

Title: **Suspects screening and Target analysis of emerging toxins in aquatic environment by high resolution mass spectrometry**

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The nutrients' rising in waterbodies caused by the agricultural and industrial waste, can stimulate the growth and bloom of cyanobacteria. This can be especially dangerous if in the bloom contain certain species capable of produce toxins noxious as well as for animals as for humans. The widest and most studied cyanotoxins family are the microcystins, a cyclic heptapeptides with a general formula that changing amino acids would define a different variant with extensive range of toxicity.

In this project, we established high-resolution mass spectrometry criteria as well levels of confidence in compounds' identification. Based on those, databases have been created with the exact mass of diverse microcystins and other related toxins, in order of develop an analytic methodology based in full scan of environmental samples (through High-Resolution Mass Spectrometry and Liquid Chromatography separation) and then processing it with the databases, thus identifying more than 200 compounds among microcystins, peptides and pigments produced by cyanobacteria.

Keywords: Cyanobacteria, Microcystins, Liquid Chromatography, High-Resolution Mass Spectrometry, Target analysis, Suspects Screening, Databases.