

Biohydrogen Production

Fundamentals and Technology Advances

Authors/Affiliations

Debabrata Das, Indian Institute of Technology, Kharagpur, India

Namita Khanna, Indian Institute of Technology, Kharagpur, India

Chitralekha Nag Dasgupta, Indian Institute of Technology, Kharagpur, India

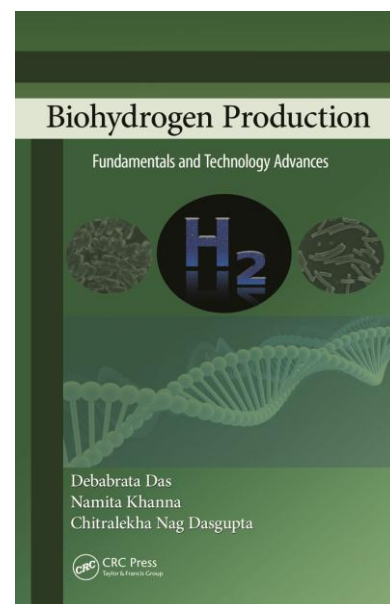
This book compiles the fundamentals of biohydrogen production technology. It offers comprehensive coverage of microbiology, biochemistry, feedstock requirements, and molecular biology of the biological hydrogen production processes. It also gives insight into scale-up problems and limitations. In addition, the book discusses mathematical modeling of the processes involved in biohydrogen production and the software required to model the processes. It also summarizes research advances, discusses bottlenecks of the various processes, and covers the process economy, policy, and environmental impact of this technology.

Key Features

- Details the fundamental and diverse processes of biohydrogen production
- Covers socio-economics and cost energy analysis to give a holistic picture of this technology
- Offers insight into the scale-up of the processes
- Discusses mathematical modeling of the various processes involved in biohydrogen production and the software required to model the processes
- Explains the microbiology and biochemistry behind each process as well as advances in molecular biology and metabolic engineering for future improvement of the processes
- Includes illustrative diagrams, flow charts, and comprehensive tables detailing scientific advances to help readers understand the process

Selected Contents

Introduction. Microbiology. Hydrogen Production Processes. Biohydrogen Feedstock. Molecular Biology of Hydrogenases and Maturation Systems. Improvement of Hydrogen Production through Molecular Approaches and Metabolic Engineering. Process and Culture Parameters. Media Composition. Theoretical Considerations: Mathematical Modelling and Simulation of the Process. Scale Up and Energy Analysis of the Process. Biohydrogen Production Process Economy, Policy and Environmental Impact. Index.



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