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Novel approach for the determination by HPLC-MS/MS of microcystins LR, LY, LA, YR, RR, LF, LW, and nodularin in lake water and crops

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The occurrence of harmful cyanobacterial blooms in surface waters is often accompanied by the production of a variety of cyanotoxins, and these toxins are designed to target in humans specific organs on which they act. When introduced into the soil ecosystem by spray irrigation of crops, they may affect the same molecular pathways in plants having identical or similar target organs, tissues, cells, or biomolecules. There are also several indications that terrestrial plants, including crops, can bioaccumulate cyanotoxins and present, therefore, potential health hazards for humans. During this project, for monitoring purposes, water samples were collected from lake Occhito, in which there was an algal bloom (*Planktothrix rubescens*) in 2009, and from three tanks which acted as hydraulic junctions. In addition, crop samples irrigated with water from the three tanks mentioned above were also picked. Finally, the characterization of principal cyanobacteria was performed, to determine the presence of cyanotoxins such as microcystins and validate a HPLC-ESI-MS/MS method for the determination of microcystins in water and vegetable samples.

Biography

Gianluca Trifirò has completed his Master's Degree in Analytical Chemistry from University "Sapienza" of Rome (Italy). He is a researcher at the laboratory of mycotoxins and immunoassays techniques of the Experimental Zooprophyllactic Institute of Puglia and Basilicata Regions (Italy). He has published several papers in reputed journals.

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