

# **Principles and recent advances in electronic nose for quality inspection of agricultural and food products**

## **ABSTRACT**

**Background:** The process of quality evaluation is a challenging concern in food industries to ensure the maximum level of food safety in relation to consumer preference. Growing development has taken place in the detection of agricultural and food product quality based on volatile organic compounds that involve distinct and unique characteristics. **Scope and approach:** Quality evaluation is a challenging concern to ensure the maximum level of food safety since it is one of the important key attributes in determining consumer preference. However, until today, suppliers and retailers are still relying on the traditional methods which are labour skill intensive, subjective, and mostly destructive. In this review, the potential and ability of an electronic nose (e-nose) application as a monitoring device in quality evaluation of agricultural and food products are investigated. **Key findings and conclusions:** Attention to the e-nose device has greatly increased due to the promising alternative in the quality inspection of agricultural and food products. The characteristics of aroma and flavour in relation to volatile compounds are also discussed. Further, this paper provides critical insight into the challenges and future trends in the development of an e-nose as a reliable non-destructive evaluation in the food supply chain of different agricultural and food products.

**Keyword:** Electronic nose; Food quality; Volatile organic compounds; Aroma; Agricultural products