UNIVERSITI TEKNOLOGI MARA
Cawangan Melaka

i-JaMCSIIX 2022

International Jasin Multimedia & Computer Science Invention and Innovation Exhibition

ABSTRACT BOOK

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A Novel Quality Grading Determination using Boxplot Analysis and Stepwise Regression for Agarwood Oil Significant Compounds.

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***Abstract*—This product presents the intelligent technique on the oil chemical properties to get accurate results. Agarwood essential oil is frequently connected with wealth that has been great demand all over the global market due to its aroma and various usages. Unfortunately, there is still no standard method for classifying the quality of Agarwood oil since mostly graded by using the human sensory panel. Therefore, the performance of Boxplot analysis and Stepwise Regression model is trained using Matlab version R2015a. This research project involved the proposed statistical analysis which is Boxplot analysis and Stepwise Regression. In this work, there are eleven significant compounds of Gaharu Oil that consists of 660 samples from low, medium low, medium high and high. The experiment involved all the independent variables have been selected by observing the p-value of each variable where all of them have p-value less than 5% significance level. The parameter concerned is on the value of correlation coefficient, R and the mean squared error (MSE). Based on the results of the research project, successfully show that 4 out of 11 compounds show the best performance towards regression value and MSE which are ɤ-Eudesmol, 10-epi-ɤ-eudesmol, β-agarofuran and dihydrocollumellarin. The finding in this proposal will be significant and can contribute to the agarwood oil industry as well as its quality grading classification system.**

Keywords—Boxplot; Stepwise Regression; Quality Grading; Agarwood Oil