

# impact factor metabolic engineering

**impact factor metabolic engineering** is a critical metric in evaluating the significance and influence of research within the field of metabolic engineering. This interdisciplinary domain combines principles of biology, chemistry, and engineering to optimize cellular processes for the production of valuable chemicals, biofuels, pharmaceuticals, and other bioproducts. Understanding the impact factor in metabolic engineering journals and publications provides insight into the reach and quality of advancements made in this area. This article explores the concept of impact factor as it relates to metabolic engineering, the factors influencing it, and its implications for researchers and industry professionals. Additionally, it examines how the impact factor affects the dissemination of knowledge and the progression of innovations within metabolic engineering. The following sections will provide a comprehensive overview, including the definition of impact factor, its role in scientific publishing, key journals in metabolic engineering, and strategies to enhance research impact.

- Understanding Impact Factor in Metabolic Engineering
- Key Journals and Their Impact Factors
- Factors Influencing Impact Factor in Metabolic Engineering
- Implications of Impact Factor for Researchers and Industry
- Strategies to Enhance Research Impact in Metabolic Engineering

## Understanding Impact Factor in Metabolic Engineering

### Definition and Calculation of Impact Factor

The impact factor is a quantitative measure reflecting the average number of citations to articles published in a specific journal over a defined period, typically two years. In metabolic engineering, this metric helps gauge the visibility and influence of scientific publications in advancing the field. The calculation involves dividing the total citations received in the current year to articles published in the previous two years by the total number of articles published during those years. This standardized approach allows for comparison among journals and indicates the relative importance of research outputs within metabolic engineering and related disciplines.

### Role of Impact Factor in Scientific Communication

Impact factor serves as a guide for researchers to identify reputable journals for publishing their work. High-impact journals in metabolic engineering often attract groundbreaking studies, which tend to receive more citations and foster further innovation. Moreover, the impact factor influences funding decisions, academic promotions, and institutional rankings, thereby shaping the direction and

priorities of research efforts. However, it is essential to recognize that while impact factor is a valuable indicator of journal prestige, it does not directly measure the quality or significance of individual articles.

## Key Journals and Their Impact Factors

### Prominent Metabolic Engineering Journals

Several journals specialize in metabolic engineering and related fields, each with varying impact factors that reflect their influence in the scientific community. Notable examples include:

- **Metabolic Engineering:** A leading journal focusing on the design and optimization of metabolic pathways for improved production of chemicals and materials.
- **Biotechnology and Bioengineering:** Covers a broad range of topics including metabolic engineering, synthetic biology, and bioprocessing technologies.
- **Journal of Industrial Microbiology & Biotechnology:** Emphasizes applied aspects of microbial metabolism and engineering for industrial applications.
- **ACS Synthetic Biology:** Publishes research on synthetic biology techniques that intersect with metabolic engineering strategies.

### Comparing Impact Factors

The impact factors of these journals vary, often ranging from moderate to high depending on the scope and audience. For instance, *Metabolic Engineering* typically has one of the highest impact factors in the domain, underscoring its role as a primary outlet for influential research. Researchers aiming to maximize the reach of their work often prioritize submitting to journals with higher impact factors, recognizing the potential for greater citation and visibility.

## Factors Influencing Impact Factor in Metabolic Engineering

### Research Trends and Novelty

The emergence of new research trends, such as CRISPR-based metabolic pathway editing or machine learning applications in strain optimization, can significantly affect citation rates and, consequently, impact factors. Journals that publish pioneering studies in these areas are more likely to see increases in their impact factor due to heightened interest and subsequent citations.

## **Publication Frequency and Article Types**

Journals with higher publication frequencies and a mix of article types, including original research, reviews, and perspectives, tend to attract more citations. Review articles, in particular, often garner high citation counts because they synthesize existing knowledge and guide future research directions in metabolic engineering.

## **Collaborations and Multidisciplinary Research**

Collaborative research involving multiple institutions or disciplines can enhance the visibility and citation potential of publications. Metabolic engineering often overlaps with systems biology, synthetic biology, and biochemical engineering, broadening the audience and impact of research articles.

## **Implications of Impact Factor for Researchers and Industry**

### **Academic and Career Advancement**

For researchers in metabolic engineering, publishing in high-impact journals can be crucial for career progression, grant acquisition, and establishing credibility within the scientific community. Impact factor serves as a proxy for research quality when evaluating candidates for academic positions or funding opportunities.

### **Industry Adoption and Innovation**

Companies involved in biotechnology and metabolic engineering closely monitor high-impact publications to identify emerging technologies and potential collaborations. The impact factor can thus indirectly influence the translation of research into commercial products and processes by highlighting significant scientific advancements.

### **Limitations and Criticisms**

Despite its widespread use, the impact factor has limitations, including its susceptibility to manipulation and its inability to account for the quality or reproducibility of individual studies. Researchers and institutions are increasingly encouraged to consider alternative metrics and qualitative assessments in addition to impact factor when evaluating research impact.

## **Strategies to Enhance Research Impact in Metabolic**

# Engineering

## Publishing in High-Impact Journals

Targeting reputable journals with high impact factors can increase the visibility and citation potential of metabolic engineering research. This requires producing rigorous, novel, and well-communicated studies that address current challenges and opportunities in the field.

## Engaging in Collaborative and Interdisciplinary Research

Collaborations across disciplines and institutions expand the reach of research findings. Integrating approaches from systems biology, computational modeling, and synthetic biology can generate comprehensive studies that appeal to a broader scientific audience.

## Utilizing Open Access and Digital Platforms

Open access publishing and active dissemination through digital platforms and social media can amplify research exposure beyond traditional academic channels. This strategy helps to accelerate knowledge sharing and application in metabolic engineering.

## Publishing Review Articles and Meta-Analyses

Authoring comprehensive reviews or meta-analyses can establish researchers as thought leaders and attract significant citations. These article types are valuable for summarizing advances and identifying future research directions in metabolic engineering.

## Maintaining High Research Quality and Reproducibility

Ensuring methodological rigor and transparent reporting enhances the credibility and long-term impact of metabolic engineering studies. High-quality research is more likely to be cited and integrated into subsequent work.

## Frequently Asked Questions

### What is the impact factor of the journal Metabolic Engineering?

As of 2023, the impact factor of the journal Metabolic Engineering is approximately 7.4, reflecting its influence in the field of biotechnology and metabolic research.

## **How does the impact factor of Metabolic Engineering compare to other journals in biotechnology?**

Metabolic Engineering has a competitive impact factor, generally ranking within the top journals in biotechnology and biochemical engineering, indicating high-quality and frequently cited research.

## **Why is the impact factor important for journals like Metabolic Engineering?**

The impact factor indicates the average number of citations to articles published in a journal, helping researchers assess the journal's prestige and the visibility of their work in fields such as metabolic engineering.

## **Has the impact factor of Metabolic Engineering increased in recent years?**

Yes, the impact factor of Metabolic Engineering has shown a steady increase over recent years, reflecting growing interest and advancements in metabolic pathway design and synthetic biology.

## **What factors influence the impact factor of Metabolic Engineering?**

Factors include the quality and novelty of published research, citation frequency, relevance to current scientific challenges, and the journal's visibility within the metabolic engineering community.

## **Can the impact factor of Metabolic Engineering affect funding and career opportunities for researchers?**

Publishing in high-impact journals like Metabolic Engineering can enhance a researcher's visibility and credibility, potentially influencing funding decisions and career advancement.

## **Are there alternative metrics to the impact factor for evaluating Metabolic Engineering?**

Yes, alternative metrics include the h-index, SCImago Journal Rank (SJR), Eigenfactor, and article-level metrics, which provide a broader evaluation of journal and research impact beyond the impact factor.

## **How can researchers use the impact factor of Metabolic Engineering to decide where to publish?**

Researchers often consider the impact factor to gauge a journal's reach and prestige, aiming to publish in journals like Metabolic Engineering to maximize exposure and citation potential for their work.

# Does the impact factor reflect the quality of individual articles in Metabolic Engineering?

While the impact factor reflects the average citation rate of articles in the journal, it does not directly measure the quality of individual articles, which can vary widely within any journal.

## Additional Resources

### 1. *Metabolic Engineering: Principles and Methodologies*

This comprehensive book explores the foundational principles and advanced methodologies in metabolic engineering. It covers techniques for pathway analysis, gene manipulation, and the optimization of microbial and cellular systems to enhance the production of valuable metabolites. Suitable for both beginners and experienced researchers, it combines theoretical concepts with practical applications in biotechnology.

### 2. *Systems Metabolic Engineering: Concepts and Applications*

Focusing on the integration of systems biology with metabolic engineering, this book discusses how computational modeling and high-throughput experimental techniques accelerate strain development. It highlights case studies where metabolic pathways are engineered for improved yield and productivity in industrial microorganisms. The text also addresses challenges and future directions in the field.

### 3. *Metabolic Pathway Engineering for Biofuels Production*

This title delves into the design and optimization of metabolic pathways to produce sustainable biofuels. It reviews genetic engineering strategies to enhance the biosynthesis of ethanol, biodiesel, and other renewable energy sources. The book also examines the environmental and economic impacts of biofuel production through metabolic engineering.

### 4. *Advanced Metabolic Engineering Techniques for Synthetic Biology*

Combining the principles of synthetic biology with metabolic engineering, this book presents state-of-the-art techniques for constructing novel biosynthetic pathways. It includes genome editing tools, regulatory circuit design, and metabolic flux analysis to create efficient microbial cell factories. Researchers will find detailed protocols and practical insights into designing synthetic biological systems.

### 5. *Metabolomics and Metabolic Engineering in Microbial Biotechnology*

This book emphasizes the role of metabolomics in understanding and manipulating microbial metabolism. It explains how comprehensive metabolite profiling informs metabolic engineering strategies to improve product yield and strain robustness. The integration of omics data with engineering approaches is thoroughly discussed to guide biotechnological innovation.

### 6. *Industrial Biotechnology and Metabolic Engineering: Strategies for Enhanced Production*

Aimed at industrial applications, this book explores metabolic engineering strategies to optimize production processes for pharmaceuticals, chemicals, and enzymes. It covers strain development, bioprocess optimization, and scale-up challenges. Readers gain insight into translating laboratory research into commercially viable bioproducts.

### 7. *Computational Tools for Metabolic Engineering and Systems Biology*

Highlighting the importance of computational approaches, this book provides an overview of software,

algorithms, and modeling techniques used in metabolic engineering. It discusses genome-scale metabolic models, flux balance analysis, and machine learning applications. The text is valuable for researchers seeking to integrate computational tools into their metabolic engineering projects.

#### 8. *Metabolic Engineering of Microorganisms for Chemicals and Materials*

This book focuses on engineering microbial systems to produce a wide range of chemicals and materials, including bioplastics and specialty chemicals. It outlines genetic modification techniques and pathway optimization to enhance biosynthesis efficiency. Case studies illustrate successful industrial applications and emerging trends in the field.

#### 9. *Prospects and Challenges in Metabolic Engineering for Sustainable Development*

Addressing the broader impact of metabolic engineering, this book discusses its role in sustainability and environmental protection. It explores how engineered metabolic pathways can contribute to waste valorization, carbon capture, and green chemistry. The book also critically examines ethical, economic, and regulatory challenges facing the technology's implementation.

## **Impact Factor Metabolic Engineering**

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**impact factor metabolic engineering:** *Metabolic Engineering in Plants* Tariq Aftab, Khalid Rehman Hakeem, 2022-06-01 This edited book highlights the plant and cell/organ culture systems, and environmental and genetic transformation-based modulation of biochemical pathways. Special focus is given to microRNA-based technology, heterologous systems expression of enzymes and pathways leading to products of interest, as well as applications using both model and non-model plant species. Metabolic engineering is usually defined as the re-routing of one or more enzymatic reactions to generate new compounds, increase the production of existing compounds, or facilitate the degradation of compounds. Plants are the foundation of numerous compounds which are synthesized via assimilated complex biosynthetic routes. Plants have evolved an incredible arrangement of metabolic pathways leading to molecules/compounds capable of responding promptly and effectively to stress situations imposed by biotic and abiotic factors, some of which supply the ever-growing needs of humankind for natural chemicals, such as pharmaceuticals, nutraceuticals, agrochemicals, food and chemical additives, biofuels, and biomass. However, in foreseeable future we will be forced to think about the accessibility of resources for the generations to come. For these reasons, the book proposes alternative options of food/food supplement, medicines and other essential items, by using plant metabolic engineering approach. This book is of interest to teachers, researchers and academic experts. Also, the book serves as additional reading material for undergraduate and graduate students of biotechnology and molecular biology of plants.

**impact factor metabolic engineering:** *Lignans: Insights into Their Biosynthesis, Metabolic Engineering, Analytical Methods and Health Benefits* Christophe F. Hano, Albena Todorova Dinkova-Kostova, Norman George Lewis, John Robert Cort, Laurence B. Davin, 2021-02-17

**impact factor metabolic engineering:** *Biotechnological Intervention in Production of Bioactive Compounds* Jyoti Devi, 2025-02-25 This book provides an overview of the state of our understanding regarding the biosynthesis of bioactive compounds from plant and microbial sources.

Additionally, examples of how these compounds have been used in food, agriculture, and human health are provided, as well as the biotechnological approach for screening and characterizing bioactive compounds. In the pharmaceuticals, nutraceuticals, and agrochemicals industries, bioactive molecules are crucial to the production of high-value products. The discovery of bioactive chemicals from diverse sources has supported their use as medications, functional food ingredients, herbicides, and insecticides due to their medicinal advantages, nutritional importance, and protective impacts in healthcare and agriculture. The systematic investigation of biologically active products and the prospective biological activities of these bioactive compounds, comprising their medical uses, standardization, quality control, mode of action, and possible biomolecular interactions, are among the greatest sensational expansions in modern natural medication and healthcare. This book is a useful resource for graduate and undergraduate biomedical chemistry and agriculture students who are interested in learning more about the possibilities of bioactive natural products. This book is useful to researchers in a variety of scientific domains where natural products are important.

**impact factor metabolic engineering:** *Progress in Molecular and Environmental Bioengineering* Angelo Carpi, 2011-08-01 This book provides an example of the successful and rapid expansion of bioengineering within the world of the science. It includes a core of studies on bioengineering technology applications so important that their progress is expected to improve both human health and ecosystem. These studies provide an important update on technology and achievements in molecular and cellular engineering as well as in the relatively new field of environmental bioengineering. The book will hopefully attract the interest of not only the bioengineers, researchers or professionals, but also of everyone who appreciates life and environmental sciences.

**impact factor metabolic engineering: The Impact of Systems Medicine on Human Health and Disease** Adil Mardinoglu, Jens Nielsen, 2017-03-24 Complex disorders including obesity, diabetes, fatty liver disease, cardiovascular disease and cancer are results from a combination of genetic, environmental and lifestyle factors. The prevalence of such disorders has increased dramatically in the last two decades and there is an urgent need for the development of new prognostic tools for the treatment of such diseases. However, this requires a deep understanding of the underlying molecular mechanisms involved in the occurrence of the diseases. With the advances in high throughput technologies, biological components of cells can be measured with a very high resolution and these data can be used for investigating whole systems properties using a network-based approach. Systems medicine provides an integrative platform for studying the interactions between the biological components of the cell using a holistic approach and generating mechanistic explanations for the emergent systems properties. This inter-disciplinary field of study allows for understanding biological processes of cells in health and disease states, gaining new insights into what drives the appearance of the disease and finally identifying proteins and metabolites implicated in human disease. Systems medicine utilizes mathematical approaches to generate models which can be employed for designing new sets of experiments and for mapping the response of the system to perturbations quantitatively. These models as well as the developed tools can accelerate the emergence of personalized medicine which can transform the practice of medicine and offer better targets for drug development with minimum side effects.

**impact factor metabolic engineering:** *Advanced Renewable Energy Systems, (Part 1 and 2)* S. C. Bhatia, 2014-04-14 The book is a complete treatise on renewable energy sources and also includes issues relating to biofuels. It aims to serve as a text for undergraduate and postgraduate students in relevant disciplines and a reference for all the professionals in the related fields.

**impact factor metabolic engineering: Plant Biotechnology and Sustainable Agriculture** Tariq Aftab, 2025-08-08 Plant biotechnology offers an array of powerful tools and techniques that can revolutionize the way we cultivate crops, enhance their nutritional value, and address critical challenges such as climate change, pests, and limited resources. Through understanding the genetic makeup of plants and manipulating it using scientific techniques, we can develop crops that are



more resistant to pests and diseases, more tolerant of abiotic stresses such as drought and salinity, and more nutritious. Ultimately this helps us to produce more food with fewer resources and less environmental impact. As the global population continues to grow, the need for sustainable and efficient agricultural practices becomes increasingly pressing. This book describes the latest advances in genetic engineering, molecular biology, and stress physiology, and explores the ethical and regulatory considerations that underpin this transformative science.

**impact factor metabolic engineering:** Reprogramming Microbial Metabolic Pathways

Xiaoyuan Wang, Jian Chen, Peter Quinn, 2012-10-19 Metabolic engineering has been developed over the past 20 years to become an important tool for the rational engineering of industrial microorganisms. This book has a particular interest in the methods and applications of metabolic engineering to improve the production and yield of a variety of different metabolites. The overall goal is to achieve a better understanding of the metabolism in different microorganisms, and provide a rational basis to reprogram microorganisms for improved biochemical production.

**impact factor metabolic engineering:** *Biotechnology, Multiple Omics, and Precision Breeding in Medicinal Plants*

Jen-Tsung Chen, 2025-03-27 Biotechnology, Multiple Omics, and Precision Breeding in Medicinal Plants explores the various methods for advancing medicinal plant research. It covers a wide range of approaches, including integrated and advanced plant biotechnology, mutagenesis, nanotechnology, genome-wide association studies, multiple omics tools, and high-throughput technologies. The book highlights the significant impact of combining pan-genomics with metabolomics in medicinal plant research, particularly in understanding how genetic diversity influences the profiles of secondary metabolites and the therapeutic potential of these plants.

FEATURES: Explores ways to improve the production of secondary metabolites and bioactive compounds in key medicinal plants Features information on bioinformatics, artificial intelligence models, molecular markers, and genome editing techniques such as CRISPR-assisted precision breeding Promotes specific prebiotic formulas to ward off adverse effects of antibiotics Covers information on epigenetic regulation in boosting secondary metabolite production and the use of speed breeding combined with high-throughput technologies Proposing a multitude of technologies and methodologies in plant biotechnology with focus on enhancing the production of secondary metabolites and bioactive compounds from medicinal plants, this book is an ideal resource for researchers and academia in plant sciences/breeding, agriculture, and horticulture industries.

**impact factor metabolic engineering:** *Annual Plant Reviews, Control of Primary Metabolism in Plants*

William Plaxton, Michael T. McManus, 2008-04-15 The ability to control the rates of metabolic processes in response to changes in the internal or external environment is an indispensable attribute of living cells that must have arisen with life's origin. This adaptability is necessary for conserving the stability of the intracellular environment which is, in turn, essential for maintaining an efficient functional state. The advent of genomics, proteomics, and metabolomics has revolutionised the study of plant development and is now having a significant impact on the study of plant metabolism and its control. In the last few years, significant advances have been made, with the elucidation of enzyme gene families and the identification of new proteinaceous and allosteric regulators. The first part of this volume is devoted to generic aspects of metabolic control, with chapters on the key control points in pathways. Part Two considers the control of specific pathways, with detailed descriptions (including structures) and discussions of the regulation of these pathways, particularly in terms of the enzymology. The book is directed at researchers and professionals in plant biochemistry, physiology, molecular biology and cell biology.

**impact factor metabolic engineering:** *4th Applied Synthetic Biology in Europe*

Jean Marie François, Fayza Daboussi, Jussi Jantti, 2020-06-29

**impact factor metabolic engineering:** *Index Medicus* , 2004 Vols. for 1963- include as pt. 2 of the Jan. issue: Medical subject headings.

**impact factor metabolic engineering:** *The Oxford Handbook of Food, Politics, and Society*

Ronald J. Herring, 2015 How is food political? : market, state, and knowledge / Ronald J. Herring -- Science, politics, and the framing of modern agricultural technologies / John Harriss,

Drew Stewart -- Genetically improved crops / Martina Newell-McGloughlin -- Agroecological intensification of smallholder farming / Rebecca Nelson, Robert Coe -- The hardest case : what blocks improvements in agriculture in Africa? / Robert L. Paarlberg -- The poor, malnutrition, biofortification, and biotechnology / Alexander J. Stein -- Biofuels : competition for land, resources, and political subsidies / David Pimentel, Michael Burgess -- Alternative paths to food security / Norman Uphoff -- Ethics of food production and consumption / Michiel Korthals -- Food, justice, and land / Saturnino M. Borras Jr., Jennifer C. Franco -- Food security, productivity, and gender inequality / Bina Agarwal -- Delivering food subsidy : the state and the market / Ashok Kotwal, Bharat Ramaswami -- Diets, nutrition, and poverty : lessons from India / Raghav Gaiha, Raghbendra Jha, Vani S. Kulkarni, Nidhi Kaicker -- Food price and trade policy biases : inefficient, inequitable, yet not inevitable / Kym Andersen -- Intellectual property rights and the politics of food / Krishna Ravi Srinivas -- Is food the answer to malnutrition / David E. Sahn -- Fighting mother nature with biotechnology / Alan McHughen -- Climate change and agriculture : countering doomsday scenarios / Derrill D. Watson II -- Wild foods / Jules Pretty, Zareen Bharucha -- Livestock in the food debate / Purvi Mehta-Bhatt, Paulo Ficarelli -- The social vision of the alternative food movement / Siddhartha Shome -- Food values beyond nutrition / Ann Grodzins Gold -- Cultural politics of food safety : genetically modified food in Japan, France, and the United States / Kyoko Sato -- Food safety / Bruce M. Chassy -- The politics of food labeling and certification / Emily Clough -- The politics of grocery shopping: eating, voting, and (possibly) transforming the food system / Josée Johnston, Norah MacKendrick -- The political economy of regulation of biotechnology in agriculture / Gregory D. Graff, Gal Hochman, David Zilberman -- Coexistence in the fields? : GM, organic, and conventional food crops / Janice Thies -- Global movements for food justice / M. Jahi Chappell -- The rise of the organic foods movement as a transnational phenomenon / Tomas Larsson -- The dialectic of pro-poor papaya / Sarah Davidson Evanega, Mark Lynas -- Thinking the African food crisis : the Sahel forty years on / Michael J. Watts -- Transformation of the agrifood industry in developing countries / Thomas Reardon, C. Peter Timmer -- The twenty-first century agricultural land rush / Gregory Thaler -- Agricultural futures : the politics of knowledge / Ian Scoones

**impact factor metabolic engineering:** *Ambivalences of Creating Life* Kristin Hagen, Margret Engelhard, Georg Toepfer, 2015-08-27 Synthetic biology is the label of a new technoscientific field with many different facets and agendas. One common aim is to create life, primarily by using engineering principles to design and modify biological systems for human use. In a wider context, the topic has become one of the big cases in the legitimization processes associated with the political agenda to solve global problems with the aid of (bio-)technological innovation. Conceptual-level and meta-level analyses are needed: we should sort out conceptual ambiguities to agree on what we talk about, and we need to spell out agendas to see the disagreements clearly. The book is based on the interdisciplinary summer school Analyzing the societal dimensions of synthetic biology, which took place in Berlin in September 2014. The contributions address controversial discussions around the philosophical examination, public perception, moral evaluation and governance of synthetic biology.

**impact factor metabolic engineering: Green Biocatalysis** Ramesh N. Patel, 2016-05-09 Green Biocatalysis presents an exciting green technology that uses mild and safe processes with high regioselectivity and enantioselectivity. Bioprocesses are carried out under ambient temperature and atmospheric pressure in aqueous conditions that do not require any protection and deprotection steps to shorten the synthetic process, offering waste prevention and using renewable resources. Drawing on the knowledge of over 70 internationally renowned experts in the field of biotechnology, Green Biocatalysis discusses a variety of case studies with emphases on process R&D and scale-up of enzymatic processes to catalyze different types of reactions. Random and directed evolution under process conditions to generate novel highly stable and active enzymes is described at length. This book features: A comprehensive review of green bioprocesses and application of enzymes in preparation of key compounds for pharmaceutical, fine chemical, agrochemical, cosmetic, flavor, and fragrance industries using diverse enzymatic reactions Discussion of the development of

efficient and stable novel biocatalysts under process conditions by random and directed evolution and their applications for the development of environmentally friendly, efficient, economical, and sustainable green processes to get desired products in high yields and enantiopurity. The most recent technological advances in enzymatic and microbial transformations and cutting-edge topics such as directed evolution by gene shuffling and enzyme engineering to improve biocatalysts. With over 3000 references and 800 figures, tables, equations, and drawings, *Green Biocatalysis* is an excellent resource for biochemists, organic chemists, medicinal chemists, chemical engineers, microbiologists, pharmaceutical chemists, and undergraduate and graduate students in the aforementioned disciplines.

**impact factor metabolic engineering: Agricultural Biomass for the Synthesis of Value-Added Materials** Sankha Chakraborty, Jayato Nayak, Shirsendu Banerjee, Maulin P. Shah, 2024-09-30 This book is a comprehensive guide to bioconversion approaches based on microorganisms and enzymes for the valorization of underused wastes of diverse categories to produce new products. Optimized conditions for microbial and enzymatic valorization are discussed, along with related biotechnological considerations, environmental considerations, bioprocess development, obstacles, and future outlooks. Biofuels, bioenergy, and other platform chemicals are only some of the products that can be produced through this book's explanation of the microbiological processes involved in the bioconversion and valorization of wastes.

**impact factor metabolic engineering: Flavonoids: From Biosynthesis and Metabolism to Health Benefits** M. Carmen González-Mas, M. Amparo Blázquez, María Pilar López-Gresa, Pedro Mena, Cristina García-Viguera, 2021-11-23

**impact factor metabolic engineering: Photosynthesis in a Changing Global Climate: a Matter of Scale** Iker Aranjuelo, Marouane Baslam, Alvaro Sanz-Saez, 2021-02-25

**impact factor metabolic engineering: Biotechnology for Toxicity Remediation and Environmental Sustainability** K. M. Gothandam, Ramachandran Srinivasan, Shivendu Ranjan, Nandita Dasgupta, 2023-03-04 Environmental issues such as ozone layer depletion, overpopulation, biodiversity loss, global warming, natural resource depletion, and so on affect every organism on the planet somehow. Environmental biotechnology applications can help to protect and restore the quality of the environment. The goal is to use biotechnology with other technologies and safety procedures to prevent, arrest, and reverse environmental degradation. Environmental biotechnology is one of the most rapidly expanding and practically useful scientific fields. Biochemistry, physiology and genetic research of microorganisms can be converted into commercially available technologies for reversing and preventing further deterioration of the earth's environment. Solid, liquid, and gaseous wastes can be altered either by recycling new by-products or by purifying to make the end product less harmful to the environment. Biotechnology for Toxic Remediation and Environmental Sustainability discusses the removal of pollutants by absorption techniques and recycling wastewater into valuable by-products and biofuels by microorganisms. Moreover, this book also addresses corrosion prevention by green inhibitors, uses electrochemical systems for renewable energy and waste recycling using microbes, and recent food safety and security trends in the food microbiome. On the other hand, this book also discusses therapy and treatments against antibiotic-resistant bacteria, anti-cancer and pharmacological properties of thymoquinone and preventive properties of zinc nanoparticles against stress-mediated apoptosis in epithelial cells. Features Covers all aspects of Biotechnological application in the environment Discusses sustainable technology for the wastewater treatment and value-added products from wastewater Focuses on research activities Green corrosion inhibitors, bio-electrochemical systems, food safety and security, and antimicrobial resistance The book is a valuable resource for the undergrad and graduate students, doctoral and post-doctoral scholars, industrial personnel, academicians, scientists, researchers, and policymakers involved in understanding and implementing applications of biotechnology for environmental toxic remediation.

**impact factor metabolic engineering: Metabolic Engineering for Complex Natural Product Biosynthesis Utilizing Escherichia Coli** Blaine Alan Pfeifer, 2002

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