STRATEGIES FOR FLAVOUR AND OFF-FLAVOUR DETECTION

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Strategies for Flavor and Off-Flavor Detection Odours and odour impressions both in a positive and in a negative way have drawn the attention of mankind since ancient times. Not only the positive changes of food smell by the cooking process but also the smell of certain plants and oils have played an important role for centuries. The odour active substances belong to the volatile fraction of a food product. This is normally the smallest part of the product (usually in the milligram per kilogram range, except in spices where the volatile fraction can be up to five percent of the whole product), nevertheless this is the driving part which is responsible for the acceptance or rejection by consumers. Off-flavours and taints are defined as unpleasant odours or tastes, the first resulting from the natural deterioration of a food, the second from its contamination by some other chemical. Although the mass range of odour active substances is limited to 300 Dalton there are literally hundred or thousand compounds having different structure, polarities and hetero atoms, so the chances of spectroscopic and chromatographic interferences is quite likely. Another restriction of (?) analytical approaches is the fact that the method must reach the limits of detection which should be in the range of the sensory threshold. This range spans several orders of magnitude from nanogram per kilogram (or even below) to the upper milligram per kilogram range. In this presentation strategies for the determination of odours and off-odours will be discussed. Presenting several examples for pleasant and unpleasant smell in food products should demonstrate the problems and the approaches to get reliable results. Beside the sample preparation steps the focus on this presentation will be given on the separation and the detection of the target substances.

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