

Analytics and Formation Routes of Acrylamide in Heated Potato Products

Rüdiger Weisshaar,

Chemisches und Veterinäruntersuchungsamt Stuttgart, Germany

Abstract:

Acrylamide is a high polar water-soluble molecule with low, but significant volatility. Most common methods for determination of acrylamide are LC-MS-MS, GC-MS after bromination, GC-MS without derivatisation and LC-MS after derivatisation with mercaptobenzoic acid. Different clean-up procedures are presented, advantages and disadvantages of the individual methods are discussed. In heated foodstuff acrylamide is formed, if free asparagine and reducing sugars are present, water activity is low and product temperature exceeds 100°C. The influence of different parameters on acrylamide formation in model systems are discussed. In fried potatoes the greatest amount of acrylamide is formed from asparagine and reducing sugars. Alternative formation routes for example via acrolein and acrylic acid are much less important.