

# FORMATION AND ANALYSIS OF DESIRED AROMA-ACTIVE AND UNDESIREDD FOOD-BORNE TOXICANTS DURING FOOD PROCESSING

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In the past, many studies have been undertaken to elucidate the key odorants of food and to identify formation pathways of the so-called “food-borne toxicants”. But, up to now, analytical approaches including the quantitation of desirable aroma-active compounds in combination with undesirable toxicologically relevant substances by sensitive methods are scarcely available. The lecture will present recent studies, which were combining the analysis of important aroma compounds and of selected food-borne toxicants (e.g., acrylamide, acrolein, crotonaldehyde, styrene, etc.) formed during food-processing, e.g., brewing of beer or deep-frying of potato chips and donuts in different edible oils. Odorants were identified by gas chromatography-olfactometry as well as GC-MS and quantitated by stable isotope dilution analysis (SIDA). For the toxicants, new quantitation methods using stable isotopically labeled standards (e.g., [13C3]-acrolein or synthesized [13C4]-crotonaldehyde) were developed and formation pathways were proven by labeling experiments. In summary, it will be shown that lowering the amounts of undesirable compounds in combination with the maintenance of an overall aroma well accepted by the consumers is a challenging task.

**Keywords:** *food-borne toxicants, aroma-active compounds, gas chromatography-mass spectrometry, stable isotope dilution analysis*