基于气敏传感器阵列和**PCA**的猪肉新鲜度快速分类方法

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摘 要：
根据猪肉的腐败机理及其气味特征，合理选用了气敏传感器阵列，建立了一套用于猪肉新鲜度识别的电子鼻系统。通过不同保存温度不同时间的猪肉样品的电
检测实验，探讨了电子鼻的实时响应特性的补偿方法和基于PCA的猪肉新鲜度的判别模式。同时采用挥发性盐基氮和微生物菌落总数检测实验进行对比分析。
表明：在不同实验条件下，由于微生物作用产生的猪肉腐败规律，可由电子鼻实时检测；把温湿度信息作为PCA输入分量，能较好补偿温湿度造成的传感器误
但是对于不同保存温度，判别模式是不同的。结果也表明，本文建立的电子鼻系统可以分析腐败过程，并半定量地表征猪肉腐败水平。

关键词：气敏传感器；猪肉新鲜度；电子鼻；PCA

Rapid Classification of Pork Freshness using Gas Sensor Array and PCA method

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Abstract:
According to the mechanism of pork corruption and smell characteristics, special gas sensor array was adopted and electronic nose system was established for the
identification of pork freshenss. Pork samples stored at different temperature and days were measured. Compensation method for sensor response and recognition model
pork freshness based on PCA were discussed. Total volatile basic nitrogen and aerobic bacterial count of the sample were measured simultaneously as the standard
indicators of pork freshness.The results show that the electronic nose can detect the corruption law of pork produced by microorganism at various conditions. Sensor's e
caused by temperature and humidity could be compensated by choosing temperature and humidity as input components of the PCA model. However the discriminant mc
was different for different storage temperature. The results also show that the electronic nose can analyze the process of corruption and semi-quantitatively characterize
level of pork corruption.

Keywords: Gas sensor; Pork Freshness; Electronic nose; PCA