

Abstract

Some garlic (*Allium Sativum* L.) types have favorite odor and taste. However, classification of garlic type by their shapes and sizes is not always applicable. This project has proposed the odor measurement system for classifying garlic type using 7 different electronic noses. Garlic's used in the experiment were collected from Yang Chum Noi district of Si Sa Ket province, Nam Pat district of Uttaradit province and Ban Hong district of Lamphun province, where are famous for garlic. The phylogenetic tree of garlic samples is obtained by Amplified Fragment Length Polymorphism (AFLD) method, which confirmed the distinction between types of garlic. In addition, chemical components of volatile of each garlic types were investigated using Gas Chromatography - Mass Spectroscopy (GC-MS) technique. It was found that each garlic types give identical ion chromatogram, which confirmed that there are differences of quantity of chemical components between garlic types. However, some similarity between Uttaradit garlic and Lamphun garlic are shown in results of both experiments. In the gas sensor measurement system, the obtained signals of electronic noses are manipulated on LabView program. The result showed that ammonia sensor and propane sensor have higher sensitivity to garlic odor than other sensor. Then, garlic types are classified using principle component analysis technique. The feasibility of applying the electronic nose to classify garlic types was confirmed in the experiment.