Industrial Microbiology

Dr. G. Renuka

INDUSTRIAL MICROBIOLOGY

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PREFACE

In order to provide students with a practical, practice-oriented text that highlights the industry and the potential of microbes for industrial processes in the future, the **Industrial Microbiology** book brings together the insight and expertise of top researchers and professionals from across the field of industrial microbiology. The twelve most significant applications for microbial technology are discussed after a brief overview of the technology of microbial processes. These include the use of microbes in the leaching of minerals and the treatment of industrial and municipal waste, as well as the production of highly refined biomolecules like enzymes and antibodies. The field of industrial microbiology studies a variety of cutting-edge microbial technology ideas that have been created to maximize the potential of microorganisms. The book looks at products made from microbes that are widely used in a variety of industries, including agriculture, biorefinery, bioremediation, pharmaceutical, and medical.

This text offers a comprehensive introduction to the field of industrial microbiology and is aimed at undergraduates studying the applied aspects of biology, specifically those on biotechnology and microbiology courses and students of food science and biochemical engineering.

Abbreviations

Active Pharmaceutical Ingredient (API)
Adenosine Deaminase-Deficiency-Severe Combined Immunodeficiency (ADA-SCID)
Adenosine Triphosphate (ATP)
Anaplastic Lymphoma Kinase (ALK)
Antibody-Drug Conjugate (ADC)
Artificial Intelligence (AI)
Associated British Foods (ABF)
Atmospheric and Room Temperature Plasma (ARTP)
Bacillus Thuringiensis (Bt)
Bacterial Artificial Chromosomes (BACs)
Biological Resource Center (BRC)
Carboxymethyl Cellulase (CMCase)
Center for Food Safety and Applied Nutrition (CFSAN)
Chimeric Antigen Receptors (CARs)
Chinese Hamster Ovary (CHO)
Community Trade Mark (CTM)
Critical Process Parameter (CPP)
Current Good Manufacturing Practices (cGMP)
Cytidine Triphosphate (CTP)
Diafiltration (DF)
Dietary Guidelines for Americans (DGA)
Downstream Processing (DSP)
Drug Ingredient (DS)
Drug Product (DP)
Drug Substance (DS)
Enzymatic Deinking Technologies (EDT)
Enzyme Development Corporation (EDC)
Ethyl Methane Sulfonate (EMS)
Expressed Sequence Tag (EST)
Factory Science and Technology (MSAT)
Federal Food, Drug, and Cosmetic Act (FDCA)
Filter Paper Activity (FPase)
Follicle-Stimulating Hormone (FSH)
Food and Agriculture Organization (FAO)
Food and Drug Administration (FDA)
Food and Drug Administration (FDA)

General Agreement on Tariffs and Trade (GATT)
Generally Regarded as Safe (GRAS)
Genetically Modified (GM)
Genetically Modified Organisms (GMOs)
Glutamate Dehydrogenase (GDH)
Green Fluorescent Protein (GFP)
Guanosine Triphosphate (GTP)
Healthy Mediterranean-Style Pattern (HMP)
Healthy Vegetarian Pattern (HVP)
Hematopoietic Stem Cells (HSCs)
Herpes Simplex Virus (HSV)
Human Papillomavirus (HPV)
Integrated Pest Management (IPM)
Intellectual Property (IP)
Intellectual Property Rights (IPR)
International Council of Tanners (ICT)
Lactic Acid Bacteria (LAB)
Leber Congenital Amaurosis (LCA)
Luteinizing Hormone (LH)
Microbial Culture Collection (MCC)
Minimum Inhibitory Concentration (MIC)
Monosodium Glutamate (MSG)
Municipal Solid Waste (MSW)
Nonsense-Mediated Decay (NMD)
Nutrition Examination Survey (NHANES)
Open Reading Frame (ORF)
Origin of Replication (OR)
Particle Size Distribution (PSD)
Peptidyl-Transferase Center (PTC)
Phosphotransferase System (PTS)
Plant-Growth Promoting Rhizobacteria (PGPR)
Plant-Incorporated Protectants (PIPs)
Poly(A)-Binding Protein (PABP)
Polymerase Chain Reaction (PCR)
Process Analytical Technology (PAT)
Protein Data Bank (PDB)
Quality by Design (QbD
Quantitative Trait Locus (QTL)
Ribosome Binding Site (RBS)
Rough Endoplasmic Reticulum (RER)

Sexually Transmitted Infection (STI)
Solid-State Fermentation (SSF)
Submerged Fermentation (SMF)
Tissue-Type Plasminogen Activator (tPA)
Trade-Related Aspects of Intellectual Property Rights (TRIPS)
Transient Gene Expression (TGE)
Ultrafiltration (UF)
Upstream Processing (USP)
US Department of Agriculture (USDA)
US-Style Food Pattern (HUP)
Vesicular Stomatitis Virus (VSV)
Virus-Like Particle (VLP)
World Federation for Culture Collections (WFCC)
World Trade Organization (WTO)
Xylitol Dehydrogenase (XDH)
Xylose Isomerase (XI)
Xylose Reductase (XR)
Xylulokinase (XK)

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ABOUT THE AUTHOR

Dr. G. Renuka

Dr. G. Renuka, Assistant Professor of Microbiology, specializing in Immunology, Food & Industrial Microbiology at Pingle Govt. College for Women (A), Hanumakonda. 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.

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