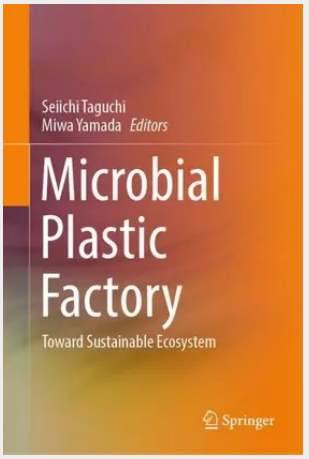
Taguchi (Deceased) / Yamada

Microbial Plastic Factory

Toward Sustainable Ecosystem



This contributed volume provides a comprehensive overview of polyhydroxyalkanoates (PHAs)—a family of biodegradable and bio-based polyesters synthesized by microorganisms. Authored by leading experts in microbiology, polymer science, and biotechnology, the book devotes special attention to recent advances in metabolic and enzyme engineering, positioning microbial plastic factories as a key innovation in the development of sustainable plastic materials. In addition to discussing the physical properties, biodegradability, and industrial applications of PHAs, the book highlights the extensive research achievements of pioneering scientists and their broader contributions to the progress of the field. Strong emphasis is placed on industrial case studies, the outstanding challenges in the commercialization of microbially synthesized plastics, and future directions in sustainable materials science. This book serves as a comprehensive reference for scientists, engineers, and policymakers working on the development and practical use of biobased and biodegradable plastics.

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