



Sample preparation for food flavor analysis (flavors/off-flavors)

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The chapter is devoted to the specificity of the analysis of volatile food flavor compounds. The specificity of food aroma compounds is described including the odor thresholds problem of flavor compound instability and influence of food matrix on the binding and release of aroma compounds. Distinction between volatiles and aroma compounds is discussed, together with strategies for the sensory guided analysis of key odorants, and food off-flavors and taints. The methods of isolation of aroma compounds are divided into methods used in the extraction of free aroma compounds and methods used for the extraction and analysis of bound aroma compounds. Free aroma compounds' analysis comprises solvent extraction methods including supercritical fluid extraction, distillation methods with a special emphasis on simultaneous distillation extraction, headspace analysis focused on static headspace, and factors affecting methods' sensitivity. The largest group of methods discussed is methods based on sorption mechanisms, where SPME is discussed in more detail, as the most frequently used technique in the analysis of volatile flavor compounds. The specificity of aroma research is reflected in the sub-chapter devoted to specific sample preparation for gas chromatography–olfactometry, and in a sub-chapter on sample preparation techniques for electronic noses. The last sub-chapter discusses the approaches in the sample preparation, fractionation, and analysis of glycosidally bound aroma compounds.

Słowa kluczowe

AEDA, Aroma compounds, Food flavors, Gas chromatography–olfactometry, Headspace, Off-flavors, SDE, SPME, Taints

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