



Electronic Nose for Classifying Civet Coffee and Non-Civet Coffee

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Abstract: Several Electronic Nose (E-nose) studies on coffee classification have been conducted. The E-nose uses gas sensors to detect the aroma of coffee and generate signals. Then the signals are classified using machine learning algorithms. In this study, the E-nose used five gas sensors to classify civet coffee and non-civet coffee, and the machine learning algorithms used were SVM, KNN and Decision Tree. The coffee variant used was Arabica coffee with the types of civet coffee (kopi luwak) and non-civet coffee (kopi non-luwak) originating from Aceh, Arjuno Malang, Bengkulu. In this study, the mixture of civet coffee and non-luwak coffee was made with a percentage of 100: 0, 90:10, 10:90, 80:20, 20:80, 75:25, 25:75, 50:50. The accuracy of the classification of Aceh civet coffee (LA) and Aceh non-civet coffee (NLA) was 90% (SVM), 100% (KNN), 100% (Decision Tree). The accuracy of the classification of Arjuno civet coffee (LAR) and Arjuno non-civet coffee (NLAR) was 100% (SVM, KNN, Decision Tree). The accuracy of the classification of Bengkulu civet coffee (LB) and Bengkulu non-civet (NLB) was 45% (SVM), 100% (KNN, Decision Tree). And the accuracy of coffee mixture classification (Aceh civet and Aceh non-civet) was 90% (SVM), 93.75% (KNN), and 95% (Decision Tree). The accuracy level obtained was affected by the age of coffee storage, the data collection process when detecting the coffee aroma, and the number of class attributes used.

Keywords: *E-nose; SVM; KNN; decision tree; civet coffee; non-civet coffee.*

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