牛肉新鲜度的电子鼻检测技术 Identification of Beef Freshness with Electronic Nose

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关键词： 牛肉 新鲜度 电子鼻 支持向量机

摘 要： 为了简单、快捷、准确地检测牛肉新鲜度，建立了电子鼻检测系统。根据牛肉产生的气味和传感器实验，合理地选用了气敏传感器阵列。为提高电子鼻传感器灵敏度，对购置的传感器进行了改进。利用生物嗅觉的研究成果，开发出仿生嗅觉鼻道结构。为了提高电子鼻系统小样本训练的识别率，提出了用支持向量机(SVM)算法识别牛肉新鲜度的方法。应用电子鼻系统对储藏7d不同新鲜度的牛肉进行了识别实验，识别率达到99.25%。结果表明电子鼻检测牛肉新鲜度是可行的。 An electronic nose system was developed for detecting beef freshness. An array of gas sensor was selected correctly according to beef smell and sensor experiments. To enhance the sensitivity of electronic nose sensors, purchased sensors were improved. By using the research achievements of biological olfaction, a bionic nasal meatus was designed. In order to improve the recognition rate of the electronic nose system for small samples, appropriate recognition algorithm of support vector machine (SVM) was adopted. Identification experiments of different freshness of beef that had been stored for 7 days were carried out, and results showed that the recognition rate of this system is 99.25%, the feasibility of identifying beef freshness with electronic nose was confirmed.

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