kNN: Classification of agarwood types in oil and wooden using E-nose

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ABSTRACT

Agarwood is one of the most expensive woods existed that has been used in many fields such as ceremony, religion, medical and more. There are many spe-cies of agarwood which give different quality. The most high-demand species were A. Malaccensis and A. Crassna. However, there is hard to differentiate be-tween both species either in oil or wooden medium. There is still no analytic standard method available to differentiate them. This study introduces a method of determining the types of agarwood specifically an A. Malaccensis and A. Crassna in oil and in the wooden medium using e-nose with k-Nearest Neighbour (kNN) analysis. In other to achieve that purpose, the objectives of this study were to develop the odor profile of A. Malaccensis and A. Crassna in oil and wooden medium, to classify A. Malaccensis and A. Crassna in oil and wooden medium using kNN classifier, and to measure the performance of kNN classifier on A. Malaccensis and A. Crassna on oil and wooden medium. As the result, the introduced method was able to classify both types of agarwood in both mediums with a high classification rate which is 94.5 percent accurate.

KEYWORDS

E-nose; E-Anfun; kNN; Agarwood; A. Malaccensis; A. Crassna; Intelligent classification first section