# Advances in Lipid Oxidation Research Methodology

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To improve the nutritional quality of food products, lipids with a higher level of unsaturation need to be used. This results in products in which flavour defects as a result of lipid oxidation are occurring much more easily. Similarly, many of the nutritionally beneficial ingredients increase the sensitivity of the product towards off-flavour formation. This moves to more oxidation-sensitive products require better tools to monitor and control of lipid oxidation. In this presentation the focus will be on the first point.

Four factors are of vital importance when monitoring lipid oxidation: relevancy, sensitivity, reliability and throughput. For many years, indirect methods to monitor lipid oxidation have been used. However, it has been conclusively shown that many of these methods do not give results which correlate with the sensory quality of the product, which is one of the key factors determining the consumer acceptability of these healthier foods. The method presented focuses on measuring the compounds which are directly responsible for the perceived rancidity: the volatile compounds. Since the human nose is highly sensitive, especially for unsaturated aldehydes and ketones, the sensitivity of the analytical methods needs to match this. Finally, it will be discussed how reproducibility, especially in these highly sensitive systems, require repeated experimentation for reliable results. This results in a great number of samples, which demand an automated method with considerable throughput. The pros and cons of various methods will be discussed and the method of choice will be presented in detail.