Electronic noses: Powerful tools in meat quality assessment

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Abstract

Main factors that are considered by consumers when choosing meat products are colour and aroma, of which the latter is a more reliable indicator of quality. However, a simple sensory evaluation of hedonistic qualities is often not sufficient to determine whether protein is past its shelf life, and consumption of spoiled meat can lead to serious health hazards. Some volatile compounds can be used as spoilage indicators, and so a device equipped with a sensor sensitive to particular odorants would prove useful. Unfortunately, no such single compound has yet been identified, as the changes taking place in a sample of meat during storage are contingent on numerous factors. On the other hand, a combination of volatile compounds may form a unique ‘fingerprint’ which can be analysed pattern recognition algorithms with an electronic nose. It can supplement established techniques of meat quality assessment by providing results that correlate well with hedonic perception in a short time and at a low cost.