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Book Reviews

Food Science (5th edition). N. N. Potter & J. H. Hotchikiss. Chapman & Hall, London, 1995. ISBN 0 41206 451 0. £39.00.

This is a very welcome 5th edition of this work first published some 30 years ago. It is comprised of 25 chapters covering the following topics. In the introductory chapter definitions of food science and the core subjects in food science courses are presented and the broad range of activities of food scientists is outlined. In Chapter 2 the characteristics of the food and related industries in the US are described. In Chapter 3 the major and minor constituents of foods and their significance are discussed. Chapter 4 deals with the unit operations in food processing including preparative operations, heating, cooling, evaporation, drying, forming and packaging. Brief reference is made to control of processes, energy conservation and relatively new developments such as critical fluid extraction and high pressure processing. Chapter 6 covers the quality attributes appearance, colour, texture and flavour and their measurement and the principles of quality control. In Chapter 7 the deterioration in foods as a result of the activities of microorganisms, insects, parasites and rodents is discussed in detail and the principles of food preservation are outlined briefly. It is surprising that some of the common chemical changes, such as browning and oxidation, are not dealt with here or elsewhere in detail. Chapter 8 covers the heat preservation of foods including in-package processing, HTST, UHT and aseptic packaging. In Chapter 9 chilling (refrigeration) and storage of chilled foods are discussed together with freezing and frozen storage. Food dehydration by all the conventional methods and food concentration by vacuum evaporation, freeze-concentration and membrane techniques are covered in Chapter 10. There is also a brief treatment of intermediate-moisture foods. The application of ionizing radiation and microwaves are discussed in Chapter 11. New to this edition is a short discussion of ohmic heating. Chapter 12 covers food fermentation and the direct use of organisms such as single cell protein and yeast. There is also a brief section on genetic engineering. The following eight chapters deal with commodity groups including: dairy products, meat, poultry, eggs, seafoods, fats and oils, cereals, vegetables, fruits, alcoholic and non-alcoholic beverages, confectionery and chocolate products. Chapter 21 covers the principles of food packaging, gives brief details of food-packaging materials and containers and special packaging systems e.g. for microwave heating and aseptic packaging. Safety and environmental aspects of packaging are also discussed. Chapter 22 is entitled Food Processing and the Environment and deals mainly with the quality of processing waters and the treatment and disposal of liquid and solid wastes. Food Safety, Risks and Hazards is the title of an excellent Chapter 23. Hazards are discussed under five headings viz. biological, nutrition-related, trace chemicals, direct food additives and physical. The microbiological aspects of food safety are covered in detail and the use of HACCP to reduce risks. The common foods additives and their uses are also outlined. In Chapter 24, US food legislation and nutritional labelling is summarised. The Codex Alimentarius and other international bodies are discussed briefly. In the final chapter entitled Hunger, Technology and World Food Needs the extent and nature of malnutrition throughout the world are discussed and the various causes outlined. The approaches to combat hunger are listed and the role of technology discussed briefly.

The book is very well presented and easy to read. On the whole, the diagrams are clear and useful. Most of the plates are interesting. There is a useful list of references with useful text for all students of food science and technology and related subjects as it covers such a wide range of topics in food chemistry, microbiology and processing. It should also grace the shelves of libraries in academic, government and industrial research organisations.

J. G. Brennan

Safety of Irradiated Foods (2nd edition). J. F. Diehl. Marcel Dekker Inc., 1995. ISBN 0 82479 344 7. 464 pp. $175.

This is a revised and expanded version of the 1990 edition. The second edition represents a clear advance on the first edition. The most obvious point is that the second edition is 100 pages longer than the first, and contains an extra chapter on identification of irradiated foods. A number of other chapters have been significantly updated, particularly to describe recent developments, and the quality of typescript and figures has been improved markedly. Another area of particular improvement has been the referencing which is now very extensive.

The book forms a comprehensive text on food irradiation, starting with descriptions of what the process is, and the chemical and biological effects. The new chapter on identification of irradiated products provides a detailed review of the topic. The following three chapters cover the concerns over radiological, toxicological and microbiological safety, and nutritional adequacy of