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Section 1 Conventional Food Processing; Chapter 1 Drying and Dehydration Processes in Food Preservation and Processing; 1.1 Introduction; 1.2 Drying kinetics; 1.3 Different drying processes; 1.3.1 Hot-air drying; 1.3.2 Vacuum drying; 1.3.3 Microwave drying; 1.3.4 Freeze drying; 1.3.5 Spray drying; 1.3.6 Osmotic dehydration; 1.3.7 Atmospheric freeze drying; 1.3.8 Sonic drying; 1.3.9 Heat pump drying; 1.3.10 Infrared drying; 1.3.11 Superheated steam drying; 1.3.12 Intermittent drying; 1.3.13 Instant controlled pressure drop drying; 1.3.14 Sun drying and solar drying; 1.3.15 Supercritical drying; 1.3.16 Flash drying; 1.3.17 Pulse drying; 1.3.18 Pulse combustion drying; 1.4 Conclusions; Abbreviations; References; Chapter 2 Size Reduction Practices in Food Processing; 2.1 Introduction; 2.1.1 Size reduction of solids; 2.1.2 Process of grinding; 2.2 Applications of the grinding process; 2.2.1 Dry grinding; 2.2.2 Wet grinding; 2.3 Grinding energy laws; 2.4 Machinery requirement; 2.4.1 Crushers; 2.4.2 Grinders; 2.5 Mechanism of size reduction; 2.5.1 Grinding of heat-sensitive and fat-containing materials; 2.5.2 Cutting of fruits and vegetables; 2.6 Size reduction of liquid; 2.6.1 Homogenization; 2.6.2 Atomization; 2.7 Conclusions; References; Chapter 3 Dough Processing: Sheetting, Shaping, Flattening and Rolling; 3.1 Introduction; 3.2 Dough sheetting; 3.2.1 Technology; 3.2.2 Rheological studies on dough behaviour; 3.3 Shaping; References; Chapter 4 Extrusion Processing of Foods; 4.1 Introduction; 4.2 Application of extrusion technology; 4.3 Description of an extruder; 4.3.1 Type of extruder; 4.3.2 Components of an extruder; 4.4 Selected extrusion technology; 4.4.1 Pasta products; 4.4.2 Breakfast cereals; 4.4.3 Texturized vegetable protein (TVP); 4.4.4 Snack foods; 4.5 Post-extrusion treatment; 4.6 Quality characteristics of product; 4.7 Equations related to food extrusion; 4.8 Present status; References; Chapter 5 The Process of Gelling; 5.1 Introduction; 5.2 Classification of gels; 5.3 Gelling process; 5.4 Mechanism of gel formation; 5.5 Methods for characterization of gels; 5.6 Mathematical models; 5.7 Conclusions; References; Chapter 6 Thermal Food Preservation Techniques (Pasteurization, Sterilization, Canning and Blanching); 6.1 Introduction; 6.2 Pasteurization and sterilization; 6.2.1 Pasteurization; 6.2.2 Sterilization; 6.3 Aseptic processing; 6.4 Canning; 6.4.1 Batch retort systems; 6.4.2 Continuous retort systems; 6.5 Blanching; References; Chapter 7 Extraction Processes; 7.1 Introduction; 7.2 Conventional extraction; 7.2.1 Separation of steam volatiles; 7.2.2 Solvent extraction; 7.3 Advanced extraction processes; 7.3.1 Ultrasound assisted extraction; 7.3.2 Microwave assisted extraction; 7.3.3 High pressure extraction

Sommario/riassunto

"This book will discuss conventional and advanced food processing techniques in detail, outlining their specific applications along with examples, models, and suggestions for further reading for students and professionals, including those without an advanced background knowledge of food processing. Section 1 will be dedicated to the conventional food processing techniques which are presently the most widely used globally, while Section 2 will look at the more advanced techniques which may indicate the future direction of food processing. Each chapter will have the following structure: Practical applications Machinery employed Models available Case study Recent trends References By following this structure, an dedicating each chapter to a different technology, the book will be a useful practical and academic reference, taking account of the practical questions which are of prime importance to the industry (such as the machinery required and costs

involved), as well as the theoretical background and cutting edge research which academics will value. The inclusion of a detailed case study in each chapter is a major strength and will be a key point of interest for both practitioners and academics. The book will cover all the major processing technologies currently in use, and the advanced technologies that may be expected to be increasingly employed in the future. It will show that, in reality, conventional and advanced technologies are often operated together, and are not mutually exclusive. This book will be appropriate for professionals in the food processing industry, and also for postgraduate students seeking an insight into food processing technologies. The book brings together the practical applications and implications of different food processing operations into a single volume, ideal for reference and practical purposes alike. The fusion of the practical (case studies, machinery) and the theoretical (models and research) with an up-to-date sensibility (each chapter contains a section which focuses explicitly on recent trends), makes this book ideal for industry, academia and reference use"--

"This book will discuss conventional and advanced food processing techniques in detail, outlining their specific applications along with examples, models, and suggestions for further reading for students and professionals, including those without an advanced background knowledge of food processing"--
