

Special Issue on
Polyhydroxyalkanoates: The Future Green Biopolymer of Choice

CALL FOR PAPERS

Application of biodegradable polymers is one of the most exciting fields of science and technology, due to the increasing occurrence of plastic accumulation in nature combined with the resulting social and economic problems of processing required for return of plastic to material cycle in the nature.

Among the several degradable biopolymers, polyhydroxyalkanoates has attracted increasing attention as biobased, biocompatible, and biodegradable “green plastics” as an attractive substitute for conventional petrochemical plastics due to its similar properties to thermoplastics and elastomers and complete biodegradability upon disposal under various environments. Polyhydroxyalkanoates can be accumulated as an intracellular carbon/energy source in various microorganisms. Its biosynthesis occurs similarly to the accumulation of other microbial storage compounds, for example, glycogen, following high intracellular concentration levels of acetyl-CoA, ATP, or NAD(P)H. Such condition results in supply from a growth limiting component in the presence of excess carbon source.

The use of polyhydroxyalkanoates in a wide range of applications has been hampered mainly by cost and characteristics. The fermentation performance, carbon substrate, the isolation of new microorganisms with high growth rate, and potential of production as well as yield and recovery method affect the production cost of PHA. Depending on the provided carbon source and the microbial production strain, the material properties of PHA obtained for further processing towards vendible items can resemble those of crystalline thermoplastics to flexible elastomers, latexes, and even high-performance, functional polymers that, after their life span, are completely biodegradable to CO₂ and water as the sole products of microbial mineralization. So a special issue about all aspects of PHA from production to characterization and application can be useful to increase knowledge about this aspect of biobased research.

This special issue is intended to provide the latest achievements on this exciting and growing field as a human demand to a safe biopolymer for biomedical and packaging applications.

Potential topics include but are not limited to the following:

- ▶ Mcl-PHA production
- ▶ Genetically engineered strains for PHA production
- ▶ Raw materials and exotic wastes for PHA production
- ▶ Enzymes of PHA synthesis and degradation
- ▶ Endotoxin-free PHA
- ▶ PHA from cyanobacteria and sustainability aspects of biopolymers
- ▶ Fermentors and systems for PHA production
- ▶ Mixed and coculture for PHA production

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/bmri/biotechnology/pfgeb/>.

Lead Guest Editor

Kianoush Khosravi-Darani, Shahid Beheshti University of Medical Sciences, Tehran, Iran
kiankh@yahoo.com

Guest Editors

Kenji Tanaka, Kinki University, Fukuoka, Japan
tanaka@fuk.kindai.ac.jp

Martin Koller, University of Graz, Graz, Austria
martin.koller@uni-graz.at

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