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Sommario/riassunto

This protocol book provides detailed procedures for the isolation of cyanobacteria, extraction, quantification, and detection of cyanotoxins. It illustrates the sampling and processing of toxin-producing cyanobacteria in water and aquatic animal samples, detection of cyanotoxins from Anabaena, Anabaenopsis, Cylindrospermopsis, Microcystis, Microcystis, Nodularia, Nostoc, Schizotrix, Lyngbya, Raphidiopsis, Oscillatoria, Planktothrix in aquatic resources. It also covers toxicity analysis by various bioassay protocols, and in vitro and in silico analysis methods. The book also reviews the methods for cyanotoxin extraction, detection, and quantification by various tools including LC-MS/MS, HPLC, NMR, PCR, and HESI-MS/MS. A separate section is dedicated to the advanced methods in Cyanotoxin analysis including the Molecular Imprinting Method (MIM), Cellular signaling biosensor, Electrochemical sensor, Nanosensors, and screening of Polyketide synthase gene. The analysis of various toxin-producing genes like sxtA and mcy is also accounted for in this book. In a nutshell, the book gives comprehensive procedures about the basics and preliminary processes that are involved in sample collection to advanced methods incorporated into the well-explored and unexplored Cyanobacterial toxin. Consequently, this manual is useful for both beginners and advanced researchers, including postgraduate students, academicians, researchers, and scientists in the field of Cyanobacterial research.
