**Table S1.** Collection of review papers using the terms “cyanotoxins”, “aquatic biotoxins”, “phycotoxins”, “marine biotoxins” and “harmful algal blooms”. This search was conducted in April 2023 and retrieved a total of 432 hits for the ISI WoS Core Collection database.

**Observations:** This search on ISI WoS was conducted on the Core Collection database. Only review articles written in English were considered in this analysis. Repeated review articles were only included once, which explains the differences between the number of hits obtained from Web of Science, and the effective number of articles in the table for each keyword.

**Main results:** As expected, the majority of reviews focusses on human and human-related model organisms health impacts of aquatic toxins. In regards to cyanobacterial toxins the most studied are microcystins, cylindrospermopsins and nodularins. Concerning marine toxins, okadaic acid, cyclic imines and azaspiracids are the most reviewed. A considerable amount of review articles is available concerning saxitoxins, anatoxins, BMAA, domoic acid and ciguatoxins human health effects and exposure routes. In general, more attention is needed regarding terrestrial/aquatic biota and environmental health impacts of both freshwater and marine toxins. There is also a limited number of reviews focusing on the use of biomarkers, especially molecular and epigenetic, for aquatic toxins.

**Number of hits (search on Web of Science -all fields- for review papers – 25/04/2023)**

Cyanotoxins: 245

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Toxins** | **Main Objective** | **Conclusions** | **DOI** |
| Review of Cyanotoxicity Studies Based on Cell Cultures | All cyanotoxins | Study cyanotoxins effects on human cell lines | Considerations relating to the use of human cell lines in toxicological assays involving cyanotoxins and their use in studies focusing on cyanotoxins effects on human health | <https://doi.org/10.1155/2022/5647178> |
| Negative Effects of Cyanotoxins and Adaptative Responses of Daphnia | Microcystins, cylindrospermopsins and anatoxin-a | Study cyanotoxins effects on *Daphnia.* Ecotoxicological effects of cyanotoxins | Reviews cyanotoxins effects on *Daphnia* species health. Identifies exposure routes of daphnids to cyanotoxins and discusses the use of daphnids to control cyanobacterial blooms | <https://doi.org/10.3390/toxins14110770> |
| State of knowledge and concerns on cyanobacterial blooms and cyanotoxins | All cyanotoxins | HABs and cyanotoxins impacts on human health. Effects on human health and exposure routes of cyanotoxins. Water treatment. Extensive literature review | Reviews the most effective water treatment strategies in dealing with cyanotoxins. Determines that 50% of publications focus on microcystins, 25% on saxitoxins and the other 25% on the remaining cyanotoxins | <https://doi.org/10.1016/j.envint.2013.06.013> |
| Human Health Risk Assessment Related to Cyanotoxins Exposure | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews cyanotoxins effects on human health. Identifies exposure routes of humans to cyanotoxins and points out research needs and future directions on cyanotoxins research | <https://doi.org/10.1080/10408440701749454> |
| Experimental Studies on Zooplankton-Toxic Cyanobacteria Interactions: A Review | All cyanotoxins | Study cyanotoxins effects on *Daphnia* and other cladocerans.Ecotoxicological effects of cyanotoxins | Reviews cyanotoxins effects on zooplankton species health. Identifies exposure routes of daphnids to cyanotoxins, reviews possible resistance adaptations of zooplankton to cyanotoxins and discusses the use of daphnids to control cyanobacterial blooms | <https://doi.org/10.3390/toxics11020176> |
| Cyanotoxins: Bioaccumulation and Effects on Aquatic Animals | All cyanotoxins, mainly microcystins | Effects to aquatic biota. Ecotoxicological effects of cyanotoxins | Assesses the effects of cyanotoxins on zooplankton and evaluates the bioaccumulation and biodilution of these toxins in the food chain | <https://doi.org/10.3390/md9122729> |
| Human Exposure to Cyanotoxins and Their Effects on Health | Microcystins | Human health effects of microcystins and exposure routes | Reviews microcystins effects on human health. Reviews the human exposure routes to microcystins and discusses the existent legislation | <https://doi.org/10.2478/10004-1254-64-2013-2320> |
| A review of cyanobacteria and cyanotoxins removal/inactivation in drinking water treatment | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.1007/s00216-010-3709-5> |
| Cyanotoxins and the Nervous System | All cyanotoxins | Human nervous system effects of cyanotoxins | Reviews the acute and chronic neurotoxic effects of cyanotoxins in humans | <https://doi.org/10.3390/toxins13090660> |
| Cyanobacteria and Cyanotoxins: From Impacts on Aquatic Ecosystems and Human Health to Anticarcinogenic Effects | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects (beneficial and prejudicial) of cyanotoxins | <https://doi.org/10.3390/toxins5101896> |
| Cyanotoxins: producing organisms, occurrence, toxicity, mechanism of action and human health toxicological risk evaluation | All cyanotoxins | Cyanotoxins production routes. Human health effects of cyanotoxins and exposure routes | Reviews the environmental factors that lead to cyanotoxin production. Reviews human health effects of cyanotoxins | <https://doi.org/10.1007/s00204-016-1913-6> |
| A Comprehensive Review: Development of Electrochemical Biosensors for Detection of Cyanotoxins in Freshwater | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Cyanotoxins detection methods | Reviews human health effects (beneficial and prejudicial) of cyanotoxins. Reviews cyanotoxins biosensors detection methods and analyses existent legislation | <https://doi.org/10.1021/acssensors.9b00376> |
| Methods and Approaches Used for Detection of Cyanotoxins in Environmental Samples: A Review | All cyanotoxins | Cyanotoxins detection methods | Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.1080/10643389.2011.644224> |
| A Review of In Situ Methods-Solid Phase Adsorption Toxin Tracking (SPATT) and Polar Organic Chemical Integrative Sampler (POCIS) for the Collection and Concentration of Marine Biotoxins and Pharmaceuticals in Environmental Waters | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods | Reviews the use of solid phase based sample preparation methods for the determination of marine toxins and cyanotoxins in environmental matrices | <https://doi.org/10.3390/molecules27227898> |
| Interpreting the Possible Ecological Role(s) of Cyanotoxins: Compounds for Competitive Advantage and/or Physiological Aide? | All cyanotoxins | Cyanotoxins production routes and their ecological function | Reviews the environmental factors that lead to cyanotoxin production and the ecological role of these toxins. Gives recommendations regarding HAB/cyanotoxins managing strategies | <https://doi.org/10.3390/md11072239> |
| Impact of global warming on water toxicity: cyanotoxins | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins. Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.1016/j.cofs.2017.09.013> |
| Toxicology of microcystins with reference to cases of human intoxications and epidemiological investigations of exposures to cyanobacteria and cyanotoxins | Microcystins and other cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review | Reviews human health effects of cyanotoxins (mainly microcystins). Conducts an epidemiological study of human exposure events to microcystins and gives an opinion on the effectiveness of these studies for cyanotoxins management | <https://doi.org/10.1007/s00204-016-1921-6> |
| Co-Occurrence of Cyanobacteria and Cyanotoxins with Other Environmental Health Hazards: Impacts and Implications | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Cyanotoxins co-occurrence with other agents/compounds dangerous to human health | Reviews human health effects of cyanotoxins. Reviews the human health effects of coexposure to cyanotoxins and other toxic agents/compounds. Analyses existent legislation | <https://doi.org/10.3390/toxins12100629> |
| Cyanobacterial blooms in China: diversity, distribution, and cyanotoxins | Microcystins and other cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins in China | Reviews human health effects of cyanotoxins (mainly microcystins). Conducts an epidemiological study of human exposure events to microcystins and other cyanotoxins and HAB events in China | <https://doi.org/10.1016/j.hal.2021.102106> |
| Cyanotoxins: Characteristics, production and degradation routes in drinking water treatment with reference to the situation in Serbia | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Cyanotoxins production routes and water treatment strategies | Reviews human health effects of cyanotoxins. Reviews the environmental factors that lead to cyanotoxin production. Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.1016/j.chemosphere.2013.01.003> |
| Aptamer-Based Biosensors to Detect Aquatic Phycotoxins and Cyanotoxins | All cyanotoxins and marine toxins | Cyanotoxins and marine toxins detection methods | Reviews cyanotoxins and marine toxins detection methods and analyses existent legislation for freshwater and marine waters | <https://doi.org/10.3390/s18072367> |
| Selective removal of common cyanotoxins: a review | Microcystins, Cylindrospermopsins and other cyanotoxins | Cyanotoxins detection methods. Water treatment strategies | Reviews cyanotoxins detection methods and analyses existent legislation. Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.1007/s11356-021-13798-6> |
| Bloom-forming cyanobacteria and cyanotoxins in Argentina: A growing health and environmental concern | Microcystins, Cylindrospermopsins and other cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins in Argentina | Reviews human health effects of microcystins, Cylindrospermopsins and other cyanotoxins. Conducts an epidemiological study of human exposure events to microcystins, cylindrospermopsins and other cyanotoxins, and HAB events in Argentina. Analyses existent legislation | <https://doi.org/10.1016/j.limno.2017.10.006> |
| The Diversity of Cyanobacterial Toxins on Structural  Characterization, Distribution and Identification:  A Systematic Review | All cyanotoxins | Cyanotoxins detection methods. Human health effects of cyanotoxins and exposure routes. Extensive literature review | Reviews cyanotoxins detection methods. Reviews human health effects of cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins and of the distribution of cyanotoxins around the world | <https://doi.org/10.3390/toxins11090530> |
| Phytotoxic effects of microcystins, anatoxin-a and cylindrospermopsins to aquatic plants: A meta-analysis | Microcystins, cylindrospermopsins and anatoxin-a | Study the effects of microcystins, cylindrospermopsins and anatoxin-a on aquatic plants. Extensive literature review | Reviews the phytotoxic effects of microcystins, cylindrospermopsins and anatoxin-a on 34 species of aquatic plants | <https://doi.org/10.1016/j.scitotenv.2021.152104> |
| Toxic effects of cyanotoxins in teleost fish: A comprehensive review | All cyanotoxins | Study the effects of cyanotoxins on teleost fish health | Reviews the major toxicological impacts of cyanotoxins on teleost fish. Reviews the main internalization mechanisms of cyanotoxins in teleost fish. Points out research needs and future directions on cyanotoxins research | <https://doi.org/10.1016/j.aquatox.2021.105971> |
| Harmful algae: effects of alkaloid cyanotoxins on animal and human health | Anatoxin-a, saxitoxin and cylindrospermopsins | Human and animal health effects of cyanotoxins and exposure routes | Identifies exposure routes of humans to cyanotoxins and points out research needs and future directions on cyanotoxins research | <https://doi.org/10.3109/15569543.2010.516464> |
| Analysis, levels and seasonal variation of cyanotoxins in freshwater ecosystems | Microcystins, nodularins, cylindrospermopsins and anatoxin-a | Cyanotoxins detection methods. Extensive literature review | Reviews the most effective water treatment strategies in dealing with cyanotoxins. Reviews cyanotoxins detection methods and analyses existent legislation. Conducts an epidemiological study of cyanotoxins analysis and levels in freshwater environments with particular emphasis on seasonal variations in Europe | <https://doi.org/10.1016/j.teac.2020.e00091> |
| Extraction and applications of cyanotoxins and other cyanobacterial secondary metabolites | Microcystins, cylindrospermopsins, anatoxin-a and BMAA | HABs and cyanotoxins impacts on human health. Cyanobacteria secondary metabolite extraction and their possible applications | Reviews the most effective extraction methodologies for cyanobacteria secondary metabolite extraction. Reviews cyanobacterial secondary metabolites biotechnological applications | <https://doi.org/10.1016/j.chemosphere.2017.05.106> |
| A Review on the Study of Cyanotoxins in Paleolimnological Research: Current Knowledge and Future Needs | Microcystins and cylindrospermopsins | Reviews the state-of-the-art of cyanotoxins paleolimnological studies | Reviews direct extraction, quantification and application of cyanotoxins in sediment cores and puts forward future research prospects in this field | <https://doi.org/10.3390/toxins12010006> |
| Cyanobacteria, Cyanotoxins, and Neurodegenerative diseases: Dangerous Liaisons | BMAA, anatoxins, ciguatoxins and saxitoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins. Summarizes the link between cyanotoxins and neurodegeneration | <https://doi.org/10.3390/ijms22168726> |
| Recent Application of Solid Phase Based Techniques for Extraction and Preconcentration of Cyanotoxins in Environmental Matrices | All cyanotoxins | Cyanotoxins detection methods | Reviews sampling methodologies and applications of solid phase-based sample preparation methods for the determination of cyanotoxins in environmental matrices | <https://doi.org/10.1080/10408347.2016.1225255> |
| Reviewing Interspecies Interactions as a Driving Force Affecting the Community Structure in Lakes via Cyanotoxins | Microcystins, anatoxins, saxitoxins, cylindrospermopsins and BMAA | Ecotoxicological effects of cyanotoxins | Assesses the effects of these cyanotoxins on heterotrophic bacteria, phytoplankton, zooplankton, macrophytes and macroalgae | <https://doi.org/10.3390/microorganisms9081583> |
| Photodegradation of cyanotoxins in surface waters | Anatoxins, cylindrospermopsins, domoic acid, microcystins, and nodularins | Photodegradation rates and pathways of cyanotoxins and marine toxins | Reviews current knowledge on the photodegradation rates and pathways of cyanotoxins and marine toxins. Identifies the most important photochemical transformation mechanisms for cyanotoxins and marine toxins degradation in aquatic ecosystems | <https://doi.org/10.1016/j.watres.2021.116804> |
| Cyanotoxins and Food Contamination in Developing Countries: Review of Their Types, Toxicity, Analysis, Occurrence and Mitigation Strategies | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review | Reviews human health effects of cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins in developing countries. Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.3390/toxins13110786> |
| Cyanotoxins and their environmental health risk in marine and freshwaters of Saudi Arabia | Microcystins, cylindrospermopsins, saxitoxins, and lyngbyatoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review | Conducts an epidemiological study of human exposure events to cyanotoxins in Saudi Arabia. Identifies exposure routes of humans. Points out research gaps and needs on cyanotoxins | <https://doi.org/10.1007/s12517-020-5238-7> |
| Photocatalytic treatment of natural waters. Reality or hype? The case of cyanotoxins remediation | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins. Conducts an epidemiological study of cyanotoxins occurrence worldwide and analyses existent legislation on water treatment | <https://doi.org/10.1016/j.watres.2020.116543> |
| Harmful cyanobacteria and their cyanotoxins in Egyptian fresh waters - state of knowledge and research needs | Microcystins and cylindrospermopsins | Human health effects of cyanotoxins and exposure routes. Extensive literature review | Conducts an epidemiological study of human exposure events to cyanotoxins in Egypt. Identifies exposure routes of humans | <https://doi.org/10.2989/16085914.2016.1219313> |
| Electrochemical Biosensors for Tracing Cyanotoxins in Food and Environmental Matrices | Microcystins, anatoxin-a, saxitoxin and cylindrospermopsins | Cyanotoxins detection methods | Reviews the use of electrochemical biosensors for the determination of cyanotoxins in food and environmental matrices | <https://doi.org/10.3390/bios11090315> |
| State of the art on cyanotoxins in water and their behaviour towards chlorine | Microcystins, nodularins, anatoxin-a, saxitoxin and cylindrospermopsins | Water treatment | Reviews chlorination as an effective water treatment strategy in dealing with cyanotoxins | <https://doi.org/10.1016/j.toxicon.2009.10.028> |
| Subcellular Alterations Induced by Cyanotoxins in Vascular Plants-A Review | Microcystins, cylindrospermopsins, BMAA and anatoxins | Study the effects of cyanotoxins on aquatic plants | Reviews the effects and present an integrated view of subcellular alterations caused by cyanotoxins on aquatic plants | <https://doi.org/10.3390/plants10050984> |
| Recent Advancements in the Removal of Cyanotoxins from Water Using Conventional and Modified Adsorbents-A Contemporary Review | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.3390/w12102756> |
| A critical review of cyanobacteria distribution and cyanotoxins occurrence in Atlantic Ocean islands | All cyanotoxins | Cyanobacteria and cyanotoxins occurrence in Atlantic Ocean islands. Extensive literature review | Conducts an epidemiological study of cyanobacteria and cyanotoxins occurrence in Atlantic Ocean islands | <https://doi.org/10.5252/cryptogamie-algologie2020v41a9> |
| Physico-chemical treatment for the degradation of cyanotoxins with emphasis on drinking water treatment-How far have we come? | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins. | <https://doi.org/10.1016/j.jece.2018.08.032> |
| Synthesis of ecotoxicological studies on cyanotoxins in freshwater habitats-Evaluating the basis for developing thresholds protective of aquatic life in the United States | Microcystins, cylindrospermopsins, anatoxin-a, saxitoxins and nodularin | Ecotoxicological effects of cyanotoxins | Assesses the effects of these cyanotoxins on fish, amphibians, aquatic invertebrates and birds exclusively feeding in freshwater habitats. Analyses existent cyanotoxins guidelines effectiveness on protecting wildlife health | <https://doi.org/10.1016/j.scitotenv.2021.148864> |
| Potential Use of Chemoprotectants against the Toxic Effects of Cyanotoxins: A Review | Microcystins and cylindrospermopsins | Treatment options for cyanotoxins adverse human health effects | Reviews chemoprotectants substances, their doses, and their influence on cyanotoxin-induced toxicity | <https://doi.org/10.3390/toxins9060175> |
| Cyanobacterial toxins: Modes of actions, fate in aquatic and soil ecosystems, phytotoxicity and bioaccumulation in agricultural crops | All cyanotoxins | Study the effects of cyanotoxins on agricultural plants. Photodegradation rates, pathways and environmental fate of cyanotoxins | Reviews the phytotoxic effects of cyanotoxins. Reviews current knowledge on the photodegradation rates and pathways of cyanotoxins | <https://doi.org/10.1016/j.chemosphere.2013.07.056> |
| A Brief Review of the Structure, Cytotoxicity, Synthesis, and Biodegradation of Microcystins | Microcystins | Summarize our current understanding on microcystins chemical structure, human routes of exposure and its environmental fate | Reviews current knowledge on the chemical structure, exposure pathway, cytotoxicity, biosynthesis, and environmental transformation of microcystins | <https://doi.org/10.3390/w13162147> |
| Harmful algae: Effects of cyanobacterial cyclic peptides on aquatic invertebrates-a short review | Microcystins and nodularin | Effects to aquatic biota. Ecotoxicological effects of cyanotoxins | Assesses the effects of microcystins on zooplankton, decapods and molluscs, and its bioaccumulation in these species and in the food chain | <https://doi.org/10.1016/j.toxicon.2016.10.017> |
| Global geographical and historical overview of cyanotoxin distribution and cyanobacterial poisonings | Microcystins, nodularins, cylindrospermopsins, anatoxins and saxitoxins | Extensive literature review. Human and wildlife and domestic animals’ adverse health effects of cyanotoxins and exposure routes | Conducts an epidemiological study of human and animals exposure events to cyanotoxins. Gives geographical data on the occurrence of cyanotoxins and related poisonings and points out research needs and future directions on cyanotoxins research. Reviews human and animal health effects of cyanotoxins. | <https://doi.org/10.1007/s00204-019-02524-4> |
| Still challenging: the ecological function of the cyanobacterial toxin microcystin - What we know so far | Microcystins | Evaluate microcystins biological function to cyanobacteria. Microcystins production routes | Reviews the environmental factors that lead to microcystins production and their ecological role | <https://doi.org/10.1080/15569543.2017.1326059> |
| In Vivo and In Vitro Toxicity Testing of Cyanobacterial Toxins: A Mini-Review | Microcystins, saxitoxins, anatoxins, nodularins, and cylindrospermopsins | Cyanotoxins detection methods | Reviews biological and biochemical methodologies/assays for the detection and measurement of cyanotoxins in environmental matrices. Identifies research needs and data gaps concerning the toxicity assessment of cyanobacteria | <https://doi.org/10.1007/398_2021_74> |
| Nodularin and cylindrospermopsins: a review of their effects on fish | Nodularins and cylindrospermopsins | Study the effects of nodularins and cylindrospermopsins on fish health | Reviews the major toxicological impacts of these two cyanotoxins on fish, focusing on chronic effects. Points out research needs and future directions on cyanotoxins research | <https://doi.org/10.1007/s11160-014-9366-6> |
| A Review of Common Cyanotoxins and Their Effects on Fish | All cyanotoxins | Study the effects of cyanotoxins on fish health | Reviews the effects of cyanotoxins on fish. Points out research needs and future directions on cyanotoxins research and analyses existent legislation | <https://doi.org/10.3390/toxics11020118> |
| A Cyanotoxin Primer for Drinking Water Professionals | All cyanotoxins | Water treatment. Cyanotoxins detection methods | Reviews the most effective water treatment strategies in dealing with cyanotoxins. Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.1002/awwa.1088> |
| Neutralisation of toxins by probiotics during the transit into the gut: challenges and perspectives | Microcystins, saxitoxins, anatoxins and cylindrospermopsins | Cyanotoxins and other bacterial toxins neutralization into the gut using probiotics | Reviews current knowledge on neutralization of bacterial toxins, including cyanotoxins, during transit into the gut using probiotics | <https://doi.org/10.1111/ijfs.13745> |
| Bloom Dynamics of Cyanobacteria and Their Toxins: Environmental Health Impacts and Mitigation Strategies | All cyanotoxins | HABs and cyanotoxins impacts on human and environmental health. HABs and cyanotoxins management strategies | Reviews cyanobacterial bloom dynamics, toxicology and environmental fate of cyanotoxins. Discusses different approaches to HABs and cyanotoxins management and mitigation | <https://doi.org/10.3389/fmicb.2015.01254> |
| Co-occurrence of co-contaminants: Cyanotoxins and microplastics, in soil system and their health impacts on plant-A comprehensive review | All cyanotoxins | Cyanotoxins distribution, abundance and ecological risks in the soil system. Complex mixtures of cyanotoxins and co-occurrence with other agents/compounds dangerous to human and environmental health | Reviews cyanotoxins distribution, abundance in the soil and identifies their adverse effects for plant health (phytotoxicity) | <https://doi.org/10.1016/j.scitotenv.2021.148752> |
| Acute animal and human poisonings from cyanotoxin exposure - A review of the literature | All cyanotoxins | Human and animal health effects of cyanotoxins and exposure routes. Extensive literature review | Reviews human and animal (mostly domestic animals and livestock) health effects of cyanotoxins. Conducts an epidemiological study of human and animal exposure events to cyanotoxins | <https://doi.org/10.1016/j.envint.2016.02.026> |
| Macrophytes-cyanobacteria allelopathic interactions and their implications for water resources management-A review | Microcystins, anatoxin-a and cylindrospermopsins | Study the effects of cyanotoxins on aquatic plants. Allelopathic interactions between macrophytes and toxic cyanobacteria. Water treatment. | Reviews the effects and presents an integrated view of bioaccumulation and biotransformation of cyanotoxins by aquatic plants. Reviews the application of macrophytes to control harmful cyanobacterial blooms and as phytoremediators for cyanotoxin removal from water bodies. | <https://doi.org/10.1016/j.limno.2017.02.006> |
| Global expansion of toxic and non-toxic cyanobacteria: effect on ecosystem functioning | Microcystins, BMAA, anatoxins and saxitoxins (mostly microcystins) | Extensive literature review. Geographic expansion of cyanobacteria species. Cyanotoxins production routes and their ecological function. Ecotoxicological effects of cyanotoxins | Gives geographical data on the occurrence of cyanotoxins and cyanobacteria and also focuses on their ecological role and effects. Assess the effects of these cyanotoxins to aquatic biota | <https://doi.org/10.1007/s10531-015-0905-9> |
| Exploring the natural role of microcystins - A review of effects on photoautotrophic organisms | Microcystins | Evaluate microcystins biological function to cyanobacteria. Microcystins production routes | Reviews the environmental factors that lead to microcystins production and their ecological role. Assess the effects of microcystins to aquatic biota | <https://doi.org/10.1111/j.1529-8817.2006.00176.x> |
| The genetics, biosynthesis and regulation of toxic specialized metabolites of cyanobacteria | All cyanotoxins | Cyanotoxins production routes and their ecological function. Cyanotoxins impacts on human and environmental health. | Reviews the environmental and genetic factors that lead to cyanotoxin production and the ecological role of these toxins. Reviews human and environmental health effects of cyanotoxins. | <https://doi.org/10.1016/j.hal.2015.11.002> |
| Toxicopathology Induced by Microcystins and Nodularin: A Histopathological Review | Microcystins and nodularin | Study the effects of microcystins and nodularin on fish health | Reviews the major toxicological impacts of these two cyanotoxins on fish, focusing primarily on histological biomarkers | <https://doi.org/10.1080/10590501.2015.1003000> |
| Cyanobacteria and Cyanotoxins in a Changing Environment: Concepts, Controversies, Challenges | All cyanotoxins | Cyanotoxins production routes and their ecological function. HABs and cyanotoxins impacts on human and environmental health. HABs and cyanotoxins management strategies | Reviews the environmental factors that lead to cyanotoxin production and environmental fate of cyanotoxins. Discusses different approaches to HABs and cyanotoxins management and mitigation | <https://doi.org/10.3390/w13182463> |
| Use of qPCR for the study of hepatotoxic cyanobacteria population dynamics | Microcystins, nodularin and cylindrospermopsins | Toxic cyanobacteria detection methods | Reviews the use of quantitative PCR for the identification of cyanobacteria in aquatic ecosystems and its use in biomonitoring programs | <https://doi.org/10.1007/s00203-011-0724-7> |
| Methods to detect cyanobacteria and their toxins in the environment | All cyanotoxins | Cyanotoxins detection methods | Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.1007/s00253-014-5951-9> |
| Phylogeny and Biogeography of Cyanobacteria and Their Produced Toxins | All cyanotoxins | Phylogeny of cyanobacteria species | Reviews the main methodologies and current knowledge on cyanobacteria and cyanotoxins phylogeny | <https://doi.org/10.3390/md11114350> |
| Global scanning of anatoxins in aquatic systems: environment and health hazards, and research needs | Anatoxins | Extensive literature review | Conducts an epidemiological study of anatoxins levels in aquatic environments and gives an opinion on the effectiveness of anatoxins biomonitoring programs around the world. Discusses the existent legislation | <https://doi.org/10.1071/MF18373> |
| Health impacts from cyanobacteria harmful algae blooms: Implications for the North American Great Lakes | Microcystins, anatoxin-a and saxitoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins in North America | Reviews human health effects of these three cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins and HAB events in North America | <https://doi.org/10.1016/j.hal.2016.02.002> |
| A Systematic Literature Review for Evidence of Aphanizomenon flos-aquae Toxigenicity in Recreational Waters and Toxicity of Dietary Supplements: 2000-2017 | Microcystins, cylindrospermopsins and saxitoxin | Extensive literature review | Conducts a systematic literature review to check for evidence of cyanotoxins presence and toxic effects in freshwaters and blue-green algae supplements | <https://doi.org/10.3390/toxins10070254> |
| Destruction of microcystins by conventional and advanced oxidation processes: A review | Microcystins | Water treatment | Reviews the most effective water treatment strategies in dealing with microcystins. Analyses existent legislation on water treatment | <https://doi.org/10.1016/j.seppur.2012.02.018> |
| Epidemiology of Primary Liver Cancer in Serbia and Possible Connection With Cyanobacterial Blooms | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins and identifies potential links between exposure to cyanotoxins and primary liver cancer | <https://doi.org/10.1080/10590501.2013.824187> |
| Uncovering Potential Applications of Cyanobacteria and Algal Metabolites in Biology, Agriculture and Medicine: Current Status and Future Prospects | All cyanotoxins | Cyanobacteria secondary metabolite extraction and their possible applications | Reviews the most effective extraction methodologies for cyanobacteria secondary metabolite extraction. Reviews cyanobacterial secondary metabolites biotechnological applications | <https://doi.org/10.3389/fmicb.2017.00515> |
| Risk to human health associated with the environmental occurrence of cyanobacterial neurotoxic alkaloids anatoxins and saxitoxins | Saxitoxins and anatoxins | Human health effects and exposure routes to saxitoxins and anatoxins. Extensive literature review | Reviews human health effects of cyanotoxins and exposure routes to these cyanotoxins. Conducts an epidemiological study of saxitoxins and anatoxins levels in aquatic environments | <https://doi.org/10.3109/10408444.2015.1137865> |
| Cyanobacterial Cyclopeptides as Lead Compounds to Novel Targeted Cancer Drugs | Microcystins and nodularins | Cyanobacteria secondary metabolite extraction and their possible applications | Reviews the most effective extraction methodologies for cyanobacteria secondary metabolite extraction. Reviews cyanobacterial secondary metabolites biotechnological applications | <https://doi.org/10.3390/md8030629> |
| Towards a more complete understanding of the occurrence and toxicities of the cylindrospermopsins | Cylindrospermopsins | Human health effects and exposure routes to cylindrospermopsins. Cylindrospermopsins production routes | Reviews human health effects of cyanotoxins and exposure routes to cylindrospermopsins. Conducts an epidemiological study of cylindrospermopsins levels in aquatic environments and identifies the environmental factors that lead to cylindrospermopsins | [10.3934/environsci.2015.3.827](https://doi.org/10.3934/environsci.2015.3.827) |
| A Comparative Review of the Effect of Microcystin-LR on the Proteome | Microcystins | Human and animal health effects and exposure routes to microcystins | Reviews human and animal health effects of microcystins and exposure routes to these cyanotoxins, focusing on proteomic biomarkers | <https://doi.org/10.1007/s12403-019-00303-1> |
| Biotechnological and industrial significance of cyanobacterial secondary metabolites | All cyanotoxins | Cyanobacteria secondary metabolite extraction and their possible applications | Reviews the most effective extraction methodologies for cyanobacteria secondary metabolite extraction. Reviews cyanobacterial secondary metabolites biotechnological applications | <https://doi.org/10.1016/j.biotechadv.2009.04.009> |
| The cyanotoxin-microcystins: current overview | Microcystins | Human and animal health effects and exposure routes to microcystins. Photodegradation rates, pathways and environmental fate of microcystins | Reviews human and animal health effects of cyanotoxins and exposure routes to these cyanotoxins. Reviews the environmental and genetic factors that lead to microcystins production | <https://doi.org/10.1007/s11157-014-9334-6> |
| A critical review on operation and performance of source water control strategies for cyanobacterial blooms: Part I-chemical control methods | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins, focusing on chemical methods | <https://doi.org/10.1016/j.hal.2021.102099> |
| The Cyanotoxin and Non-protein Amino Acid beta-Methylamino-L-Alanine (L-BMAA) in the Food Chain: Incorporation into Proteins and Its Impact on Human Health | BMAA | Human and animal health effects and exposure routes to BMAA | Reviews human and animal health effects of BMAA and exposure routes, focusing on proteomic biomarkers. Summarizes the link between cyanotoxins and neurodegeneration | <https://doi.org/10.1007/s12640-019-00089-9> |
| The Application of Potassium Permanganate to Treat Cyanobacteria-Laden Water: a Review | All cyanotoxins | Water treatment. HABs and cyanotoxins management strategies | Reviews the most effective water treatment strategies in dealing with cyanotoxins. Discusses different approaches to HABs and cyanotoxins management and mitigation | <https://doi.org/10.1016/j.psep.2020.09.058> |
| The link between pharmaceuticals and cyanobacteria: a review regarding ecotoxicological, ecological, and sanitary aspects | All cyanotoxins | Environmental factors involved in cyanotoxin production and release to aquatic ecosystems | Reviews the environmental factors that lead to cyanotoxin production and release to surrounding waters. Tries to establish a link between the presence of pharmaceutical compounds and exacerbated cyanotoxins production | <https://doi.org/10.1007/s11356-021-14698-5> |
| The Diversity of Cyanobacterial Toxins on Structural Characterization, Distribution and Identification: A Systematic Review | All cyanotoxins | Summarize our current understanding on cyanotoxins chemical structure, human routes of exposure and their environmental fate. Cyanotoxins detection methods | Reviews current knowledge on the chemical structure, exposure pathway, biosynthesis, and environmental accumulation and transformation of cyanotoxins. Reviews cyanotoxins detection methods and gives geographical data on the occurrence of cyanotoxins and related poisonings | <https://doi.org/10.3390/toxins11090530> |
| Nitrogen fixing cyanobacteria: their diversity, ecology and utilisation with special reference to rice cultivation | All cyanotoxins | Cyanobacteria and their secondary metabolites and their possible applications | Reviews cyanobacteria and their secondary metabolites possible biotechnological applications in rice cultivation | <http://doi.org/10.4038/jnsfsr.v44i2.7992> |
| Cyanotoxin genotoxicity: a review | Cylindrospermopsins, microcystins, nodularin and anatoxins | Human and animal health effects and exposure routes to cyanotoxins | Reviews human and animal health effects of cyanotoxins and exposure routes, focusing on genotoxicity biomarkers | <https://doi.org/10.1080/15569543.2021.1922922> |
| Review on Cyanobacterial Studies in Portugal: Current Impacts and Research Needs | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins in Portugal | Reviews human health effects of cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins and HAB events in Portugal. Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.3390/app11104355> |
| Toxic Cyanobacteria: A Growing Threat to Water and Air Quality | Microcystins and other cyanotoxins | Human health effects of cyanotoxins and exposure routes. Photodegradation rates, pathways and environmental fate of cyanotoxins | Identifies exposure routes of humans to cyanotoxins, focusing on inhalation of aerosolized cyanotoxins and its effects on human health. Reviews cyanobacterial bloom dynamics and environmental fate of cyanotoxins. | <https://doi.org/10.1021/acs.est.0c06653> |
| Cyanobacterial Toxins in Freshwater and Food: Important Sources of Exposure to Humans | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review | Reviews human health effects of cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins and cyanobacteria blooms in freshwaters. Identifies exposure routes of humans to cyanotoxins, focusing on consumption of contaminated food | <https://doi.org/10.1146/annurev-food-030216-030116> |
| Cyanobacterial Toxins of the Laurentian Great Lakes, Their Toxicological Effects, and Numerical Limits in Drinking Water | Microcystins and other cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins in the Laurentian Great Lakes (North America) | Reviews human health effects of cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins and cyanobacteria bloom events in the Laurentian Great Lakes in North America. Reviews the environmental factors that lead to cyanotoxin production | <https://doi.org/10.3390/md15060160> |
| Neurotoxic cyanobacterial toxins | Anatoxins, saxitoxins, BMAA and other neurotoxic cyanotoxins | Summarize our current understanding on neurotoxic cyanotoxins chemical structure, human routes of exposure and its environmental fate | Reviews current knowledge on the chemical structure, exposure pathway, biosynthesis, and environmental accumulation and transformation of neurotoxic cyanotoxins | <https://doi.org/10.1016/j.toxicon.2009.07.036> |
| Toxicity at the Edge of Life: A Review on Cyanobacterial Toxins from Extreme Environments | Microcystins, nodularins, cylindrospermopsins, anatoxins, saxitoxins and BMAA | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins and exposure routes, focusing on exposure to cyanotoxins in extreme environments. Conducts an epidemiological study of human exposure events to cyanotoxins in extreme environments. | <https://doi.org/10.3390/md15070233> |
| Occurrence and toxicity of microcystin congeners other than MC-LR and MC-RR: A review | Microcystins | Summarize our current understanding on microcystins chemical structure, analogues, human routes of exposure and its environmental fate. Extensive literature review. Ecotoxicological effects of microcystins | Reviews current knowledge on the chemical structure, exposure pathway, biosynthesis, and environmental accumulation and transformation of microcystins. Conducts an epidemiological study of microcystins analogues occurrence around the world and reviews their adverse human and environmental health effects | <https://doi.org/10.1016/j.fct.2018.12.042> |
| Fungal biodegradation and removal of cyanobacteria and microcystins: potential applications and research needs | Microcystins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins and cyanobacteria blooms, focusing on the use of fungal biodegradation | <https://doi.org/10.1007/s11356-021-14623-w> |
| Microcystins: Synthesis and structure-activity relationship studies toward PP1 and PP2A | Microcystins | Summarize our current understanding on microcystins chemical structure, analogues, human routes of exposure and its environmental fate. | Reviews current knowledge on the chemical structure, exposure pathway, biosynthesis, toxicological targets and biotransformation of microcystins. Focuses on microcystins effects on protein Phosphatase-1 and 2 | <https://doi.org/10.1016/j.bmc.2017.08.040> |
| Effects of microcystin-LR and cylindrospermopsins on plant-soil systems: A review of their relevance for agricultural plant quality and public health | Microcystins and cylindrospermopsins | Study the effects of cyanotoxins on agricultural plants | Reviews cyanotoxins distribution, abundance in the soil and identifies their adverse effects for agricultural plants health (phytotoxicity) | <https://doi.org/10.1016/j.envres.2016.09.015> |
| Toxins of cyanobacteria | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Cyanotoxins detection methods | Reviews human health effects of cyanotoxins. Reviews cyanotoxins detection methods and analyses existent legislation. Gives an opinion on the effectiveness of cyanotoxins biomonitoring programs around the world | <https://doi.org/10.1002/mnfr.200600185> |
| Guidance values for microcystins in water and cyanobacterial supplement products (blue-green algal supplements): a reasonable or misguided approach | Microcystins | Human health effects of microcystins and exposure routes. Extensive literature review | Reviews human health effects of microcystins. Analyses existent guidelines for microcystins in freshwaters and blue-green algae supplements effectiveness on assuring human health and safety | <https://doi.org/10.1016/j.taap.2004.09.005> |
| Impact of Environmental Factors on the Regulation of Cyanotoxin Production | Microcystins, nodularins, cylindrospermopsins, anatoxins and saxitoxins | Cyanotoxins production routes and their ecological function | Reviews the environmental and genetic factors that lead to cyanotoxin production and the ecological role of these toxins | <https://doi.org/10.3390/toxins6071951> |
| Removal of microorganisms and their chemical metabolites from water using semiconductor photocatalysis | All cyanotoxins | Water treatment | Reviews semiconductor photocatalysis as an effective water treatment strategy in dealing with cyanotoxins | <https://doi.org/10.1016/j.jhazmat.2011.11.058> |
| Advanced oxidation processes for the removal of cyanobacterial toxins from drinking water | Microcystins, nodularins, cylindrospermopsins, anatoxins, saxitoxins and BMAA | Water treatment | Reviews advanced oxidation processes as an effective water treatment strategy in dealing with cyanotoxins. Analyses existent guidelines for cyanotoxins in freshwaters | <https://doi.org/10.1186/s12302-020-00371-0> |
| Presence and bioaccumulation of microcystins and cylindrospermopsins in food and the effectiveness of some cooking techniques at decreasing their concentrations: A review | Microcystins and cylindrospermopsins | Microcystins and cylindrospermopsins neutralization using high temperatures (cooking). Human health effects and exposure routes of microcystins and cylindrospermopsins | Reviews the effectiveness of high temperatures (cooking) on microcystins and cylindrospermopsins neutralization. Reviews human health effects and exposure routes to microcystins and cylindrospermopsins | <https://doi.org/10.1016/j.fct.2012.10.062> |
| Cyanotoxin cylindrospermopsins producers and the catalytic decomposition process: A review | Cylindrospermopsins | Summarize our current understanding on cylindrospermopsins chemical structure, human routes of exposure and its environmental fate | Reviews current knowledge on the chemical structure, exposure pathway, biosynthesis, and environmental transformation and decomposition of cylindrospermopsins | <https://doi.org/10.1016/j.hal.2020.101894> |
| Toxic cyanobacteria and their impact on public health | All cyanotoxins | Human health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins in Algeria | Reviews cyanotoxins effects on human health. Identifies exposure routes of humans to cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins and HAB events in Algeria | [10.1684/ers.2020.1470](https://www.jle.com/10.1684/ers.2020.1470) |
| Freshwater Cyanobacterial Blooms and Primary Liver Cancer Epidemiological Studies in Serbia | Microcystins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins and identifies potential links between exposure to cyanotoxins and primary liver cancer | <https://doi.org/10.1080/10590500802668016> |
| Accumulation of cyanobacterial toxins in freshwater "seafood" and its consequences for public health: A review | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins and exposure routes. Assesses the cyanotoxins bioaccumulation in several freshwater and marine species used for human consumption. Analyses existent guidelines and legislation on cyanotoxins in freshwaters and marine environments | <https://doi.org/10.1016/j.envpol.2007.04.012> |
| Potential of biological approaches for cyanotoxin removal from drinking water: A review | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.1016/j.ecoenv.2019.01.066> |
| Recent developments in the methods of quantitative analysis of microcystins | Microcystins | Microcystins detection methods | Reviews microcystins detection methods | <https://doi.org/10.1002/jbt.22582> |
| Toxic benthic freshwater cyanobacterial proliferations: Challenges and solutions for enhancing knowledge and improving monitoring and mitigation | All cyanotoxins | HABs and cyanotoxins impacts on human and environmental health. HABs and cyanotoxins management strategies. Cyanotoxins production routes | Reviews cyanobacterial bloom dynamics, toxicology and environmental fate of cyanotoxins. Discusses different approaches to HABs and cyanotoxins management and mitigation. Reviews the environmental factors that lead to cyanotoxin production. Gives an opinion on the effectiveness of cyanotoxins biomonitoring programs | <https://doi.org/10.1111/fwb.13532> |
| Microcystin-RR: Occurrence, content in water and food and toxicological studies. A review | Microcystin | Human and animal health effects of microcystin and exposure routes. Ecotoxicological effects of microcystin | Reviews human and animal (wildlife and livestock) health effects of microcystin. Conducts an epidemiological study of microcystin-RR occurrence worldwide. Assesses the effects of microcystin-RR on several aquatic and terrestrial species and in in vitro models | <https://doi.org/10.1016/j.envres.2018.07.019> |
| Reporting of Freshwater Cyanobacterial Poisoning in Terrestrial Wildlife: A Systematic Map | All cyanotoxins | Human and animal health effects of cyanotoxins and exposure routes. Ecotoxicological effects of cyanotoxins. Extensive literature review | Reviews human and animal (wildlife and livestock) health effects of cyanotoxins. Conducts an epidemiological study of cyanotoxins and cyanobacterial blooms occurrence worldwide | <https://doi.org/10.3390/ani12182423> |
| A strategy to study genotoxicity: application to aquatic toxins, limits and solutions | All cyanotoxins and marine toxins | Human and animal health effects and exposure routes to cyanotoxins | Reviews human and animal health effects of cyanotoxins and exposure routes, focusing on genotoxicity biomarkers. Gives recommendations on the use of genotoxicity biomarkers for assessing aquatic toxins toxicity | <https://doi.org/10.1007/s00216-010-3699-3> |
| Microcystin Dynamics in Aquatic Organisms | Microcystins | Microcystins production routes and environmental fate. Human and animal health effects of microcystins and exposure routes. Ecotoxicological effects of microcystins | Reviews the environmental factors that lead to microcystins production. Reviews human and aquatic biota health effects of cyanotoxins | <https://doi.org/10.1080/10937400802545151> |
| Biological treatment options for cyanobacteria metabolite removal - A review | Microcystins, nodularins, cylindrospermopsins, saxitoxins and anatoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins, focusing on biological filtration processes | <https://doi.org/10.1016/j.watres.2011.11.018> |
| Toxicology and detection methods of the alkaloid neurotoxin produced by cyanobacteria, anatoxin-a | Anatoxin-a | Anatoxin-a detection methods. Photodegradation rates and environmental fate of anatoxin-a | Reviews anatoxin-a detection methods and analyses existent legislation. Reviews current knowledge on the photodegradation rates of anatoxin-a | <https://doi.org/10.1016/j.envint.2007.06.003> |
| Toxicology of freshwater cyanobacteria | Microcystin, nodularin and cylindrospermopsins | Human health effects of cyanotoxins and exposure routes | Reviews these three cyanotoxins effects on human health. Identifies exposure routes of humans to cyanotoxins and discusses the existent guideline values of microcystin, nodularin and cylindrospermopsins | <https://doi.org/10.1080/10590501.2016.1193923> |
| Microcystin-LR and Cylindrospermopsins Induced Alterations in Chromatin Organization of Plant Cells | Microcystin and cylindrospermopsins | Study the effects of microcystins and cylindrospermopsins on plants | Reviews the effects and present an integrated view of subcellular alterations caused by microcystins and cylindrospermopsins on plants, focusing on genotoxicity biomarkers, cytotoxicity biomarkers and chromatin remodelling | <https://doi.org/10.3390/md11103689> |
| Nodularins in poisoning | Nodularins | Human and animal health effects of nodularins and exposure routes. Extensive literature review | Identifies exposure routes of humans and animals (wildlife and livestock) to nodularins and points out research needs and future directions on cyanotoxins research. Conducts an epidemiological study of nodularins occurrence worldwide | <https://doi.org/10.1016/j.cca.2013.07.005> |
| Molecular approaches for monitoring potentially toxic marine and freshwater phytoplankton species | All cyanotoxins and marine toxins | Cyanotoxins and marine toxins-producing species detection methods | Reviews molecular and PCR-based methods for the determination of cyanotoxin and marine toxin-producing phytoplankton species in environmental samples | <https://doi.org/10.1007/s00216-010-3642-7> |
| Global Occurrence of Cyanobacteria: Causes and Effects (Review) | All cyanotoxins | Extensive literature review. Summarize our current understanding on cyanotoxins chemical structure and production routes | Conducts an epidemiological study of cyanotoxins occurrence in fresh and marine water ecosystems around the world. Reviews current knowledge on the chemical structure, biosynthesis and environmental factors that lead to cyanotoxin production | <https://doi.org/10.1134/S1995082920060140> |
| Microcystin-Induced Immunotoxicity in Fishes: A Scoping Review | Microcystin | Study the effects of microcystin on fish health | Reviews the major toxicological impacts of this cyanotoxin on fish, focusing primarily on immunotoxicity, oxidative stress and cytotoxicity biomarkers | <https://doi.org/10.3390/toxins13110765> |
| An overview of the toxic effect of potential human carcinogen Microcystin-LR on testis | Microcystin | Human health effects of microcystins | Reviews microcystins effects on human health, focusing on their carcinogenic, genotoxic and histopathological effects on testis | <https://doi.org/10.1016/j.toxrep.2015.01.008> |
| DNA profiling of complex bacterial populations: toxic cyanobacterial blooms | All cyanotoxins | Cyanotoxins and cyanobacteria detection methods | Reviews molecular and PCR-based methods for the determination of cyanotoxins and cyanotoxin-producing cyanobacteria in environmental samples. | <https://doi.org/10.1007/s00253-009-2180-8> |
| Neurotoxicity induced by microcystins and cylindrospermopsins: A review | Microcystins and cylindrospermopsins | Effects of microcystins and cylindrospermopsins on human and animal nervous system. Ecotoxicological effects of microcystins and cylindrospermopsins | Reviews the acute and chronic neurotoxic effects of microcystins and cylindrospermopsins in humans and in animal models relevant for human and environmental health | <https://doi.org/10.1016/j.scitotenv.2019.02.426> |
| Environmental conditions that influence toxin biosynthesis in cyanobacteria | Microcystins, nodularin, cylindrospermopsins, saxitoxins, anatoxins and jamaicamides | Cyanotoxins production routes and their ecological function. Cyanotoxins impacts on human and environmental health | Reviews the environmental and genetic factors that lead to cyanotoxin production and the ecological role of these toxins. Reviews human and environmental health effects of these cyanotoxins | <https://doi.org/10.1111/j.1462-2920.2012.02729.x> |
| CyanoHAB Occurrence and Water Irrigation Cyanotoxin Contamination: Ecological Impacts and Potential Health Risks | Microcystins | Microcystins distribution, abundance and ecological risks in the soil system. | Reviews microcystins distribution, abundance in the soil and identifies their adverse effects for agricultural plants health (phytotoxicity) | <https://doi.org/10.3390/toxins1020113> |
| Is qPCR a Reliable Indicator of Cyanotoxin Risk in Freshwater? | Microcystins | Microcystins detection methods | Reviews qPCR-based methods for the determination of microcystins in environmental samples | <https://doi.org/10.3390/toxins8060172> |
| Molecular Aspects of Microcystin-induced Hepatotoxicity and Hepatocarcinogenesis | Microcystins | Human and animal health effects and exposure routes to microcystins | Reviews human and animal health effects of microcystins and exposure routes to these cyanotoxins, focusing on hepatotoxicity, genotoxicity and carcinogen biomarkers | <https://doi.org/10.1080/10590500903585382> |
| An Overview of the Mechanisms of Microcystin-LR Genotoxicity and Potential Carcinogenicity | Microcystins | Human and animal health effects and exposure routes to microcystins | Reviews human and animal health effects of microcystins and exposure routes to these cyanotoxins, focusing on genotoxicity, cytotoxicity and carcinogen biomarkers | [10.2174/1389557516666160308141549](http://dx.doi.org/10.2174/1389557516666160308141549) |
| Effects of harmful algal blooms and associated water-quality on endangered Lost River and shortnose suckers | Microcystins and other cyanotoxins | Study the effects of cyanotoxins (mostly microcystins) on fish health. Extensive literature review regarding cyanotoxins and CyanoHABs occurrence on Upper Klamath Lake (Oregon, USA) | Reviews the major toxicological impacts of cyanotoxins on fish health. Conducts an epidemiological study of HAB events and cyanotoxins presence on Upper Klamath Lake (Oregon, USA) | <https://doi.org/10.1016/j.hal.2020.101847> |
| Health risks caused by freshwater cyanobacteria in recreational waters | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews cyanotoxins effects on human health. Reviews the human exposure routes to cyanotoxins and discusses the existent legislation and guidelines on cyanotoxins in freshwater environments | <https://doi.org/10.1080/109374000436364> |
| Methods for determining microcystins (peptide hepatotoxins) and microcystin-producing cyanobacteria | Microcystins | Microcystins detection methods | Reviews microcystins detection methods and analyses existent legislation | <https://doi.org/10.1016/j.watres.2006.08.010> |
| Challenges for mapping cyanotoxin patterns from remote sensing of cyanobacteria | Microcystins and other cyanotoxins | Cyanotoxins and cyanobacteria detection methods | Reviews remote sensing methods for the determination of cyanotoxins and cyanotoxin-producing cyanobacteria in environmental samples. | <https://doi.org/10.1016/j.hal.2016.01.005> |
| Recent advances in the detection of natural toxins in freshwater environments | All cyanotoxins | Cyanotoxins detection methods | Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.1016/j.trac.2018.12.017> |
| Heterologous expression and biochemical characterisation of cyanotoxin biosynthesis pathways | All cyanotoxins | Cyanotoxins production routes and their ecological function. Cyanotoxins impacts on human and environmental health. | Reviews the environmental and genetic factors that lead to cyanotoxin production and the ecological role of these toxins. Reviews human and environmental health effects of cyanotoxins. | <https://doi.org/10.1039/C8NP00063H> |
| Cyanobacterial bioactive molecules - an overview of their toxic properties | All cyanotoxins | Cyanobacteria secondary metabolite toxicity and their possible biotechnological applications | Reviews the main toxic effects of cyanobacteria secondary metabolite. Reviews cyanobacterial secondary metabolites biotechnological applications | <https://doi.org/10.1139/W08-034> |
| Removal of cyanobacterial and algal cells from water by ultrasonic waves - A review | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins, focusing on ultrasonication methods | <https://doi.org/10.1016/j.molliq.2016.08.010> |
| Genotoxicity and potential carcinogenicity of cyanobacterial toxins - a review | All cyanotoxins | Human and animal health effects and exposure routes to cyanotoxins | Reviews human and animal health effects of cyanotoxins and exposure routes, focusing on genotoxicity, cytotoxicity and carcinogen biomarkers | <https://doi.org/10.1016/j.mrrev.2011.01.002> |
| Mechanisms of Microcystin-induced Cytotoxicity and Apoptosis | Microcystins | Human and animal health effects and exposure routes to microcystins | Reviews human and animal health effects of microcystins and exposure routes to these cyanotoxins, focusing on genotoxicity, cytotoxicity and oxidative stress biomarkers | [10.2174/1389557516666160219130407](http://dx.doi.org/10.2174/1389557516666160219130407) |
| In search of environmental role of cylindrospermopsins: A review on global distribution and ecology of its producers | Cylindrospermopsins | Cylindrospermopsins production routes and its ecological function | Reviews the environmental and genetic factors that lead to cylindrospermopsins production and the ecological role of this toxin. Conducts an epidemiological study of cylindrospermopsins levels in aquatic environments | <https://doi.org/10.1016/j.watres.2014.08.029> |
| Cylindrospermopsins: occurrence, methods of detection and toxicology | Cylindrospermopsins | Cylindrospermopsins production routes and its ecological function. Cylindrospermopsins detection methods. Human and animal health effects of cyanotoxins and exposure routes | Reviews the environmental and genetic factors that lead to cylindrospermopsins production and the ecological role of this toxin. Conducts an epidemiological study of cylindrospermopsins levels in aquatic environments. Reviews cylindrospermopsins detection methods and analyses existent legislation. Reviews human and animal (terrestrial and aquatic) health effects of cylindrospermopsins | <https://doi.org/10.1111/jam.12048> |
| Epidemiology of Cancers in Serbia and Possible Connection with Cyanobacterial Blooms | Microcystins and other cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins. Summarizes the link between cyanotoxins and cancer | <https://doi.org/10.1080/10590501.2014.967053> |
| Global scanning of cylindrospermopsins: Critical review and analysis of aquatic occurrence, bioaccumulation, toxicity and health hazards | Cylindrospermopsins | Cylindrospermopsins production routes and its ecological function. Extensive literature review. Human and animal health effects of cyanotoxins and exposure routes | Reviews the environmental and genetic factors that lead to cylindrospermopsins production and the ecological role of this toxin. Conducts an epidemiological study of cylindrospermopsins levels and bioaccumulation in aquatic environments. Reviews human and animal health effects of cylindrospermopsins | <https://doi.org/10.1016/j.scitotenv.2020.139807> |
| A review of the phylogeny, ecology and toxin production of bloom-forming Aphanizomenon spp. and related species within the Nostocales (cyanobacteria) | Microcystins, cylindrospermopsins, anatoxins and saxitoxins | Cyanotoxins production routes and their ecological function. Cyanotoxins impacts on human health | Reviews the environmental and genetic factors that lead to cyanotoxin production and the ecological role of these toxins. Reviews human health effects of cyanotoxins | <https://doi.org/10.1016/j.hal.2015.09.007> |
| An overview of the accumulation of microcystins in aquatic ecosystems | Microcystins | Human and environmental health effects of microcystins and exposure routes. Photodegradation rates and pathways of microcystins | Reviews human and environmental health effects of microcystins and exposure routes. Assesses microcystins bioaccumulation in several freshwater and marine species used for human consumption and also on aquatic plants. Reviews current knowledge on the photodegradation rates and pathways of microcystins | <https://doi.org/10.1016/j.jenvman.2018.01.077> |
| Effects of Harmful Blooms of Large-Sized and Colonial Cyanobacteria on Aquatic Food Webs | Microcystins, nodularin and cylindrospermopsins | HABs and cyanotoxins impacts on environmental health. Ecotoxicological effects of cyanotoxins | Assesses the effects of these cyanotoxins on zooplankton and fish | <https://doi.org/10.3390/w12061587> |
| Toxic mechanisms of microcystins in mammals | Microcystins | Human and animal health effects of microcystins and exposure routes | Reviews human and animal (mammals) health effects of microcystins, focusing on cytotoxicity and oxidative stress biomarkers | <https://doi.org/10.1039/c7tx00043j> |
| Recent trends in development of biosensors for detection of microcystin | Microcystins | Microcystins detection methods | Reviews the use of biosensors for the determination of microcystins in environmental samples | <https://doi.org/10.1016/j.toxicon.2012.06.005> |
| The Molecular Genetics and Regulation of Cyanobacterial Peptide Hepatotoxin Biosynthesis | Microcystin and nodularin | Microcystin and nodularin production routes and their ecological function. Cyanotoxins and cyanobacteria detection methods | Reviews the environmental and genetic factors that lead to microcystin and nodularin production and the ecological role of these toxins. Reviews the use of molecular approaches for the identification of toxic cyanobacteria and cyanotoxins in aquatic ecosystems and its use in biomonitoring programs | <https://doi.org/10.1080/10408440802291513> |
| Microcystins in potable surface waters: toxic effects and removal strategies | Microcystins | Water treatment. Human health effects of microcystins and exposure routes | Reviews the most effective water treatment strategies in dealing with microcystins. Reviews microcystins effects on human health and exposure routes | <https://doi.org/10.1002/jat.2920> |
| Immunotoxic Effects Induced by Microcystins and Cylindrospermopsins: A Review | Microcystins and cylindrospermopsins | Human and animal health effects and exposure routes to microcystins and cylindrospermopsins | Reviews human and animal health effects of microcystins and cylindrospermopsins and exposure routes to these cyanotoxins, focusing on immunotoxicity and cytotoxicity biomarkers | <https://doi.org/10.3390/toxins13100711> |
| Phytotoxicity and bioconcentration of microcystins in agricultural plants: Meta-analysis and risk assessment | Microcystins | Study the effects of microcystins on agricultural plants | Reviews microcystins bioaccumulation and identifies adverse effects for agricultural plants health (phytotoxicity) | <https://doi.org/10.1016/j.envpol.2020.115966> |
| Algal Toxic Compounds and Their Aeroterrestrial, Airborne and other Extremophilic Producers with Attention to Soil and Plant Contamination: A Review | All cyanotoxins and marine toxins | Cyanotoxins and marine toxins distribution, abundance and ecological risks in the soil system | Reviews cyanotoxins and marine toxins distribution, abundance in the soil and identifies their adverse effects for plant health (phytotoxicity) | <https://doi.org/10.3390/toxins13050322> |
| Participation of fluorescence technology in the cross-disciplinary detection of microcystins | Microcystins | Microcystins detection methods | Reviews fluorescence-based methods for the determination of microcystins in environmental samples | <https://doi.org/10.1016/j.ccr.2022.214416> |
| Current research scenario for biological effect of exogenous factors on microcystin synthesis | Microcystins | Microcystins production routes and their ecological function | Reviews the environmental and genetic factors that lead to microcystins production and environmental fate | <https://doi.org/10.1007/s11356-021-18256-x> |
| Current research scenario for microcystins biodegradation - A review on fundamental knowledge, application prospects and challenges | Microcystins | Biodegradation rates and pathways of microcystins. Water treatment | Reviews current knowledge on the biodegradation rates and pathways of microcystins. Reviews the most effective water treatment strategies in dealing with microcystins, focusing on biodegradation | <https://doi.org/10.1016/j.scitotenv.2017.03.285> |
| Neurotoxic non-proteinogenic amino acid beta-N-methylamino-L-alanine and its role in biological systems | BMAA | BMAA production routes and its ecological function. BMAA detection methods | Reviews the environmental and genetic factors that lead to BMAA production and the ecological role of this toxin. Reviews BMAA detection methods | <https://doi.org/10.1134/S0006297916080022> |
| Biotic control of harmful algal blooms (HABs): A brief review | All cyanotoxins | HABs and cyanotoxins impacts on human and environmental health. HABs and cyanotoxins management strategies | Reviews cyanobacterial bloom dynamics, toxicology and environmental fate of cyanotoxins. Discusses different approaches to HABs and cyanotoxins management and mitigation | <https://doi.org/10.1016/j.jenvman.2020.110687> |
| In Vitro Toxicological Assessment of Cylindrospermopsins: A Review | Cylindrospermopsins | Study cylindrospermopsins effects on human cell lines | Reviews the effects of cylindrospermopsins on human and animal cell lines, focusing on genotoxicity, cytotoxicity and oxidative stress biomarkers | <https://doi.org/10.3390/toxins9120402> |
| Occurrence of cyanobacteria in water used for food production: A review | All cyanotoxins | Human health effects of cyanotoxins and exposure routes | Reviews human health effects of cyanotoxins. Conducts an epidemiological study of human exposure events to cyanotoxins. Identifies exposure routes of humans to cyanotoxins, focusing on consumption of contaminated food and water | <https://doi.org/10.1016/j.pce.2021.103101> |
| A critical review of ionizing radiation technologies for the remediation of waters containing Microcystin-LR and M. aeruginosa | Microcystin | Water treatment | Reviews the most effective water treatment strategies in dealing with microcystin, focusing on radiation processes | <https://doi.org/10.1016/j.radphyschem.2020.109128> |
| The Use of Biochar and Pyrolysed Materials to Improve Water Quality through Microcystin Sorption Separation | Microcystin | Water treatment | Reviews the most effective water treatment strategies in dealing with microcystin, focusing on pyrolysis process | <https://doi.org/10.3390/w12102871> |
| Mode of action and fate of microcystins in the complex soil-plant ecosystems | Microcystins | MIcrocystins distribution, abundance and ecological risks in the soil system | Reviews microcystins distribution, abundance in the soil and identifies their adverse effects for plant health (phytotoxicity) | <https://doi.org/10.1016/j.chemosphere.2019.03.008> |
| Mechanisms underlying degradation pathways of microcystin-LR with doped TiO2 photocatalysis | Microcystin | Water treatment | Reviews the most effective water treatment strategies in dealing with microcystin, focusing on titanium dioxide photocatalysis process | <https://doi.org/10.1016/j.cej.2017.07.161> |
| Recent advances in application of UV light-emitting diodes for degrading organic pollutants in water through advanced oxidation processes: A review | Microcystins and other cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins, focusing on oxidation processes | <https://doi.org/10.1016/j.watres.2017.12.079> |
| The occurrence of cyanobacteria blooms in freshwater ecosystems and their link with hydro-meteorological and environmental variations in Tanzania | All cyanotoxins | Human and environmental health effects of cyanotoxins and exposure routes. Extensive literature review regarding human exposure events to cyanotoxins and HAB events occurrence in Tanzania. Cyanotoxins production routes | Reviews human and environmental health effects of cyanotoxins (mainly microcystins). Conducts an epidemiological study of human exposure events to cyanotoxins and HAB events in Tanzania. Reviews the environmental factors that lead to cyanotoxin production | <https://doi.org/10.1016/j.heliyon.2019.e01312> |
| A Review of the Effect of Trace Metals on Freshwater Cyanobacterial Growth and Toxin Production |  | Environmental factors involved in cyanotoxin production and release to aquatic ecosystems | Reviews the environmental factors that lead to cyanotoxin production and release to surrounding waters. Tries to establish a link between the presence of metal compounds and exacerbated cyanobacteria blooms and also higher cyanotoxins production | <https://doi.org/10.3390/toxins11110643> |
| The increasing importance of environmental conditions in amyotrophic lateral sclerosis | BMAA | Human health effects of BMAA and exposure routes | Reviews human health effects of BMAA. Summarizes the link between BMAA and neurodegeneration | <https://doi.org/10.1007/s00484-018-1550-2> |
| Toxic Damage to Motor Neurons | BMAA | Human health effects of BMAA and exposure routes | Reviews human health effects of BMAA. Summarizes the link between BMAA and neurodegeneration | <https://doi.org/10.1134/S1819712421040164> |
| Cyanobacteria toxins and the current state of knowledge on water treatment options: a review | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.1139/s04-010> |
| A review of algal toxin exposures on reserved federal lands and among trust species in the United States | All cyanotoxins | Human and animal health effects of cyanotoxins and exposure routes. Extensive literature review regarding human and animal exposure events to cyanotoxins in North America (USA) | Reviews human and animal health effects of cyanotoxins. Conducts an epidemiological study of human and animal exposure events to cyanotoxins and HAB events in North America (USA). Analyses existent legislation | <https://doi.org/10.1080/10643389.2021.2010511> |
| Classification and Identification Tasks in Microbiology: Mass Spectrometric Methods Coming to the Aid | Microcystins, nodularins, cylindrospermopsins, saxitoxins and anatoxins | Cyanotoxins detection methods | Reviews Mass Spectrometric methods for the determination of these cyanotoxins in environmental samples | <https://doi.org/10.1134/S0026261719050151> |
| Recent advancements in LC-MS based analysis of biotoxins: Present and future challenges | All cyanotoxins and marine toxins | Cyanotoxins and marine toxins detection methods | Reviews Liquid Chromatographic/Mass Spectrometric methods for the determination of cyanotoxins and marine toxins in environmental samples | <https://doi.org/10.1002/mas.21689> |
| Microcystin Incidence in the Drinking Water of Mozambique: Challenges for Public Health Protection | Microcystin | Human and animal health effects of microcystins and exposure routes. Extensive literature review regarding human and animal exposure events to microcystins in Mozambique | Reviews human and animal health effects of microcystins. Conducts an epidemiological study of human and animal exposure events to microcystins and HAB events in Mozambique. Analyses existent legislation and microcystins monitoring programs in Mozambique | <https://doi.org/10.3390/toxins12060368> |
| Sensors, Biosensors, and Analytical Technologies for Aquaculture Water Quality | All cyanotoxins | Cyanotoxins detection methods | Reviews the use of biosensors for the determination of cyanotoxins in environmental samples | [DOI: 10.34133/2020/8272705](https://doi.org/10.34133/2020/8272705) |
| Presence of the Neurotoxin BMAA in Aquatic Ecosystems: What Do We Really Know? | BMAA | BMAA detection methods | Reviews BMAA detection methods and analyses existent legislation. Gives an opinion on the effectiveness of BMAA biomonitoring programs | <https://doi.org/10.3390/toxins6031109> |
| Immunoassays and Biosensors for the Detection of Cyanobacterial Toxins in Water | Microcystins, nodularins, cylindrospermopsins, anatoxins and saxitoxins | Cyanotoxins detection methods | Reviews the use of biosensors and immunoassays for the determination of these cyanotoxins in environmental samples | <https://doi.org/10.3390/s131115085> |
| Recent advances in ultrasonic treatment: Challenges and field applications for controlling harmful algal blooms (HABs) | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins and cyanobacteria, focusing on ultrasonication methods | <https://doi.org/10.1016/j.ultsonch.2017.03.003> |
| A review of current knowledge on toxic benthic freshwater cyanobacteria - Ecology, toxin production and risk management | All cyanotoxins | HABs and cyanotoxins impacts on human, animal and environmental health. HABs and cyanotoxins management strategies. Ecotoxicological effects of cyanotoxins. Human and animal health effects of cyanotoxins and exposure routes | Reviews cyanobacterial bloom dynamics, toxicology and environmental fate of cyanotoxins. Discusses different approaches to HABs and cyanotoxins management and mitigation. Assesses the effects of cyanotoxins on humans, animals (terrestrial and aquatic) and environmental health | <https://doi.org/10.1016/j.watres.2013.06.042> |
| Impacts of Microcystins on Morphological and Physiological Parameters of Agricultural Plants: A Review | Microcystins | Study the effects of microcystins on agricultural plants | Reviews microcystins bioaccumulation and identifies adverse effects for agricultural plants health (phytotoxicity), focusing on morphological, physiological and histopathologic endpoints/biomarkers | <https://doi.org/10.3390/plants10040639> |
| Effects of cyanobacterial toxins on the human gastrointestinal tract and the mucosal innate immune system | All cyanotoxins | Human and animal health effects of cyanotoxins | Reviews cyanotoxins effects on human and animal (animal models relevant for human health) health, focusing on their effects on the gastrointestinal tract and mucosal innate immune system | <https://doi.org/10.1186/s12302-019-0212-2> |
| Challenges of using blooms of Microcystis spp. in animal feeds: A comprehensive review of nutritional, toxicological and microbial health evaluation | Microcystins | Ecotoxicological effects of microcystins | Assesses the effects of microcystins on molluscs, crustaceans, fish, amphibians, mammals and birds. | <https://doi.org/10.1016/j.scitotenv.2020.142319> |
| State of knowledge on early warning tools for cyanobacteria detection | All cyanotoxins | Cyanotoxins detection methods | Reviews cyanotoxins detection methods and analyses existent legislation | <https://doi.org/10.1016/j.ecolind.2021.108442> |
| Structural Diversity, Characterization and Toxicology of Microcystins | Microcystins | Summarize our current understanding on microcystins chemical structure, human routes of exposure and its environmental fate. Microcystins detection methods | Reviews current knowledge on the chemical structure, exposure pathway, biosynthesis, and environmental transformation of microcystins. Reviews microcystins detection methods and analyses existent legislation | <https://doi.org/10.3390/toxins11120714> |
| Cyanobacteria: the bright and dark sides of a charming group | All cyanotoxins | Human and animal health effects and exposure routes to cyanotoxins. Cyanotoxins production routes | Reviews human and animal health effects of cyanotoxins and exposure routes. Reviews the environmental and genetic factors that lead to cyanotoxin production | <https://doi.org/10.1007/s10531-015-0898-4> |
| Florida's Harmful Algal Bloom (HAB) Problem: Escalating Risks to Human, Environmental and Economic Health With Climate Change | All cyanotoxins | Human and animal health effects of cyanotoxins and exposure routes. Extensive literature review regarding human and animal exposure events to cyanotoxins in Florida (USA) | Reviews human and animal health effects of cyanotoxins. Conducts an epidemiological study of human and animal exposure events to cyanotoxins and HAB events in Florida (USA). Analyses existent legislation and different approaches to HABs and cyanotoxins management and mitigation | <https://doi.org/10.3389/fevo.2021.646080> |
| Effects of oxidative and physical treatments on inactivation of Cylindrospermopsis raciborskii and removal of cylindrospermopsins | Cylindrospermopsins | Water treatment | Reviews the most effective water treatment strategies in dealing with cylindrospermopsins, focusing on physical and oxidative processes | <https://doi.org/10.2166/wst.2009.385> |
| Monitoring Cyanobacteria Blooms in Freshwater Lakes using Remote Sensing Methods | All cyanotoxins | Cyanotoxins and cyanobacteria detection methods | Reviews remote sensing methods for the determination of cyanotoxins and cyanotoxin-producing cyanobacteria in environmental samples. | <https://doi.org/10.15244/pjoes/60175> |
| Analysis of important freshwater and marine toxins | Microcystins, anatoxins, okadaic acid, tetrodotoxin, domoic acid and brevetoxin | Cyanotoxins and marine toxins detection methods | Reviews cyanotoxins and marine toxins detection methods and analyses existent legislation for freshwater and marine waters | <https://doi.org/10.1081/AL-120002357> |
| Cyanobacterial toxins: biosynthetic routes and evolutionary roots | Microcystin, nodularin, cylindrospermopsins, anatoxin, saxitoxin and lyngbyatoxin | Cyanotoxins production routes and their ecological function | Reviews the environmental and genetic factors that lead to these cyanotoxins production and the ecological role of these toxins. Gives recommendations regarding HAB/cyanotoxins managing strategies | <https://doi.org/10.1111/j.1574-6976.2012.12000.x> |
| Evidence-Based Framework to Manage Cyanobacteria and Cyanotoxins in Water and Sludge from Drinking Water Treatment Plants | All cyanotoxins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.3390/toxins14060410> |
| Adsorbents Used for Microcystin Removal from Water Sources: Current Knowledge and Future Prospects | Microcystin | Water treatment | Reviews the most effective water treatment strategies in dealing with microcystins | <https://doi.org/10.3390/pr10071235> |
| Analysis of Total-Forms of Cyanotoxins Microcystins in Biological Matrices: A Methodological Review | Microcystins | Microcystins detection methods | Reviews microcystins detection methods and analyses existent legislation | <https://doi.org/10.3390/toxins14080550> |
| A review and assessment of cyanobacterial toxins as cardiovascular health hazards | All cyanotoxins | Human and animal health effects of cyanotoxins and exposure routes. Ecotoxicological effects of cyanotoxins | Reviews human and animal health effects of cyanotoxins. Summarizes the link between cyanotoxins and cardiovascular diseases. Assesses the effects of these cyanotoxins on mainly fish and rodents, focusing on cardiotoxicity biomarkers. Analyses existent legislation and guidelines | <https://doi.org/10.1007/s00204-022-03354-7> |

**Number of hits (search on Web of Science -all fields- for review papers – 25/04/2023)**

Aquatic biotoxins: 18

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| **Title** | **Toxins** | **Main Objective** | **Conclusions** | **DOI** |
| Marine Biotoxins: Occurrence, Toxicity, Regulatory Limits and Reference Methods | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies | Reviews marine toxins effects on human health. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines | <https://doi.org/10.3389/fmicb.2016.01051> |
| The effects of harmful algal blooms on aquatic organisms | All marine toxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Effects on human health and exposure routes of marine toxins. Extensive literature review. Marine toxins production routes | Assesses the effects of marine toxins on aquatic biota and bioaccumulation of this toxin in the food chain. Reviews marine toxins effects on human and terrestrial animals’ health. Identifies exposure routes of humans to marine toxins. Conducts an epidemiological study of aquatic biota exposure events to marine toxins around the world. Reviews the environmental and genetic factors that lead to marine toxins production | <https://doi.org/10.1080/20026491051695> |
| Emerging Optical Materials in Sensing and Discovery of Bioactive Compounds | All cyanotoxins and marine toxins | Cyanotoxins and marine toxins detection methods | Reviews the use of biosensors for cyanotoxins and marine toxins detection methods and analyses existent legislation for freshwater and marine waters | <https://doi.org/10.3390/s21175784> |
| EU Regulatory Risk Management of Marine Biotoxins in the Marine Bivalve Mollusc Food-Chain | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/toxins10030118> |
| Progress in the development of immunoanalytical methods incorporating recombinant antibodies to small molecular weight biotoxins | Saxitoxin, ciguatoxin and domoic acid | Marine toxins detection methods | Reviews the use of immunoassays for the determination of these marine toxins in environmental and food samples | <https://doi.org/10.1007/s00216-015-8502-z> |
| Aquatic dermatology: encounters with the denizens of the deep (and not so deep) - a review. Part II: the vertebrates, single-celled organisms, and aquatic biotoxins | Saxitoxin, brevetoxin and lyngbyatoxin | Human and animal health effects and exposure routes to marine toxins and cyanotoxins | Reviews human and animal health effects of these marine toxins and cyanotoxins and exposure routes to these toxins, focusing on dermatotoxicity biomarkers | <https://doi.org/10.1111/j.1365-4632.2011.05426.x> |
| How the marine biotoxins affect human health | All marine toxins | Effects on human health and exposure routes of marine toxins. Marine toxins production routes | Reviews marine toxins effects on human health. Identifies exposure routes of humans to marine toxins. Reviews the environmental and genetic factors that lead to marine toxins production | <https://doi.org/10.1080/14786419.2017.1329734> |
| Processes and pathways of ciguatoxin in aquatic food webs and fish poisoning of seafood consumers | Ciguatoxin | Effects on human health and exposure routes of ciguatoxin. Ciguatoxin production routes | Reviews ciguatoxin effects on human health. Identifies exposure routes of humans to ciguatoxin and evaluates the bioaccumulation of this toxin in the food chain. Reviews the environmental and genetic factors that lead to ciguatoxin production | <https://doi.org/10.1139/er-2015-0054> |
| Human Poisoning from Marine Toxins: Unknowns for Optimal Consumer Protection | All marine toxins | Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies | Reviews marine toxins effects on human health. Identifies exposure routes of humans to marine toxins and evaluates the bioaccumulation of this toxin in the food chain. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/toxins10080324> |
| Skin ulcers in fish: Pfiesteria and other etiologies | *Pfiesteria* toxin | Study the effects of *Pfiesteria* toxin on fish health | Reviews fish health effects of *Pfiesteria* toxin and exposure routes to these toxins, focusing on dermatotoxicity biomarkers | <https://doi.org/10.1177/019262330002800607> |
| OMICs Approaches in Diarrhetic Shellfish Toxins Research | Yessotoxin, okadaic acid and pectenotoxin | Effects on human health and exposure routes of marine toxins. Marine toxins production routes. Marine toxins detection methods | Reviews these marine toxins effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain. Reviews the environmental and genetic factors that lead to these marine toxins production. Reviews the use of molecular biomarkers of exposure for the determination of these marine toxins in environmental samples and their use in biomonitoring programs | <https://doi.org/10.3390/toxins12080493> |
| Critical assessment of recent trends related to screening and confirmatory analytical methods for selected food contaminants and allergens | All marine toxins and microcystin | Marine toxins and microcystin detection methods | Reviews the use of immunoassays for the determination of these marine toxins and microcystin in environmental and food samples. Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.trac.2019.115688> |
| The current situation and potential effects of climate change on the microbial load of marine bivalves of the Greek coastlines: an integrative review | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies. Extensive literature review regarding marine toxins occurrence in Greece | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of marine toxins presence in Greek marine environments | <https://doi.org/10.1111/1462-2920.15765> |
| Detection of diarrheal shellfish toxins | Okadaic acid | Marine toxins detection methods | Reviews okadaic acid detection methods and analyses existent legislation and guidelines | <https://doi.org/10.1515/revac-2022-0053> |

**Number of hits (search on Web of Science -all fields- for review papers – 25/04/2023)**

Phycotoxins: 48

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| **Title** | **Toxins** | **Main Objective** | **Conclusions** | **DOI** |
| Mixtures of Lipophilic Phycotoxins: Exposure Data and Toxicological Assessment | Okadaic acid, dinophysistoxins, pectenotoxins, yessotoxins, azaspiracids and cyclic imines | Effects on human health and exposure routes of marine toxins. Extensive literature review | Reviews these marine toxins effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain. Conducts an epidemiological study of complex marine toxins mixtures occurrence in aquatic environments and human exposure events to these mixtures worldwide | <https://doi.org/10.3390/md16020046> |
| Phycotoxins and marine annelids - A global review | All marine toxins | Effects on marine annelids health and exposure routes of marine toxins. Ecotoxicological effects of marine toxins | Reviews marine toxins effects on marine annelids health.  Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.hal.2022.102373> |
| A Preliminary Risk Assessment of Human Exposure to Phycotoxins in Shellfish: A Review | Saxitoxins, domoic acid and okadaic acid | Effects on human health and exposure routes of marine toxins. Extensive literature review | Reviews these marine toxins effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain, focusing on shellfish. Conducts an epidemiological study of these marine toxins occurrence and human exposure events to these marine toxins worldwide. Discusses the existent legislation and guidelines | <https://doi.org/10.1080/10807039.2011.552393> |
| Recent advances in analytical procedures for the detection of diarrhetic phycotoxins: a review | Okadaic acid and dinophysistoxins | Marine toxins detection methods | Reviews okadaic acid and dinophysistoxins detection methods and analyses existent legislation | <https://doi.org/10.1023/A:1008198324695> |
| Industrial Applications of Dinoflagellate Phycotoxins Based on Their Modes of Action: A Review | All marine toxins | Phytoplankton secondary metabolites and their possible applications. Effects on human health and exposure routes of marine toxins | Reviews phytoplankton secondary metabolites biotechnological and industrial applications. Reviews marine toxins effects on human health and exposure routes | <https://doi.org/10.3390/toxins12120805> |
| Phycotoxins in seafood —toxicological and chromatographic aspects | Saxitoxins, okadaic acid, dinophysistoxin and yessotoxin | Marine toxins detection methods | Reviews these marine toxins detection methods and analyses existent legislation | <https://doi.org/10.1016/0021-9673(92)85694-O> |
| High Value Phycotoxins From the Dinoflagellate Prorocentrum | Okadaic acid and other marine toxins | Phytoplankton secondary metabolites and their possible applications | Reviews phytoplankton and their secondary metabolites (mainly okadaic acid) biotechnological and industrial applications | <https://doi.org/10.3389/fmars.2021.638739> |
| Recent Trends in Marine Phycotoxins from Australian Coastal Waters | All marine toxins | Effects on human health and exposure routes of marine toxins. Extensive literature review regarding marine toxins occurrence in Australia. Marine toxins and phytoplankton detection methods | Reviews marine toxins effects on human health. Identifies exposure routes of humans to marine toxins. Conducts an epidemiological study of marine toxins presence in Australia marine environments. Reviews molecular and ELISA-based methods for the determination of marine toxins and toxin-producing phytoplankton in environmental samples | <https://doi.org/10.3390/md15020033> |
| Chemical Diversity, Origin, and Analysis of Phycotoxins | All marine toxins | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods | Reviews current knowledge on the chemical structure, mode of action, human health effects and phytoplankton species responsible for toxin production. Reviews marine toxins detection methods | <https://doi.org/10.1021/acs.jnatprod.5b01066> |
| Phycotoxins in Marine Shellfish: Origin, Occurrence and Effects on Humans | All marine toxins | Effects on human health and exposure routes of marine toxins. Extensive literature review | Reviews these marine toxins effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain, focusing on shellfish. Conducts an epidemiological study of these marine toxins occurrence and human exposure events to these marine toxins worldwide. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/md16060188> |
| Innovative techniques for harmful algal toxin analysis | All marine toxins | Marine toxins detection methods | Reviews marine toxins detection methods and analyses existent legislation | <https://doi.org/10.1002/etc.5620200110> |
| Harmful algal blooms and shellfish in the marine environment: an overview of the main molluscan responses, toxin dynamics, and risks for human health | All marine toxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Effects on human health and exposure routes of marine toxins. Extensive literature review | Assesses the effects of marine toxins on aquatic biota, mainly on molluscan shellfish and the bioaccumulation and biodilution of marine toxins in the food chain. Reviews marine toxins effects on human health. Identifies exposure routes of humans to marine toxins. Conducts an epidemiological study of molluscan shellfish exposure events to marine toxins around the world | <https://doi.org/10.1007/s11356-021-16256-5> |
| Lateral-flow immunoassays for mycotoxins and phycotoxins: a review | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods | Reviews the use of lateral-flow immunoassays for the determination of marine toxins and cyanotoxins in environmental samples | <https://doi.org/10.1007/s00216-012-6033-4> |
| Harmful algal blooms and their effects in coastal seas of Northern Europe | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies. Extensive literature review regarding marine toxins, exposure events and HAB occurrence in Europe | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Conducts an epidemiological study of marine toxins presence and human/animal exposure events in north European marine environments. Discusses the existent legislation and guidelines. | <https://doi.org/10.1016/j.hal.2021.101989> |
| Phycotoxins in the marine environment: control of marine organisms for contamination with algal toxins | All marine toxins | Marine toxins detection methods. HABs and marine toxins management strategies | Reviews marine toxins detection methods and analyses existent legislation. Discusses different approaches to HABs and marine toxins management and mitigation | <https://doi.org/10.1504/IJEP.2000.002314> |
| A Review on the Biodiversity and Biogeography of Toxigenic Benthic Marine Dinoflagellates of the Coasts of Latin America | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies. Extensive literature review regarding marine toxins occurrence in Latin America | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in Latin America marine environments | <https://doi.org/10.3389/fmars.2019.00148> |
| Cyclic imine toxins from dinoflagellates: a growing family of potent antagonists of the nicotinic acetylcholine receptors | Cyclic imines | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Human and animal health effects of marine toxins and exposure routes. Marine toxins detection methods | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for these toxins production. Reviews human and animal health effects of these marine toxins. Reviews cyclic imines detection methods | <https://doi.org/10.1111/jnc.13995> |
| Requirements for screening and confirmatory methods for the detection and quantification of marine biotoxins in end-product and official control | All marine toxins | Marine toxins detection methods. HABs and marine toxins management strategies. Human health effects of marine toxins and exposure routes | Reviews marine toxins detection methods in food samples and analyses existent legislation. Discusses different approaches to HABs and marine toxins management and mitigation. Reviews human health effects of these marine toxins and exposure routes | <https://doi.org/10.1007/s00216-009-3444-y> |
| Physiological and molecular responses of bivalves to toxic dinoflagellates | All marine toxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Effects on human health and exposure routes of marine toxins | Assesses the effects of marine toxins on aquatic biota, mainly on bivalves. Reviews bivalves’ health effects of these marine toxins, focusing on molecular biomarkers of exposure. Identifies exposure routes of humans to marine toxins, focusing on the bioaccumulation and biodilution of marine toxins in the food chain | <https://www.isj.unimore.it/index.php/ISJ/article/view/273> |
| Biosensors to detect marine toxins: Assessing seafood safety | All marine toxins | Marine toxins detection methods | Reviews the use of biosensors for the determination of marine toxins in environmental and food samples. Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.talanta.2006.12.036> |
| Cyclic Imines: Chemistry and Mechanism of Action: A Review | Cyclic Imines | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Human health effects of marine toxins and exposure routes | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for cyclic imines production. Reviews human health effects of these marine toxins | <https://doi.org/10.1021/tx200182m> |
| Chemical ecology of eukaryotic microalgae in marine ecosystems | All marine toxins | Marine toxins production routes, environmental fate and their ecological function | Reviews the environmental and genetic factors that lead to marine toxins production and the ecological role of these toxins | <https://doi.org/10.2216/i0031-8884-42-4-420.1> |
| Recent applications of surface plasmon resonance biosensors for analyzing residues and contaminants in food | All marine toxins and other environmental toxicants | Marine toxins detection methods | Reviews the use of optical biosensors for the determination of marine toxins in food samples. Discusses the existent legislation and guidelines | <https://doi.org/10.1007/s00706-009-0142-6> |
| Toxic marine phytoplankton, zooplankton grazers, and pelagic food webs | All marine toxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Effects on human and animal health and exposure routes of marine toxins | Assesses the effects of marine toxins on aquatic biota, mainly on zooplankton and the bioaccumulation and biodilution of marine toxins in the food chain. Reviews marine toxins effects on human and animal (aquatic and terrestrial) health. Identifies exposure routes of humans to marine toxins | <https://doi.org/10.4319/lo.1997.42.5_part_2.1203> |
| Natural toxins: risks, regulations and the analytical situation in Europe | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods. HABs, marine toxins and cyanotoxins management strategies | Reviews marine toxins and cyanotoxins detection methods. Analyses existent European legislation and guidelines. Discusses different approaches to HABs and marine toxins management and mitigation | <https://doi.org/10.1007/s00216-003-2373-4> |
| Biological methods for marine toxin detection | All marine toxins | Marine toxins detection methods | Reviews marine toxins detection methods and analyses existent legislation | <https://doi.org/10.1007/s00216-010-3782-9> |
| Alzheimer's Disease and Toxins Produced by Marine Dinoflagellates: An Issue to Explore | Okadaic acid, yessotoxins, gymnodimine, spirolides and gambierol | Effects on human health and exposure routes of marine toxins. Phytoplankton secondary metabolites and their possible applications | Reviews human health effects of these marine toxins. Summarizes the link between these toxins and neurodegeneration (mainly Alzheimer disease). Reviews phytoplankton and their secondary metabolites biotechnological applications in Alzheimer disease treatment | <https://doi.org/10.3390/md20040253> |
| Marine toxins and the cytoskeleton: azaspiracids | Azaspiracids | Human and animal health effects and exposure routes to azaspiracids | Reviews human and animal health effects (*in vitro* and *in vivo*) of azaspiracids, focusing on cytotoxicity and carcinogen biomarkers | <https://doi.org/10.1111/j.1742-4658.2008.06713.x> |
| Dinophysis Toxins: Causative Organisms, Distribution and Fate in Shellfish | Okadaic acid, dinophysistoxins and pectenotoxins | Marine toxins production routes, environmental fate and their ecological function. Human and animal health effects and exposure routes to marine toxins | Reviews the environmental and genetic factors that lead to these marine toxins production and their ecological role. Reviews these marine toxins mode of action and phytoplankton species responsible for their production. Reviews these marine toxins effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain | <https://doi.org/10.3390/md12010394> |
| Challenges and trends in the determination of selected chemical contaminants and allergens in food | All marine toxins and other environmental toxicants | Marine toxins detection methods | Reviews marine toxins detection methods and analyses existent legislation | <https://doi.org/10.1007/s00216-011-5237-3> |
| Toxic or Otherwise Harmful Algae and the Built Environment | All marine toxins and cyanotoxins | HABs, marine toxins and cyanotoxins management strategies. Marine toxins and cyanotoxins detection methods | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins and cyanotoxins detection methods. Analyses existent legislation and guidelines | <https://doi.org/10.3390/toxins13070465> |
| Mexican Microalgae Biodiversity and State-Of-The-Art Extraction Strategies to Meet Sustainable Circular Economy Challenges: High-Value Compounds and Their Applied Perspectives | All marine toxins | Phytoplankton secondary metabolites and their possible applications. Extensive literature review regarding marine toxins occurrence in Mexico | Reviews phytoplankton and their secondary metabolites biotechnological and industrial applications. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in Mexican marine environments | <https://doi.org/10.3390/md17030174> |
| Cyclic imines, as emerging marine toxins: Chemical properties, distribution, toxicological aspects and detection methods | Cyclic imines | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Human health effects of marine toxins and exposure routes. Marine toxins detection methods | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for these toxins production. Reviews human health effects of cyclic imines. Reviews cyclic imines detection methods | <https://doi.org/10.12681/jhvms.14856> |

**Number of hits (search on Web of Science -all fields- for review papers – 25/04/2023)**

Marine biotoxins: 99

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| --- | --- | --- | --- | --- |
| **Title** | **Toxins** | **Main Objective** | **Conclusions** | **Link** |
| Update of risk assessments of main marine biotoxins in the European Union | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.toxicon.2011.07.001> |
| Progresses of the Influencing Factors and Detection Methods of Domoic Acid | Domoic acid | Domoic acid detection methods | Reviews domoic acid detection methods. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/pr11020592> |
| Marine biotoxins and associated outbreaks following seafood consumption: Prevention and surveillance in the 21st century | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods | Reviews marine toxins effects on human health. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins detection methods and discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.gfs.2017.03.002> |
| Determination of marine biotoxins relevant for regulations: from the mouse bioassay to coupled LC-MS methods | All marine toxins | Marine toxins detection methods. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews marine toxins detection methods. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production. Discusses the existent legislation | <https://doi.org/10.1007/s00216-007-1778-x> |
| Aptamers and Aptasensors for Highly Specific Recognition and Sensitive Detection of Marine Biotoxins: Recent Advances and Perspectives | All marine toxins | Marine toxins detection methods | Reviews the use of aptamer-based biosensors for the determination of marine toxins in environmental and food samples. Discusses the existent legislation | <https://doi.org/10.3390/toxins10110427> |
| Natural Products as Potential Antiviral Drugs: The Specific Case of Marine Biotoxins | Saxitoxins, palytoxins, azaspiracid, gonyautoxin and maitotoxins | Phytoplankton secondary metabolites and their possible applications. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews phytoplankton and their secondary metabolites biotechnological applications in viral infections treatment. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production | <https://doi.org/10.1134/S1068162021060133> |
| Digital Technologies and Open Data Sources in Marine Biotoxins' Risk Analysis: The Case of Ciguatera Fish Poisoning | Ciguatoxins | HABs and marine toxins management strategies. Marine toxins detection methods | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews ciguatoxins detection methods. Analyses existent legislation and guidelines | <https://doi.org/10.3390/toxins13100692> |
| Potential Threats Posed by New or Emerging Marine Biotoxins in UK Waters and Examination of Detection Methodologies Used for Their Control: Cyclic Imines | Cyclic imines | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding cyclic imines occurrence in the UK | Reviews cyclic imines effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to cyclic imines. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of cyclic imines presence and toxin-producing phytoplankton species in UK marine environments | <https://doi.org/10.3390/md13127057> |
| Relevance and challenges in monitoring marine biotoxins in non-bivalve vectors | All marine toxins | HABs and marine toxins impacts on human health. Effects on human health and exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Reviews marine toxins detection methods | <https://doi.org/10.1016/j.foodcont.2016.12.038> |
| The Continuing Saga of the Marine Polyether Biotoxins | Brevetoxins, ciguatoxins, gambierol, gymnocin, maitotoxins and brevenal | Summarize our current understanding on marine toxins chemical structure, mode of action, producer organisms and isolation techniques | Reviews current knowledge on the chemical structure, mode of action, phytoplankton species responsible for marine toxins production and most used marine toxins isolation techniques | <https://doi.org/10.1002/anie.200801696> |
| Shellfish contamination with marine biotoxins in Portugal and spring tides: a dangerous health coincidence | Okadaic acid and saxitoxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Extensive literature review regarding marine toxins occurrence in Portugal | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of okadaic acid and saxitoxins presence in Portuguese marine environments | <https://doi.org/10.1007/s11356-020-10389-9> |
| Use of Biosensors as Alternatives to Current Regulatory Methods for Marine Biotoxins | All marine toxins | Marine toxins detection methods | Reviews the use of surface plasmon resonance-based biosensors for the determination of marine toxins in environmental and food samples. Discusses the existent legislation | <https://doi.org/10.3390/s91109414> |
| Potential Threats Posed by New or Emerging Marine Biotoxins in UK Waters and Examination of Detection Methodology Used in Their Control: Brevetoxins | Brevetoxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding brevetoxins occurrence in the UK | Reviews brevetoxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to brevetoxins. Discusses different approaches to HABs and marine toxins management and mitigation. Reviews brevetoxins detection methods. Discusses the existent legislation and guidelines. Conducts an epidemiological study of brevetoxins presence and toxin-producing phytoplankton species in UK marine environments | <https://doi.org/10.3390/md13031224> |
| Marine neurotoxins: State of the art, bottlenecks, and perspectives for mode of action based methods of detection in seafood | All marine toxins | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production. Reviews marine toxins detection methods | <https://doi.org/10.1002/mnfr.201300520> |
| Okadaic Acid Meet and Greet: An Insight into Detection Methods, Response Strategies and Genotoxic Effects in Marine Invertebrates | Okadaic acid | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Marine toxins detection methods | Assesses the effects of marine toxins on aquatic biota, mainly on marine invertebrates. Reviews the health effects of these marine toxins on marine invertebrates, focusing on genotoxicity biomarkers. Reviews marine toxins detection methods | <https://doi.org/10.3390/md11082829> |
| Derivation of toxicity equivalency factors for marine biotoxins associated with Bivalve Molluscs | Saxitoxins, domoic acid, brevetoxins, okadaic acid, azaspiracid and tetrodotoxin | Marine toxins detection methods. Summarize our current understanding on marine toxins mode of action and producer organisms. | Reviews marine toxins detection methods and analyses existent legislation and guidelines. Reviews current knowledge on the mode of action and phytoplankton species responsible for these marine toxins production | <https://doi.org/10.1016/j.tifs.2016.09.015> |
| Biotoxins from freshwater and marine harmful algal blooms occurring in Mexico | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods. HABs, marine toxins and cyanotoxins management strategies. HABs, marine toxins and cyanotoxins impacts on human health. Exposure routes of marine toxins and cyanotoxins. Extensive literature review regarding HABs, marine toxins and cyanotoxins occurrence in Mexico | Reviews marine toxins and cyanotoxins detection methods. Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins and cyanotoxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins and cyanotoxins presence and toxin-producing phytoplankton species in Mexico marine and freshwater environments | <https://doi.org/10.1080/15569540701883437> |
| Bivalve Omics: State of the Art and Potential Applications for the Biomonitoring of Harmful Marine Compounds | All marine toxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Marine toxins detection methods | Assesses the effects of marine toxins on aquatic biota, mainly on bivalves. Reviews the health effects of these marine toxins on bivalves. Reviews the use of molecular biomarkers of exposure for the determination of marine toxins in environmental samples and their use in biomonitoring programs | <https://doi.org/10.3390/md11114370> |
| Use of biosensors for the detection of marine toxins | All marine toxins | Marine toxins detection methods | Reviews the use of biosensors for the determination of marine toxins in food samples. Discusses the existent legislation | <https://doi.org/10.1042/EBC20150006> |
| Marine Toxins in Italy: The More You Look, the More You Find | All marine toxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding marine toxins occurrence in Italy | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in Italian marine environments | <https://doi.org/10.1002/ejoc.201300991> |
| Ensuring seafood safe to spoon: a brief review of biosensors for marine biotoxin monitoring | All marine toxins | Marine toxins detection methods | Reviews the use of biosensors for the determination of marine toxins in food samples. Discusses the existent legislation | <https://doi.org/10.1080/10408398.2020.1854170> |
| Biotechnological and Pharmacological Applications of Biotoxins and Other Bioactive Molecules from Dinoflagellates | All marine toxins | Phytoplankton secondary metabolites and their possible applications. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews phytoplankton and their secondary metabolites biotechnological applications. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production | <https://doi.org/10.3390/md15120393> |
| Current Situation of Palytoxins and Cyclic Imines in Asia-Pacific Countries: Causative Phytoplankton Species and Seafood Poisoning | Palytoxins and cyclic imines | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods. HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for palytoxins and cyclic imines production. Reviews palytoxins and cyclic imines detection methods and analyses existent legislation regarding these toxins in Asia-Pacific countries. Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation | <https://doi.org/10.3390/ijerph19084921> |
| A European perspective on progress in moving away from the mouse bioassay for marine-toxin analysis | All marine toxins | Marine toxins detection methods | Reviews marine toxins detection methods. Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.trac.2010.10.010> |
| Toxic and harmful marine phytoplankton and microalgae (HABs) in Mexican Coasts | All marine toxins | Marine toxins detection methods. HABs and marine toxins management strategies. HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Extensive literature review regarding HABs and marine toxins occurrence in Mexico | Reviews marine toxins detection methods. Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in Mexico marine environments | <https://doi.org/10.1080/10934520701480219> |
| Marine paralytic shellfish toxins: chemical properties, mode of action, newer analogues, and structure-toxicity relationship | Saxitoxins | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods. HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Marine toxins production routes, environmental fate and their ecological function | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for saxitoxins production. Reviews saxitoxins detection methods and analyses existent legislation. Reviews saxitoxins effects on human health and evaluates their bioaccumulation and biodilution in the food chain. Identifies exposure routes of humans to these marine toxins. Reviews current knowledge on biosynthesis, and environmental transformation of saxitoxins | <https://doi.org/10.1039/D1NP00009H> |
| Marine algal toxins: Origins, health effects, and their increased occurrence | All marine toxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews marine toxins effects on human health and evaluates their bioaccumulation and biodilution in the food chain. Identifies exposure routes of humans to marine toxins. Reviews current knowledge on the mode of action and phytoplankton species responsible for marine toxins production | <https://doi.org/10.1289/ehp.00108s1133> |
| Food poisoning associated with biotoxins in fish and shellfish | All marine toxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins | Reviews marine toxins effects on human health and evaluates their bioaccumulation and biodilution in the food chain. Identifies exposure routes of humans to marine toxins | [10.1097/00001432-200310000-00013](https://doi.org/10.1097/00001432-200310000-00013) |
| Chromatin specialization in bivalve molluscs: A leap forward for the evaluation of Okadaic Acid genotoxicity in the marine environment | Okadaic acid | Effects to aquatic biota. Ecotoxicological effects of marine toxins. Marine toxins detection methods | Assesses the effects of marine toxins on aquatic biota, mainly on bivalves. Reviews the health effects of these marine toxins on bivalves, focusing on genotoxicity biomarkers. Reviews the use of genotoxicity biomarkers of exposure for the determination of these marine toxins in environmental samples and their use in biomonitoring programs. Discusses the existent legislation | <https://doi.org/10.1016/j.cbpc.2011.09.003> |
| Shellfish toxins - Chemical studies on northern Adriatic mussels | All marine toxins | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production. Reviews marine toxins detection methods | <https://doi.org/10.1002/ejoc.200300769> |
| In situ passive solid-phase adsorption of micro-algal biotoxins as a monitoring tool | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods | Reviews sampling methodologies and applications of solid phase-based sample preparation methods for the determination of marine toxins and cyanotoxins in environmental matrices | <https://doi.org/10.1016/j.copbio.2010.01.013> |
| Bioactives from microalgal dinoflagellates | All marine toxins | Phytoplankton secondary metabolites and their possible applications. Marine toxins detection methods | Reviews phytoplankton and their secondary metabolites biotechnological and industrial applications. Reviews marine toxins detection methods | <https://doi.org/10.1016/j.biotechadv.2012.07.005> |
| Paralytic and Amnesic Shellfish Toxins Impacts on Seabirds, Analyses and Management | Saxitoxins, brevetoxins and domoic acid | Ecotoxicological effects of marine toxins. Marine toxins production routes, environmental fate and their ecological function | Assesses the effects of these marine toxins on seabirds that feed in marine habitats. Analyses existent marine toxins legislation and guidelines effectiveness on protecting wildlife health. Reviews the environmental and genetic factors that lead to these marine toxins production, their ecological role and evaluates the bioaccumulation and biotransformation of these toxins in the food chain | <https://doi.org/10.3390/toxins13070454> |
| Tetrodotoxin in live bivalve mollusks from Europe: Is it to be considered an emerging concern for food safety? | Tetrodotoxin | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding tetrodotoxin occurrence in Europe | Reviews tetrodotoxin effects on human health and evaluates the bioaccumulation of these toxins in the food chain. Identifies exposure routes of humans to tetrodotoxin. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of tetrodotoxin presence and toxin-producing phytoplankton species in European marine environments | <https://doi.org/10.1111/1541-4337.12881> |
| The globally distributed genus Alexandrium: Multifaceted roles in marine ecosystems and impacts on human health | Saxitoxins, goniodomins and spirolides | Summarize our current understanding on marine toxins mode of action and producer organisms. Marine toxins detection methods. Marine toxins production routes, environmental fate and their ecological function. Human and animal health effects and exposure routes to marine toxins | Reviews current knowledge on the mode of action and phytoplankton species responsible for marine toxins production. Reviews marine toxins detection methods, focusing on the use of molecular biomarkers of exposure for the determination of marine toxins in environmental samples and their use in biomonitoring programs. Reviews the environmental and genetic factors that lead to these marine toxins production and their ecological role. Reviews these marine toxins effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain | <https://doi.org/10.1016/j.hal.2011.10.012> |
| Marine toxins and the cytoskeleton: pectenotoxins, unusual macrolides that disrupt actin | Pectenotoxins | Human and animal health effects and exposure routes to pectenotoxins. Phytoplankton secondary metabolites and their possible applications | Reviews human and animal health effects (*in vitro* and *in vivo*) of pectenotoxins, focusing on cytotoxicity and carcinogen biomarkers. Reviews pectenotoxins biotechnological applications in cancer treatment | <https://doi.org/10.1111/j.1742-4658.2008.06714.x> |
| Spiroimine shellfish poisoning (SSP) and the spirolide family of shellfish toxins: Isolation, structure, biological activity and synthesis | Spirolides | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods. Marine toxins production routes, environmental fate and their ecological function. Human and animal health effects and exposure routes to marine toxins | Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for spirolides production. Reviews spirolides detection methods. Reviews the environmental and genetic factors that lead to these marine toxins production and their ecological role. Reviews these marine toxins effects on human health. Identifies exposure routes of humans to spirolides and evaluates the bioaccumulation and biotransformation of these toxins in the food chain | <https://doi.org/10.1039/C005400N> |
| Biotoxin Detection Using Cell- Based Sensors | Saxitoxins, okadaic acid, dinophysistoxins, brevetoxin, ciguatoxin, palytoxin, pectonotoxins and tetrodotoxin | Marine toxins detection methods | Reviews the use of cell-based biosensors for the determination of marine toxins in food and environmental samples | <https://doi.org/10.3390/toxins5122366> |
| Toxin Levels and Profiles in Microalgae from the North-Western Adriatic Sea-15 Years of Studies on Cultured Species | All marine toxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding marine toxins occurrence in Italy. Summarize our current understanding on marine toxins mode of action and producer organisms | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in Italian marine environments, focusing on the North-Western Adriatic Sea. Reviews current knowledge on the mode of action and phytoplankton species responsible for marine toxins production | <https://doi.org/10.3390/md10010140> |
| Ciguatera Mini Review: 21st Century Environmental Challenges and the Interdisciplinary Research Efforts Rising to Meet Them | Ciguatoxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods | Reviews ciguatoxins effects on human health and evaluates the bioaccumulation of these toxins in the food chain. Identifies exposure routes of humans to ciguatoxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines and points out research needs on ciguatoxins research. Reviews ciguatoxins detection methods | <https://doi.org/10.3390/ijerph18063027> |
| Review of DSP Toxicity in Ireland: Long-Term Trend Impacts, Biodiversity and Toxin Profiles from a Monitoring Perspective | Okadaic acid, dinophysistoxins and pectenotoxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding marine toxins occurrence in Ireland | Reviews okadaic acid, dinophysistoxins and pectenotoxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to these marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in Irish marine environments | <https://doi.org/10.3390/toxins11020061> |
| Current Status of Forecasting Toxic Harmful Algae for the North-East Atlantic Shellfish Aquaculture Industry | All marine toxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding HABs and marine toxins occurrence in Europe | Reviews marine toxins effects on human health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in European marine environments | <https://doi.org/10.3389/fmars.2021.666583> |
| Azaspiracid shellfish poisoning: A review on the chemistry, ecology, and toxicology with an emphasis on human health impacts | Azaspiracid | Effects on human health and exposure routes of marine toxins. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews azaspiracid effects on human health. Identifies exposure routes of humans to these marine toxins and evaluates the bioaccumulation and biotransformation of these toxins in the food chain. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for azaspiracid production. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/md6020039> |
| Biotoxin sensing in food and environment via microchip | All marine toxins and other toxins | Marine toxins detection methods | Reviews the use of microchips for the determination of marine toxins in food and environmental samples and their use in biomonitoring programs | <https://doi.org/10.1002/elps.201300570> |
| Domoic acid and human exposure risks: A review | Domoic acid | Effects on human and animal health and exposure routes of marine toxins. Extensive literature review. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews domoic acid effects on human and vertebrate animals’ health. Identifies exposure routes of humans to this marine toxin and evaluates the bioaccumulation of domoic acid in the food chain. Conducts an epidemiological study of these marine toxins occurrence and human exposure events to these marine toxins worldwide. Discusses the existent legislation and guidelines. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for domoic acid production | <https://doi.org/10.1016/j.toxicon.2009.05.034> |
| Review and assessment of in vitro detection methods for algal toxins | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods | Reviews the use of *in vitro* assays for the determination of marine toxins and cyanotoxins in environmental samples. Discusses the existent legislation and guidelines | <https://doi.org/10.1093/jaoac/84.5.1617> |
| Three Rs approaches in marine biotoxin testing - The report and recommendations of a joint ECVAM/DG SANCO workshop (ECVAM workshop 55) | All marine toxins | Marine toxins detection methods | Reviews alternative assays and testing methodologies that do not use animal models for the determination of marine toxins in environmental and food samples. Discusses the existent legislation and guidelines | <https://doi.org/10.1177/026119290603400207> |
| Pseudo-nitzschia physiological ecology, phylogeny, toxicity, monitoring and impacts on ecosystem health | Domoic acid | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. HABs and marine toxins management strategies. Marine toxins production routes, environmental fate and their ecological function | Reviews domoic acid effects on human health. Identifies exposure routes of humans to this marine biotoxin and evaluates the bioaccumulation and biotransformation of domoic acid in the food chain. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for domoic acid production. Discusses the existent legislation and guidelines. Discusses different approaches to HABs and domoic acid management and mitigation. Reviews the environmental and genetic factors that lead to domoic acid production and the ecological role of this toxin | <https://doi.org/10.1016/j.hal.2011.10.025> |
| Climate change and food safety: A review | All marine toxins and cyanotoxins | HABs, marine toxins and cyanotoxins management strategies. HABs, marine toxins and cyanotoxins impacts on human health. Exposure routes of marine toxins and cyanotoxins. Extensive literature review regarding HABs, marine toxins and cyanotoxins worldwide occurrence. Marine toxins and cyanotoxins production routes | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins and cyanotoxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins and cyanotoxins presence and toxin-producing phytoplankton species in marine and freshwater environments across the world. Reviews the environmental factors that lead to marine toxins and cyanotoxins production | <https://doi.org/10.1016/j.foodres.2010.07.003> |
| Ciguatera poisonings: A global review of occurrences and trends | Ciguatoxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding HABs and marine toxins worldwide occurrence | Reviews ciguatoxins effects on human health and evaluates the bioaccumulation of these toxins in the food chain. Identifies exposure routes of humans to ciguatoxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines and points out research needs on ciguatoxins research. Reviews ciguatoxins detection methods. Conducts an epidemiological study of ciguatoxins and toxin-producing phytoplankton species in marine environments across the world | <https://doi.org/10.1016/j.hal.2020.101873> |
| Neurological Disease Rises from Ocean to Bring Model for Human Epilepsy to Life | Domoic acid | Human and animal health effects and exposure routes to domoic acid. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins co-occurrence with other agents/compounds dangerous to human health | Reviews human and animal (mostly sea lions) health effects of domoic acid and exposure routes, focusing on neurological and behavioural biomarkers. Summarizes the link between domoic acid and neurodegeneration. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for domoic acid production. Reviews the human and animal health effects of coexposure to domoic acid and other environmental toxicants (DDT) | <https://doi.org/10.3390/toxins2071646> |
| Domoic acid: Attributes, exposure risks, innovative detection techniques and therapeutics | Domoic acid | Human and animal health effects and exposure routes to domoic acid. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Ecotoxicological effects of marine toxins. Marine toxins detection methods. Marine toxins production routes, environmental fate and their ecological function | Reviews human and animal (mostly marine mammals and birds) health effects of domoic acid and exposure routes. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for domoic acid production. Reviews domoic acid detection methods. Discusses the existent legislation. Reviews the environmental and genetic factors that lead to this marine biotoxin production and its ecological role | <https://doi.org/10.1016/j.algal.2017.02.007> |
| In utero domoic acid toxicity: A fetal basis to adult disease in the california sea lion (Zalophus californianus) | Domoic acid | Human and animal health effects and exposure routes to domoic acid. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins co-occurrence with other agents/compounds dangerous to human and animal health | Reviews human and animal (mostly sea lions and rodents) health effects of domoic acid and exposure routes, focusing on neurological/neurotoxicity, reproductive and behavioural biomarkers. Summarizes the link between domoic acid and neurodegeneration. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for domoic acid production. Reviews the human and animal health effects of coexposure to domoic acid and other environmental toxicants (DDT and PCB) | <https://doi.org/10.3390/md6020262> |
| Harmful algal blooms: causes, impacts and detection | All marine toxins and cyanotoxins | HABs, marine toxins and cyanotoxins management strategies. HABs, marine toxins and cyanotoxins impacts on human health. Exposure routes of marine toxins and cyanotoxins. Extensive literature review regarding HABs, marine toxins and cyanotoxins worldwide occurrence. Marine toxins and cyanotoxins production routes. HABs detection methods | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins and cyanotoxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins and cyanotoxins presence and toxin-producing phytoplankton species in marine and freshwater environments across the world. Reviews the environmental factors that lead to marine toxins and cyanotoxins production. Reviews HABs detection methods | <https://doi.org/10.1007/s10295-003-0074-9> |
| Gambierdiscus and Ostreopsis: Reassessment of the state of knowledge of their taxonomy, geography, ecophysiology, and toxicology | Ciguatoxins and palytoxins | HABs and marine toxins impacts on human health. Exposure routes of marine toxins. HABs and marine toxins management strategies. Marine toxins detection methods. Extensive literature review regarding HABs and marine toxins worldwide occurrence. Marine toxins and cyanotoxins production routes | Reviews ciguatoxins and palytoxins effects on human health and evaluates the bioaccumulation of these toxins in the food chain. Identifies exposure routes of humans to ciguatoxins and palytoxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines and points out research needs on ciguatoxins and palytoxins research. Reviews ciguatoxins and palytoxins detection methods. Conducts an epidemiological study of ciguatoxins, palytoxins and toxin-producing phytoplankton species in marine environments across the world. Reviews the environmental factors that lead to ciguatoxins and palytoxins production | <https://doi.org/10.1016/j.hal.2011.10.017> |
| Food and feed safety: Cases and approaches to identify the responsible toxins and toxicants | All marine toxins and other toxins | Marine toxins detection methods | Reviews marine toxins detection methods and analyses existent legislation | <https://doi.org/10.1016/j.foodcont.2018.10.028> |

**Number of hits (search on Web of Science -Web of Science category: Toxicology- for review papers – 25/04/2023)**

Harmful algal blooms: 43

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| **Title** | **Toxins** | **Main Objective** | **Conclusions** | **Link** |
| Integrative monitoring strategy for marine and freshwater harmful algal blooms and toxins across the freshwater-to-marine continuum | All marine toxins and cyanotoxins | HABs, marine toxins and cyanotoxins management strategies. HABs, marine toxins and cyanotoxins impacts on human health. Exposure routes of marine toxins and cyanotoxins. Extensive literature review regarding HABs, marine toxins and cyanotoxins worldwide occurrence. Marine toxins and cyanotoxins production routes. HABs, marine toxins and cyanotoxins detection methods | Discusses different approaches to HABs, marine toxins and cyanotoxins management and mitigation. Reviews marine toxins and cyanotoxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins and cyanotoxins presence and toxin-producing phytoplankton species in marine and freshwater environments across the world. Reviews the environmental factors that lead to marine toxins and cyanotoxins production. Reviews HABs, marine toxins and cyanotoxins detection methods | <https://doi.org/10.1002/ieam.4651> |
| Contribution of Mass Spectrometry to the Advances in Risk Characterization of Marine Biotoxins: Towards the Characterization of Metabolites Implied in Human Intoxications | All marine toxins | Marine toxins detection methods | Reviews the use of mass spectrometry for the determination and quantification of marine toxins in environmental and food samples | <https://doi.org/10.3390/toxins15020103> |
| The state of US freshwater harmful algal blooms assessments, policy and legislation | All cyanotoxins | HABs and cyanotoxins management strategies. HABs and cyanotoxins impacts on human and environmental health. Exposure routes of cyanotoxins. Extensive literature review regarding HABs and cyanotoxins occurrence in the United States of America (USA) | Discusses different approaches to HABs and cyanotoxins management and mitigation. Reviews cyanotoxins effects on human health. Identifies exposure routes of humans to cyanotoxins. Conducts an epidemiological study of cyanotoxins presence and toxin-producing phytoplankton species in freshwater environments in the USA. Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.toxicon.2009.07.021> |
| Effects of Harmful Algal Blooms on Fish and Shellfish Species: A Case Study of New Zealand in a Changing Environment | All marine toxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins. HABs and marine toxins detection methods. Extensive literature review regarding HABs and marine toxins occurrence in New Zealand | Assesses the effects of marine toxins on aquatic biota, mainly on fish and shellfish. Reviews the health effects of these marine toxins on fish and shellfish. Reviews the use of molecular methodologies for the determination of toxin-producing phytoplanktonic species and marine toxins in environmental samples and their use in biomonitoring programs. Discusses the existent legislation. Conducts an epidemiological study of marine toxins presence and toxin-producing phytoplankton species in marine environments in New Zealand | <https://doi.org/10.3390/toxins14050341> |
| The Incidence of Marine Toxins and the Associated Seafood Poisoning Episodes in the African Countries of the Indian Ocean and the Red Sea | All marine toxins | HABs and marine toxins management strategies. HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Extensive literature review regarding HABs and marine toxins occurrence in Africa. Marine toxins production routes | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins and toxin-producing phytoplankton species presence in marine environments in African countries. Reviews the environmental and genetic factors that lead to marine toxins production | <https://doi.org/10.3390/toxins11010058> |
| A Review on Toxic and Harmful Algae in Greek Coastal Waters (E. Mediterranean Sea) | All marine toxins | Extensive literature review regarding HABs and marine toxins occurrence in Greece. HABs and marine toxins impacts on human health. HABs and marine toxins management strategies | Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation. Conducts an epidemiological study of marine toxins and toxin-producing phytoplankton species presence in Greek marine environments. Reviews marine toxins effects on human health and human exposure routes to these toxins | <https://doi.org/10.3390/toxins2051019> |
| Solid Phase Adsorption Toxin Tracking (SPATT) Technology for the Monitoring of Aquatic Toxins: A Review | All marine toxins and cyanotoxins | Marine toxins and cyanotoxins detection methods | Reviews sampling methodologies and applications of solid phase-based sample preparation methods for the determination of marine toxins and cyanotoxins in environmental matrices | <https://doi.org/10.3390/toxins10040167> |
| Effects of bioactive extracellular compounds and paralytic shellfish toxins produced by Alexandrium minutum on growth and behaviour of juvenile great scallops Pecten maximus | Saxitoxins | Effects to aquatic biota. Ecotoxicological effects of marine toxins | Assesses the effects of marine toxins on bivalves. Reviews bivalves’ health effects of these marine toxins, focusing on morphological and behavioural biomarkers | <https://doi.org/10.1016/j.aquatox.2017.01.009> |
| Toxicological evaluation of microcystins in aquatic fish species: Current knowledge and future directions | Microcystins | Study the effects of microcystin on fish health | Reviews the major toxicological impacts and exposure routes of this cyanotoxin on fish | <https://doi.org/10.1016/j.aquatox.2013.07.010> |
| Importance of bacterial biodegradation and detoxification processes of microcystins for environmental health | Microcystins | Water treatment | Reviews the most effective water treatment strategies in dealing with cyanotoxins | <https://doi.org/10.1080/10937404.2018.1532701> |
| Emergent Toxins in North Atlantic Temperate Waters: A Challenge for Monitoring Programs and Legislation | Tetrodotoxin, palytoxin, ciguatoxins and cyclic imines | HABs and marine toxins management strategies. HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Extensive literature review regarding HABs and marine toxins occurrence in North Atlantic marine waters. Marine toxins production routes. Marine toxins detection methods | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins effects on human health. Identifies exposure routes of humans to these toxins. Conducts an epidemiological study of marine toxins and toxin-producing phytoplankton species presence in North Atlantic marine environments. Reviews the environmental factors that lead to marine toxins production. Reviews marine toxins detection methods. Discusses the existent legislation | <https://doi.org/10.3390/toxins7030859> |
| A Mini-Review on Detection Methods of Microcystins | Microcystins | Microcystins detection methods | Reviews microcystins detection methods | <https://doi.org/10.3390/toxins12100641> |
| Paralytic Shellfish Toxins (PST)-Transforming Enzymes: A Review | Saxitoxins | Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms. Marine toxins detection methods | Reviews current knowledge on the chemical structure, mode of action, environmental transformation and phytoplankton species responsible for saxitoxins production. Reviews saxitoxins detection methods and analyses existent legislation | <https://doi.org/10.3390/toxins12050344> |
| Toxic Effects and Tumor Promotion Activity of Marine Phytoplankton Toxins: A Review | All marine toxins | Human health effects of marine toxins and exposure routes. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews human health effects of marine toxins. Summarizes the link between marine toxins and cancer. Identifies exposure routes of humans to these toxins. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production | <https://doi.org/10.3390/toxins14060397> |
| The Fate of Microcystins in the Environment and Challenges for Monitoring | Microcystins | Photodegradation rates, pathways and environmental fate of microcystins | Reviews current knowledge on the photodegradation rates, pathways and environmental fate of microcystins. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/toxins6123354> |
| Low dose extended exposure to saxitoxin and its potential neurodevelopmental effects: A review | Saxitoxins | Human and animal health effects and exposure routes to saxitoxins. Summarize our current understanding on saxitoxins chemical structure, mode of action and producer organisms | Reviews human and animal (mostly rats) health effects of saxitoxins and exposure routes, focusing on neurotoxicity biomarkers. Summarizes the link between saxitoxins and neurodegeneration/neurotoxicity. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for saxitoxins production. Discusses the existent legislation and guidelines | <https://doi.org/10.1016/j.etap.2016.09.020> |
| The Mechanism of Diarrhetic Shellfish Poisoning Toxin Production in Prorocentrum spp.: Physiological and Molecular Perspectives | Okadaic acid and dinophysistoxins | Cyanotoxins production routes and their ecological function | Reviews the environmental and genetic factors that lead to okadaic acid and dinophysistoxins production and the ecological role of these toxins | <https://doi.org/10.3390/toxins8100272> |
| Marine Toxins: Chemistry, Toxicity, Occurrence and Detection, with Special Reference to the Dutch Situation | All marine toxins | HABs and marine toxins management strategies. HABs and marine toxins impacts on human health. Exposure routes of marine toxins. Marine toxins production routes. Marine toxins detection methods | Discusses different approaches to HABs and marine toxins management and mitigation. Reviews marine toxins effects on human health. Identifies exposure routes of humans to these toxins. Reviews the environmental and genetic factors that lead to marine toxins production. Reviews marine toxins detection methods. Discusses the existent legislation and guidelines | <https://doi.org/10.3390/toxins2040878> |
| Risk Assessment of Shellfish Toxins | All marine toxins | HABs and marine toxins impacts on human and animal health. HABs and marine toxins management strategies. Summarize our current understanding on marine toxins chemical structure, mode of action and producer organisms | Reviews marine toxins effects on human and animal health and evaluates the bioaccumulation and biodilution of these toxins in the food chain. Identifies exposure routes of humans to marine toxins. Discusses different approaches to HABs and marine toxins management and mitigation. Discusses the existent legislation and guidelines. Reviews current knowledge on the chemical structure, mode of action and phytoplankton species responsible for marine toxins production | <https://doi.org/10.3390/toxins5112109> |