

Impact of microbial interactions on filamentous fungi growth and metabolism.

Context

A post-doctoral fellowship is available in the “Laboratoire Universitaire de Biodiversité et d'Ecologie Microbienne (LUBEM EA 3882)”, at the « Ecole Supérieure de Microbiologie et Sécurité Alimentaire de Brest (ESMISAB) » engineering school located near Brest in Brittany, France.

The lab

Research at LUBEM-Plouzané focuses on the biodiversity and ecology of filamentous fungi in agri-food and environmental contexts. Regarding microbial ecology, the objective is to increase knowledge on fungal communities, their ability to produce secondary metabolites as well as on diagnostic and control methodologies.

The project

Filamentous fungi are important microorganisms in the agri-food sector. They can be divided into 2 categories: i) filamentous fungi with a negative impact associated to food spoilage or mycotoxin-production and ii) filamentous fungi with a positive impact used for raw material transformation. For cheesemaking, the main filamentous fungi used correspond to *Penicillium camemberti*, for the production of soft cheeses with mould rinds, and *Penicillium roqueforti*, for the production of blue cheeses. While, these microorganisms are widely used for cheese production, little is known about the impact of interactions with other moulds, yeasts and bacteria present in cheese on growth and metabolism. In this framework, this project aims at studying the impact of microbial interactions on the growth and metabolism of *P. roqueforti* et *P. camemberti*. For *P. roqueforti*, interactions with microorganisms present in the cheese core (yeasts, lactic acid bacteria and Gram-negatives) will be evaluated. While for *P. camemberti*, the impact of interactions with microorganisms associated with cheese surface (i.e. *G. candidum*, *Arthrobacter* spp., *B. linens* as well as some Gram-negatives) will be analyzed. From a methodological point of view, impact on growth will be studied in synthetic medium and in a medium mimicking cheese conditions. For the metabolic aspects, metabolites of interest, especially cyclopiazonic acid for *P. camemberti*, and PR toxin and roquefortin for *P. roqueforti* will be studied by HPLC. The obtained results should allow for a better understanding of the biotic factors modulating growth and metabolic expression of these moulds in the cheesemaking context.

The candidate

The selected candidate will have a PhD. in microbiology, preferentially in mycology, with a strong scientific background in physiology, molecular biology and biochemistry in order to apply a multidisciplinary approach. The candidate should be highly motivated with an innovative spirit and also possess strong interpersonal skills for an easy integration into the research team.

Important: Candidates can only apply if they have not spent more than 6 months in France during the following period: April 11, 2010 to April 11, 2011.

Salary: 23067 € net annual

Starting date: to be defined

How to apply: Interested candidates should send a resume, a motivation letter and a letter of reference (deadline 15 December 2011).

Contacts:

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