

Proposition de stage 1^{ère} année de master biologie



Titre du stage

Effet d'une algue toxique *Alexandrium minutum* sur le mucus et la survie de l'huître creuse

Title:

Effect of the toxic dinoflagellate *Alexandrium minutum* on mucus production and survival of Pacific oysters *Crassostrea gigas*

Laboratoire de rattachement

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Projet de rattachement

Mucoalgues

Encadrement

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Contexte de l'étude

Mucus is a variety of viscous secretions which occurs at the interface of the external environment and the tissues of most animals. It is the outermost line of protection against external pathogens, toxins and environmental ultrafine particles. Mucus is generally made of water (~95%), glycoproteins (e.g. mucins), lipids (~0.5–5%), mineral salts (~0.5%), and proteins (~1%). Mucus biochemical composition and rheological properties, including viscosity, elasticity and adhesiveness, may change with dietary food and environmental parameters such as temperature, pH, pathogens and pollutants.

In bivalve, the mucus is ubiquitous in the pallial cavity (i.e., the space between the shell and the soft body made off the mantle, the gills, the labial palps and the digestive gland). As a consequence, the pallial mucus is the interface between the animal and its environment, and also the portal of entry of external particles toward the interior of the organism. Although the pallial mucus is involved in the interactions between the animal and its environment, little is known about the role of mucus in marine species. The main objective of the **Mucoalgues project is to investigate the role of mucus in oyster's health.**

Objectifs du stage

The aim of your work will be to determine the effects of the toxic algae *Alexandrium minutum* on the biochemical composition of the mucus and oyster survival. This study will fill an important gap of knowledge on the role of mucus in marine species.

Methods

Experiment will be conducted for **14 days in the Ifremer hatchery located in Argenton Landunvez**. During the experiment, **oysters will be exposed for 7 days** to three different

conditions (no feeding, **feeding with the toxic algae *Alexandrium minutum***, feeding control). **Survival of oysters** will be assessed, and oyster **mucus will be sampled to analyze its biochemical composition**. Biochemical analyses will be conducted in the Marine Environmental Science Laboratory (LEMAR, Ifremer, IUEM, Plouzané).