



Research Article

AI-LONG: DETECTION OF FOOD SPOILAGE IN COMMON CARINDERIA DISHES USING AN ELECTRONIC NOSE SYSTEM BASED ON SUPPORT VECTOR MACHINE

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Abstract

Food safety remains a global concern, particularly because conventional approaches, such as visual inspection and sensory evaluation, have limitations in detecting food spoilage and preventing foodborne illnesses. Recent advances in sensing technology, including the E-Knows electronic-nose system, provide promising tools for real-time food-quality monitoring. This study integrated E-Knows olfactory sensors, gas sensors, pH measurements, and temperature monitoring to detect spoilage in selected foods served by PUP Lagoon concessionaires. Samples comprised coconut-milk-based, vinegar-based, and pasta dishes. Sensor responses to spoilage-related gases, including methane, hydrogen, carbon dioxide, hydrogen sulfide, and ammonia, were classified using a Support Vector Machine (SVM) model. The E-Knows system demonstrated high classification accuracy and complemented pH and temperature measurements, thereby strengthening the overall assessment of food quality. These findings may support the development of a food safety management system for PUP Lagoon food stalls and contribute to improved monitoring and food-handling practices among vendors.