



Book Review

The Maillard reaction

S.E. Fayle, J.A. Gerrard; Royal Society of Chemistry, 2002, xiv + 120 pages, ISBN 0-85404-581-3 (£49.50)

The term Maillard reactions applies to a complex series of reactions involving free amino groups (present in amines, amino acids, peptides, proteins, etc) with carbonyl compounds (particularly reducing sugars). Despite the fact that such reactions have been under investigation for nearly a century, many of the complex end products and their mechanisms of production are only gradually being elucidated. Such reactions are particularly important in food systems (since the potential reactants are often present together in high concentrations) and can greatly contribute to aroma, taste and appearance, particularly during the course of processing and storage. A decrease in food nutritional quality can arise as a result of decreased availability of essential amino acids and reduced digestibility of proteins due to their participation in Maillard reactions. Food researchers are often faced with detrimental symptoms of Maillard reactions and their potential complexity can make solving a particular food-processing problem somewhat daunting. This informative volume is part of the RSC food analysis monographs series, the aim of the series being to provide state-of-the-art guidance and advice to the practising food analyst, in the form of day-to-day use guides, rather than heavy going volumes for only occasional reference.

The volume begins with two chapters that provide a gentle introduction to the Maillard reaction, giving some necessary historical background information, and discussing the many consequences of the Maillard reaction in food, e.g. its effects on colour, aroma, flavour, texture, bioactivity, and nutrition. The third chapter discusses the extraction of Maillard reaction products from foodstuffs, and the following five chapters focus on the various methodologies that can be employed for the analysis of Maillard reactions in food (namely gas chromatography, liquid chromatography, mass spectrometry, electrophoresis and capillary electrophoresis techniques). Case studies focusing upon the application of such techniques for the analysis of specific Maillard reaction products are provided throughout. The final chapter discusses new methodologies and new approaches.

The overall aim of the volume is to provide an introduction to the field for those who are new to the area, as well as extending the analytical repertoire of those who are more experienced. It is successful in these aims, and provides general information on a variety of analytical techniques and their specific application for the analysis of Maillard reaction products in foods in an accessible and understandable form.

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