in vacuum fractionation distillation is one of the factors that influence the purity of the citronella oil compounds. The parameters tested are 40: 1 reflux ratio and 20:1 reflux ratio. The results showed that the composition and content of the main compounds obtained in the method 1 were 22.90% limonene and 35.77% citronellal in fraction I; 76.48% citronellal compounds in fraction II; 37.37% beta-citronellol and 29.42% geraniol in fraction III; 22.04% beta-citronellol and 27.73% geraniol in fraction IV; 20.26% residual compounds in fraction V; and 41.26% in fraction VI; In the method 2, the content of compounds obtained were 64.45% limonene and 15.62% citronellal in fraction I; 89.37% citronellal compounds in fraction II; 31.73% beta-citronellol compounds, 27.36% Geraniol in fractions III; and 11.91% residual compound in fraction IV; This result shows that method 2 gives a purer purity level than method 1.

Keywords: *vacum fractionation distillation, reflux ratio, fragrant citronella oil*