

Title Development of Artificial Head for Characterization of Food Safety
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Abstract

It is very important to ensure people to have a safe and plentiful supply of fresh and processed foods. Food borne pathogens have become a very serious issue in recent years. Techniques and methods have been developed to ensure the safety of fresh and minimally processed meats, fruits and vegetables. Traditional methods such as conventional plating, molecular and immunological methods for microorganisms are relatively costly and time consuming. Electronic sensor systems that are the mimic of human senses have great potential for rapid characterization of food quality in a cost-effective way. In characterization of food safety, professional people sense the samples and differentiate “good” or “bad”. However, the human sensory is usually subject to subjectivity, mental and physical inconsistencies, and lengthy time. Artificial senses such as machine vision, electronic ear, electronic nose, electronic tongue, and artificial mouth have been developed to mimic the human senses. Individually each of these artificial sensing systems has their own orientations and limits. If the functions of these sensors are integrated, the integrated sensor system can be expected to be more capable and powerful than any of the individual one. Artificial head is such a new concept to combine the individual sensors that are the mimic of five human senses using the method of multi-sensor data fusion. This research presents and discusses individual artificial sensing systems, especially electronic nose and biosensor functioning as electronic tongue, the structure of artificial head, and its potential to apply in characterization of food safety.