1. Record Nr. UNINA9910878989803321 Autore Kinghorn A. Douglas Titolo Progress in the Chemistry of Organic Natural Products 124 Pubbl/distr/stampa Cham:,: Springer,, 2024 ©2024 **ISBN** 9783031595677 9783031595660 Edizione [1st ed.] Descrizione fisica 1 online resource (239 pages) Progress in the Chemistry of Organic Natural Products Series; v.124 Collana Altri autori (Persone) **FalkHeinz** GibbonsSimon AsakawaYoshinori LiuJi-Kai DirschVerena M Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Intro -- About This Book -- Contents -- Natural Products Nota di contenuto Dereplication: Databases and Analytical Methods -- 1 Introduction -- 2 Databases: Their Essential Role in the Dereplication Process -- 2.1 General Encyclopedic Natural Product Databases -- 2.2 Databases Devoted to Specific Habitats or Geographical Regions -- 2.3 Databases Related to Ethnobotanical and Traditional Medicine -- 2.4 Databases Focused on Specific Taxa -- 3 Analytical Chromatography and Sample Microfractionation -- 4 Dereplication Methods Based on Ultraviolet-

Dereplication: Databases and Analytical Methods -- 1 Introduction -- 2
Databases: Their Essential Role in the Dereplication Process -- 2.1
General Encyclopedic Natural Product Databases -- 2.2 Databases
Devoted to Specific Habitats or Geographical Regions -- 2.3 Databases
Related to Ethnobotanical and Traditional Medicine -- 2.4 Databases
Focused on Specific Taxa -- 3 Analytical Chromatography and Sample
Microfractionation -- 4 Dereplication Methods Based on UltravioletVisible Spectroscopy -- 5 Dereplication Methods Based on Mass
Spectrometry -- 5.1 Dereplication Based on Accurate Mass
and Molecular Formula -- 5.2 Dereplication Based on Tandem MS -5.3 Dereplication Based on Ion Mobility MS and Collisional Cross
Section Data -- 6 Dereplication Methods Based on Nuclear Magnetic
Resonance Spectroscopy -- 6.1 Dereplication Based on Matching
to Experimental NMR Spectroscopic Data -- 6.2 Dereplication Based
on Matching to Calculated NMR Spectroscopic Data -- 6.3 Dereplication
Based on NMR-Derived Structural Features -- 7 Illustrative Examples
of Natural Products Dereplication -- 7.1 Example 1: Dereplication

Based on Low-Resolution Mass Spectrometry and UV-Vis Spectroscopy -- 7.2 Example 2: Dereplication of High Molecular-Weight Natural Products Based on the Experimental Accurate Mass and the Isotopic Pattern -- 7.3 Example 3: Dereplication Based on Tandem MS and Experimental Spectral Libraries or Virtual Fragmentation Algorithms -- 7.4 Example 4: Dereplication Based on 13C NMR Spectroscopy and Calculated Spectra Libraries -- 7.5 Example 5: Dereplication Using HSQC Spectra and Artificial Intelligence Tools --7.6 Example 6: Dereplication Using Structural Features Derived from 1H NMR Spectroscopy -- 8 Conclusions -- References -- The Chemical Ecology of Plant Natural Products -- 1 Introduction. 2 Ecological Functions of Terpenoids in Plants -- 2.1 Ecological Functions of Monoterpenoids in Plants -- 2.2 Ecological Functions of Sesquiterpenoids in Plants -- 2.3 Ecological Functions of Diterpenoids in Plants -- 2.4 Ecological Functions of Sesterterpenoids in Plants -- 2.5 Ecological Functions of Triterpenoids in Plants -- 2.6 Ecological Functions of Steroids in Plants -- 3 Ecological Functions of Phenolic Compounds in Plants --3.1 Ecological Functions of Quinones in Plants -- 3.2 Ecological Functions of Coumarins in Plants -- 3.3 Ecological Functions of Phenylpropanoids in Plants -- 3.4 Ecological Functions of Flavonoids in Plants -- 3.5 Ecological Functions of Other Phenolic Compounds in Plants -- 4 Ecological Functions of Alkaloids in Plants -- 4.1 Ecological Functions of Terpenoid Alkaloids in Plants -- 4.2 Ecological Functions of Piperidine Alkaloids in Plants -- 4.3 Ecological Functions of Quinoline, Isoquinoline, and Quinazoline Alkaloids in Plants -- 4.4 Ecological Functions of Pyrrole Alkaloids in Plants -- 4.5 Ecological Functions of Steroidal Alkaloids in Plants -- 5 Research Progress on the Ecological Functions of Other Types of Compounds in Plants --5.1 Ecological Functions of Simple Alcohols, Aldehydes, Ketones, and Esters in Plants -- 5.2 Ecological Functions of Sulfur-Containing and Cyanide-Containing Compounds in Plants -- 5.3 Ecological Functions of Acyl Carbohydrates in Plants -- 5.4 Ecological Functions of Long-Chain Fatty Acids and Other Types of Compounds in Plants --6 Future Prospects -- References -- Chemical Constituents Isolated from the Lichen Biome of Selected Species Native to North America -- 1 Introduction: The Lichen Biome -- 1.1 What is a Lichen? -- 1.2 Lichenicolous Fungi -- 1.3 Endolichenic Fungi -- 1.4 Endolichenic Bacteria -- 1.5 Lichen Photobionts: Algae (Phycobionts) and Cyanobacteria (Cyanobionts). 2 Lichens of North America -- 2.1 Eco-Geographical Patterns on the Distribution of Lichen Species in North America -- 2.2 Taxonomic Identification -- 2.3 Chemical Constituents -- 3 Basidiomycetes Associates of Lichens -- 3.1 Isolation of Lichen Basidiomycetes -- 4 Investigation of an Endolichenic Associate of a U.S. Lichen, Niebla homalea -- 5 Conclusions -- References.