

## Statistical analysis of high grade samples from four grades *Aquilaria Malaccensis* oil

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### ABSTRACT

Most fragrance, incense, and conventional medical medicines contain agarwood essential oil. Agarwood essential oil, also referred to as "Black Gold," is highly valued globally due to its various benefits. There is currently no established method for classifying various grades of agarwood essential oil. Since human sensory panel is used to evaluate the agarwood essential oil, the current grading method is ineffective. As different individual may have different perspectives on rating agarwood essential oil, the method is impractical to be applied universally. The research study used a boxplot to conduct a statistical analysis on high grade data samples from four grades agarwood essential oil. To determine which chemical elements are significant, the abundances for each chemical compound are summarised using a boxplot analysis in high grade data samples. From the boxplot analysis in this research study, the main chemical elements contained in the high grade agarwood essential oil are 10-epi- $\delta$ -eudesmol,  $\beta$ -agarofuran and  $\alpha$ -agarofuran. The future research studies can categorize five grades and six agarwood essential oil using the chemical elements discovered in this research study as a guide.

### KEYWORDS

Agarwood essential oil; *Aquilaria malaccensis*; Boxplot analysis; Chemical elements; Quality grading

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