

1. Record Nr.	UNINA9910869172103321
Autore	Shah Maulin P
Titolo	Trends in Biotechnology of Polyextremophiles // edited by Maulin P. Shah, Satarupa Dey
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	3-031-55032-3
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (499 pages)
Altri autori (Persone)	DeySatarupa
Disciplina	660.63
Soggetti	Biotechnology Microbiology Biochemistry Environmental engineering Bioremediation Environmental chemistry Chemical Bioengineering Biological Chemistry Environmental Engineering/Biotechnology Environmental Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Overview of the Genes Associated with Polyextremophiles -- Genetics and proteomics of polyextremophiles existing in high temperature -- Applications of genome editing in extremophiles -- Extremophiles: How Smart are the Cells to Cope with the Environment? -- Impact of Climate Change on Polar Polyextremophilic Diversity, with a Focus on Genetics and Proteomics -- Implications of polyextremophiles in astrobiology research -- The Biocatalytic Potential of Extremozymes isolated from extremophiles -- Secondary Metabolites from extremophiles -- Salting Up Our Knowledge: The Fascinating Halophiles, Their Bioactive Metabolites with Biomedical Implications -- Application of Extremophiles in therapeutics -- Extremophilic algae-based wastewater treatment, nutrient recovery and animal feed production -- Potentiality of polyextremophilic organisms in

bioremediation of aromatic hydrocarbons and persistent organic pollutants- A biotechnological approach -- Role of extremophilic microbes in removal of microplastics -- Indigenous microbiota of acid mine environment and their role in the bioremediation of abandoned mining sites -- Role of extremophiles in the removal of heavy metal and E-waste -- Exploitation of Potential Extremophiles for Bioremediation of Microplastics: A Biotechnological Approach -- Lignin valorization using lignolytic microbe and enzymes: The challenges and opportunities -- Biotechnology of extremophiles advances and challenges -- Role of extremophiles in treatment of industrial waste, pharmaceuticals and personal care products.

Sommario/riassunto

This book covers polyextremophiles, the latest biotechnological advances, and developments in the study of extremophilic diversity with a focus on genetics, proteomics and the impact of climate change. It sets out new perspectives on the polyextremophiles' mechanism of tolerance to extreme conditions, and it also outlines their applications in bioremediation, therapeutics, and astrobiology research. Expert contributors discuss topics such as genes associated with polyextremophiles, the applications of genome editing in extremophiles, secondary metabolites from extremophiles, and the biocatalytic potential of extremozymes isolated from extremophiles. Readers will find in this book several case studies that collate the diverse applications of polyextremophiles for bioremediation, including the use of extremophilic algae in wastewater treatment, nutrient recovery and animal feed production, the treatment of industrial waste, pharmaceuticals and personal care products, and the removal of microplastics, heavy metals and E-waste. Particular attention is given to the use of polyextremophiles for bioremediation of abandoned mining sites. The book also presents bioactive compounds from halophiles and their biomedical applications and discusses the implications of polyextremophiles in astrobiology research. Given its breadth, this book is a valuable contribution to the biotechnology of polyextremophiles by overviewing research to date and exploring challenges and opportunities for future research. It also benefits a broad readership, from scholars, researchers and students to industry professionals interested in the study and development of biotechnological applications of polyextremophiles.
