

## **"Extraction, Concentration and Detection of Toxins"**

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### Abstract

Toxins naturally present in foods can be from a variety of sources including bacteria, fungi and dinoflagellates. They are most commonly proteins that cause disease by interacting with biological macromolecules such as enzymes or cellular receptors in the target organism. Toxins vary greatly in their severity, producing symptoms ranging from mild (e.g. *Bacillus* enterotoxin) to potentially fatal (e.g. botulinum toxin). In order to respond rapidly to events involving the presence of toxicants in food, methods must be developed that are able to detect physiologically relevant concentrations of the toxin in as short a time as possible. To this end, researchers at the Universities of Guelph and Surrey are developing techniques for the rapid capture and concentration of toxins from foods using hydrogel imprinted polymers and *Staphylococcus aureus* enterotoxin B as a model system. These techniques will be coupled with methods for detection based on impedimetric immuno-sensors or cell-based biosensors.