

Sensor fusion of electronic nose and electronic tongue for classification of Orthosiphon stamineus

Abstract

Sensor fusion of electronic nose (e-nose) and electronic tongue (e-tongue) has lead to an improved classification of Orthosiphon stamineus (also known as Misai Kucing). The fusion technique was presented and compared with individual assessment using e-nose and e-tongue separately. Three different commercial sources along with freshly prepared sample were discriminated using an e-nose and an e-tongue. Headspace of these dried Orthosiphon stamineus leaves and brewed samples were measured and compared using e-nose in order to determine the optimum setting for experimental setup and sniffing cycle. Applying the Principal Component Analysis (PCA) separately on the respective e-tongue and e-nose data, only three distinct classes can be classified. However, by employing an improved technique of data fusion of the two modalities, classification of the four distinct groups was achieved.