

Biotechnology in Agriculture and Food Processing: Opportunities and Challenges

By Parmjit S. Panesar, Satwinder S. Marwaha

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An instructive and comprehensive overview of the use of biotechnology in agriculture and food production, **Biotechnology in Agriculture and Food Processing: Opportunities and Challenges** discusses how biotechnology can improve the quality and productivity of agriculture and food products. It includes current topics such as GM foods, enzymes, and production of various types of food ingredients as well as basic ones such as the concept of biotechnology, plant cell, and tissue culture. Combining coverage of agriculture and food processing, the book highlights the range of biotechnology applications from "farm to fork."

The book begins with the fundamental concepts of the role of biotechnology and genomics in agriculture and food processing. Building on this, it then focuses on specific applications of biotechnology in agriculture and includes chapters on plant cell and tissue culture techniques, genetic transformation in crop improvement, and the production of biofertilizers and biopesticides. The authors cover different aspects of biotechnology in food processing such as production of fermented foods, functional foods, enzymes in food processing, production of polysaccharides, production of sweeteners, biocolors and bioflavors, and genetically modified foods. They then examine the management of crop residues and by-products of agro-industries, comprising mushroom production and value addition to agro-industrial wastes and residues.

Biotechnology has been recognized as one of the key technologies for increasing economic growth. With chapters written by leading experts in this field, the book provides a better understanding of how biotechnology applications can reduce production costs, improve productivity, and enhance product quality in the agro food processing sector.

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Editorial Review

Review

".... The global perspective on biotechnological products is very valuable in these times with international trade such an important political and economic topic in so many countries. I think the referencing was thorough and relied on a blend of established and recent publications to support and justify the information. I liked the tables, which also seemed complete and easy to use."

-Dallas G. Hoover, University of Delaware, Department of Animal & Food Sciences, Newark, USA

"The authors have done a phenomenal job of converting the rather tousled and often controversial subject of biotechnology to make it simplified... The evidence based nature of the book will go a long way in vindicating and validating the discussions on biotechnology and it's ultimate value for holistic, science based applications."

-Dr. Purvi Mehta-Bhatt, Head-Asia, International Livestock Research Institute, New Delhi, India

"This volume provides the reader with an instructive and comprehensive overview of the use of biotechnology in agriculture and food production, from 'farm to fork' or 'pasture to plate', by discussing how biotechnology can improve the quality and productivity of agriculture and food products. The referencing is thorough, relying on a balanced blend of established and recent publications to support and justify the information. This evidence-based nature provides vindication and validation of the discussions on biotechnology and its value in science-based applications. It is therefore recommended to researchers, both in academia and industry, with interests in such areas of agricultural and food sciences." ?John F. Kennedy and Charles J. Knill, Chembiotech Laboratories, Institute of Advanced Science and Technology, Worcestershire, UK

"Agriculture and food processing are integrated disciplines and biotechnology has played a signi?cant role in both areas for many years. Biotechnological processes have helped to boost the yield of agricultural crops and have also assisted in the generation of novel varieties. ... This volume is divided into four parts, the ?rst of which explains the fundamental concepts of the role of biotechnology and genomics in agriculture and food processing... Wastes from the fruit and vegetable, dairy processing, sugar, brewing, wine, distillery, meat and poultry processing, seafood, coffee, and olive oil, industries are included, along with information on the production of single-cell proteins, baker's yeast, a wide range of organic acids, biofuels, enzymes, polysaccharides, pigments, ?avours, surfactants, bacteriocins, vitamins, amino acids and antibiotics." *?Carbohydrate Polymers, 2014*

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