

## **ABSTRACT**

### **EFFECTIVITY OF PEPPERMINT (*Mentha piperita* L.) ESSENTIAL OIL IN VAPE LIQUID WITHOUT NICOTINE TO REDUCE ANXIETY LEVELS**

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So far, the utilization of peppermint (*Mentha piperita* L.) by the community through inhalation has been used as food and beverage ingredients. This study aims to determine the optimal and acceptable formulation of nicotine-free vape liquid with peppermint essential oil (*Mentha piperita* L.) and to assess the effectiveness of peppermint essential oil (*Mentha piperita* L.) in reducing anxiety levels. This research is classified as a pre-post randomized controlled study. There are 3 formulas: formula with peppermint essential oil (*Mentha piperita* L.), combination formula, and control as a comparison. Then, several tests were conducted, including homogeneity test, device compatibility test, viscosity test, and acceptability test. In this study, all formulated products showed homogeneity and compatibility. Based on the acceptability test results, the formula with peppermint essential oil (*Mentha piperita* L.) showed the highest score because it provided more throat relief compared to other formulas. The effectiveness test results using SPSS indicated that the P-value was  $\geq 0.05$ , indicating that nicotine-free vape liquid with peppermint essential oil (*Mentha piperita* L.) was less effective in reducing anxiety levels. However, based on the data obtained, there were changes in values indicating a decrease in anxiety levels.

**Keywords** : peppermint, nicotine, viscosity, electronic cigarettes, anxiety