

# MEASURING ALGAL BIOTOXINS AND THE ANALYTICAL CHALLENGES STILL AHEAD

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The measurement of small molecular weight contaminants present in foods has increased in importance over the past 20 years for a wide variety of reasons. The range of chemicals measured has markedly increased and the sensitivity of the methods has markedly improved. In some instances such as pesticides and drug residues it can be argued that the method development phase is very mature and only minor modifications are now occurring to the very well established mass spectrometric procedures. Biotoxins, i.e. those chemicals produced by plants, algae, fungi and bacteria still pose a significant range of challenges with regards accurate detection and quantification. Regulators still struggle to determine which of the thousands of potential biotoxins present pose the greatest threats to the consumers and how to balance these risks against assuring a constant and economically viable food supply chain. The algal toxins which bioaccumulate in many aquatic species are one such case. Many biotoxins have been identified and shown to cause acute poisonings in animal models and as a result of human exposures, however they are all not regulated due to difficulties in obtaining reference standards to perform important acute and chronic toxicity studies. Some biotoxin families contain multiple congeners which all have different toxicity profiles and in some cases different classes of toxins can be found in single samples and the nature of how these may interact synergistically is far from understood. The use of animal based testing methods for algal toxins long served the public to protect them from exposure however due to a combination of ethical and performance related concerns these are being deregulated in many parts of the world. The presentation will address how the multiple challenges of measuring algal biotoxins is being addressed by the use of innovative technology platforms and outline the need for regulatory authorities to permit such methods to be used in monitoring programmes to better safeguard consumers.

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