

Flavour analysis in dairy products

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The flavour of dairy products is known to be influenced by numerous factors, such as the raw material, various treatments and process conditions applied during production, and by fermentation due to the presence of microorganisms. The careful choice of suitable analytical techniques allows to properly evaluate these flavours, but dairy matrices remain a challenge due to their inhomogeneous and complex nature and composition.

After a brief overview of flavour formation in selected milk products, the analytical procedure for dairy flavour analysis will be discussed. Traditional and state-of-the-art extraction techniques for the analysis of volatile compounds by gas chromatography (GC) will be presented. Whilst coupling GC to different physical detectors (e.g. mass spectrometry MS, sulphur specific detection by pulsed-flame photometric detection PFPD) can provide valuable information on the identity and quantity of target molecules, physiological detection by the human nose (olfactometry) is needed in order to evaluate odorant compounds and their impact on the overall odour of the product. Finally, sensory analysis allows to obtain a judgement of the overall flavour by trained panellists and to estimate consumer acceptance.

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