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Titolo	Recent Advances in Lichenology [[electronic resource]] : Modern Methods and Approaches in Lichen Systematics and Culture Techniques, Volume 2 // edited by Dalip Kumar Upreti, Pradeep K. Divakar, Vertika Shukla, Rajesh Bajpai
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Descrizione fisica	1 online resource (240 p.)
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Soggetti	Plant genetics Microbiology Metabolism Plants Climatic changes Plant Genetics and Genomics Metabolomics Plant Systematics/Taxonomy/Biogeography Climate Change
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	1. Lichenization: the origins of a fungal life-style -- 2. The dynamic discipline of species delimitation: Progress towards effectively recognizing species boundaries in natural populations -- 3. Molecular phylogenetic and phylogenomic approaches in studies of lichen systematics and evolution -- 4. High-throughput sequencing in studies

of lichen population biology -- 5. Type-I NR-PKS gene characterization of the cultured lichen mycobiont *Xanthoparmelia substrigosa* (Ascomycota) -- 6. Endolichenic fungi in Kumaun Himalaya: a case study -- 7. The diversity of lichenised fungi: ecosystem functions and ecosystem services -- 8. In-Vitro Culture of Lichen Partners: Need and Implications -- 9. Biochemical Diversity and Ecology of Lichen-forming Fungi. Lichen Substances, chemosyndromic variation and origin of Polyketide-type metabolites (biosynthetic pathways) -- 10. Lichen substances and their biological activities -- 11. Anti-cancer activity of lichen metabolites and their mechanisms at the molecular level -- 12. Lichen dyes: Current scenario and future prospects.

Sommario/riassunto

This book discusses in detail molecular, mycobiont culture, biomonitoring and bioprospection of lichens, providing insights into advances in different fields of lichenology by applying modern techniques and approaches and examining how their application has enhanced or changed classical approaches. It offers a valuable resource, especially for beginners, students and researchers from different academic backgrounds interested in the study of lichens. In recent years, the introduction of modern analytical techniques and approaches has significantly improved our understanding of the environment, including lichens. Lichens are unique organisms which possess untapped potential as effective and reliable bioindicators, sources of therapeutic phytochemicals, and as excellent extremophiles. The unique and peculiar characteristics of lichens underline the need for a multidimensional approach to explore their potential in various fields of environment science, botany and chemistry. Modern techniques, especially molecular techniques, have greatly enriched the field of lichen taxonomy and its position in the plant kingdom, revealing little-known species and exploring their evolutionary history, while multivariate analysis and GIS approaches have established lichens as an ideal and reliable tool for monitoring air pollution. Advanced culture techniques have expanded the pharmacological applications of lichens, which was formerly restricted due to their small biomass. The advent of sophisticated analytical instrumentation has now facilitated the isolation and characterization of lichens' bioactive constituents, even in lower concentrations, as well as the estimation of their stress responses at different levels of pollution. As lichen diversity is adversely affected by increasing air pollution, there is a pressing need to develop effective management practices to conserve, restore and document lichen diversity.
