A « phytochips » : a new tool to study the toxic phytoplankton diversity in the bay of Seine.

The aims of this project is to develop a new molecular tool as alternative means to provide fast, safe and complete identification of Harmful Algal Bloom (HAB) species. Monitoring of phytoplankton is actually based on the microscopic identification and counting of the cells of interests. It is time consuming, tedious and no challenging. Trained people in algal taxonomy are required to carry out these analyses. Microarray or Phylochips have been chosen since this technology allows a genetic identification of the target organisms. It can be used to achieve simultaneous detection of phytoplankton species and to estimate the number of taxons in the seawater samples. Despite its high interests, microarray technology remains limited to medical diagnostic and it is not curiously used for environmental monitoring.

This study is a part of the project called “Comanche”, which one of the objectives is to study the origin of the toxic algae blooms and to investigate their impact on the scallop fisheries in the Bay of Seine. In this area, recurrent toxic events, ASP (*Amnesic Shellfish Poisoning*) and DSP (Diarrheic Shellfish Poisoning) events occur in the eastern Channel affecting the scallop fishery. The identification of the *Pseudo-nitzschia* species is crucial to evaluate the potential risk of samples since all of the species belonging to this genus do not produce phytotoxin. The determination of these species requires an electronic microscopy analysis, which is inappropriate for extensive monitoring. This novel Phylochip will allow us to discriminate the toxic species within *Pseudo-nitzschia* genus, to quantify the biodiversity of phytoplankton and follow their dynamic and distribution in bay of Seine as well.

Key words : Microarray, Biodiversity, *Pseudo-nitzschia*, *Dinophysis*, Phylochips, Phytoplankton.

- Expertises :

PhD candidate with a strong background in microarray technique, bioinformatics and statistics expertises. Knowledge in phytoplankton ecology is not necessary, but will be appreciated.

- Investigators : :

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