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FOOD SCIENCE AND TECHNOLOGY

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PREFACE

Chemistry, biochemistry, nutrition microbiology, and chemical engineering are all part of the multidisciplinary field of food science and technology, which applies scientific knowledge to address issues related to the food system. It emphasises how crucial food science and technology are to people. The entire food technology workflow, including raw material selection, processing, preservation, and distribution, is covered in this book. This monograph, which is divided into five units, begins with a summary of food processing and storage.

The food industry and larger food system depend on the complementary disciplines of food science and food technology. Food technology converts the fundamental knowledge of food science regarding its characteristics and behaviours into useful applications for food production, distribution, storage, and packaging. They work together to guarantee that our food is scrumptious, secure, nourishing, consistent, and sustainable.

Food science has advanced from the fundamental physical, chemical, and biological reactions that occur during processing to the domains of food engineering, biotechnology, packaging, and consumer impact. Modern processing techniques seek to preserve the fresh foods' maximum organoleptic qualities and properties while simultaneously extending their shelf life. Meeting market demands requires a basic understanding of food, including its composition, necessity, effects of processing, etc.

Abbreviations

Adenosine Triphosphate (ATP)

Alpha-Linolenic Acid (ALA)

Appearance Quality (AQ)

Arabinogalactans-I (AG-I)

Butylated Hydrogen Anisole (BHA)

Carbon Dioxide (CO_2)

Coenzyme A (CoA)

Crush, Tear, Curl (CTC)

degree of polymerization (DP)

Docosahexaenoic Acid (DHA)

Eating and Cooking Quality (ECQ)

Eicosapentaenoic Acid (EPA)

Emulsifying Activity Index (EAI)

Emulsifying Stability Index (ESI)

Epigallocatechin (EPGC)

Epigallocatechin Gallate (EGCG)

Foam Capacity (FC)

Foam Stability (FS)

Food and Agriculture Organization (FAO)

Form Expansion (FE)

Free Fatty Acids (FFA)

Genetically Modified Organisms (GMOs)

Glycaemic Index (GI)

High Performance Liquid Chromatography (HPLC)

High Temperature Short Time (HTST)

Homogalacturonan (HG)

Hydrocyanohydric Acid (HCN)

Least Gelling Concentration (LGC)

Linoleic Acid (LA)

Low-and Middle-Income Countries (LMIC)

Microfibril (MF)

Milling Quality (MQ)

Monosodium Glutamate (MSG)

Nutritional Quality (NQ)

Oil Absorption Capacity (OAC)

Pasteurized Milk Ordinance (PMO)

Polyphenol Oxidase (PPO)

Premenstrual Syndrome (PMS)

Recommended Daily Intake (RDI)

Reference Dietary Intake (RDI)

Required Daily Amount (RDA)

Rhamnogalacturonan-I (RG I)

Tertiary Butly Hydro Quivous (TBHQ)

Textured Vegetable Protein (TVP)

Tricarboxylic Acid Cycle (TCA)

United States Department of Agriculture (USDA)

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ABOUT THE AUTHORS

Dr. G. Renuka, Assistant Professor of Microbiology SR & BGNR Govt. Arts & Science College(A) Khammam, Telangana. With a passion for unravelling the intricacies of microbial life, Dr. G. Renuka has dedicated 22 years to teaching and 25 years to research in the field of Microbiology. She teaches for Undergraduates and Post Graduates in areas of Introductory Microbiology, Virology, Microbial Physiology, Molecular Biology, and areas of Applied Microbiology, where the focus is on fostering a deep understanding of Microbiological concepts & laboratory techniques and critical thinking skills. She is passionate researcher, and has made a noteworthy contribution in Research on Areas of focus like Agriculture, Environment, and Medical Microbiology which are published in reputed Journals. Dr. G. Renuka, has leveraged her expertise to author the Text Book "Essentials of Microbiology". This comprehensive resource serves as an invaluable guide for students studying Microbiology at both Undergraduate and Post graduate levels. It integrates the latest research findings with practical applications, making complex concepts accessible to learners. She is a recepient District-level and State level Best Teacher Award by the Government of Telangana State. Dr. G. Renuka is committed to nurturing the next generation of Microbiologists, instilling in them, a passion for Scientific inquiry and a strong foundation in the fascinating world of Microbiology.

Ch. Navya Bhanu, Guest Faculty in Microbiology, Pingle Govt. College foe Women (A), Hanamkonda. She is a dedicated Microbiology teacher with three years of enriching experience in guiding learners through the fascinating world of Microscopic life. With a passion for unravelling the secrets of bacteria, viruses, and fungi. She teaches for Undergraduates and Post Graduates in the areas of Molecular Biology, Microbial Genetics, Biological chemitry, Agricultural Microbiology, Environment Microbiology, Food & Industrial Microbiology and Medical Microbiology, Immunology. Driven by a belief in lifelong learning and teaching she strives to inspire students to view microbiology as a key to understanding the world around them and also combines expertise in microbiology with a commitment to nurturing inquistive minds.

L. Vijayalaxmi, MS.c Microbiology at Pingle Govt.College for Women (A), Hanumakonda. Advanced diploma in Food Microbiology at ITLS Academy(Under: Institute of Transgene Life Sciences). With a passion for a vision beyond invisibility," When the entire world is chasing huge dreams we focus on small things to change the world." She is a passionate researcher and has made a contribution in Research on Areas of focus like Agriculture and Medical Microbiology, which are published in reputed journals. My thoughts are like microorganisms they just can't stop growing and infecting my mind. Microorganisms will give you anything you want if you know how to ask them. I have never been disappointed upon asking microorganisms for whatever I wanted. L. Vijayalaxmi is committed to nurturing the next generation of Microbiologists, instilling in them a passion for Scientific inquiry and a strong foundation in the fascinating world of Microbiology.

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