# Mathilde Leriche Grandchamp

## Engineer in microbiology

Chaire ABI - AgroParisTech

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## Research topics

- ✓ **depolymerisation of lignin** by biological and chemical approaches
- ✓ **production of itaconic acid** by solid-state fermentation
- ✓ **production of fungi for biocontrol**

## Present & previous positions

**Oct. 2014 - Present**

**Research engineer at Chaire AgroBiotechnologies Industrielles,** (30 persons), France

- development of a process to valorize lignin of agricultural byproducts by Solid-State Fermentation (SSF)
- set up of collaborations (UTC, Institut Charles Viollette)
- lead of industrial projects

**Aug. 2009 - Oct. 2014**

**Research engineer , Groupe Soufflet** at **Lyven** (50 persons) at Caen (14) during 18 months and then **CRIS** (70 persons) at Nogent-sur-Seine (10), France

Project :

development of process to valorize agro-industrial byproducts (wheat bran, straw, rape oil cake, ...) by Solid-State Fermentation (SSF) ; enzyme production.

Realizations :

- optimization of a growth fermentation media of a commercial product sold in feed. Increase of hemicellulases production by 15%. This new formula has been marketed ever since.
- Design of a screeening method of soil isolates, based on straw

- Development of a protocole to produce spores of 4 fungi which are antagonists of the phytopathogen *Fusarium graminearum*. Tests carried out in experimental fields.
- Development of a purification process of a protease produced by SSF. Production of a protein purity of 91%

**Feb 2006 - Jul 2009**

**Development enginner - Eco-Solution,** Parc Biocitech (20 persons) at Romanville (93)

Project :

- Development of microbiological solutions for water treatments applied to industrial wastes
- Work at lab and pilot units

Realizations :

- conception of a microbiological consortium of bacteria to treat waste water of a paper mill ; reduction by 2% of the TOC (Total Organic Carbon)
- scale-up : starting of the pilot unit (9m3) in the factory. Training of the customer to check the pilote and long-range monitoring.
- metabolic improvement by the "evolution-selection platform" of a bacteria's skill to neutralize arsenic
- culture of microalgae in photoreactor (Infors)

## Education

**2006**

**Engineer diploma of UTC (Technological University of Compiegne) in biotechnology**, France

Research study in brewing
Design of Experiment and statistics

**2004**

**Bachelor's degree in biochemistry** with first class honors, France

Realization of 2 training periods in academic laboratories (ENS at Lyon and INSERM 517 at Dijon)

**1999**

**Scientific High School diploma** with first class honors

## Key skills

### 1. Technical skills

- Solid-state fermentation of agro-industrial byproducts
- Liquid-state fermentation in bioreactor
- Standard techniques of microbiology implemented to bacteria, fungi (Ascomycetes, Basidiomycetes) and microalgae (Spirulina, Chlorella)
- Biochemistry methods : enzymatic assays, proteins purification (ÄKTA systems)

### 2. Project management

- pilot study : bibliographic overview, design of experimental plans
- project : management chart, planning, resources allocation; monitoring of partnerships and appliers, reporting
- scale-up to pilot units

### 3. Staff management

- recruitment and training ; management of a staff of 2 technicians and trainees (bachelor's and master's degree)

### 4. Communication

- QHSE
- lab train in security
- contributor to microbiologic lectures at UTC

## Language

- Fluent English
- Basic knowledge in German
- A smattering of Chinese

## Supervision

- 4 trainees
- 1 PhD student for 6 months
- 2 engineers

## Scientific production

### Industrial contracts

Lead of 4 industrial contracts

## Posters

[1] **Development of a screening method to select strains of fungi allowing the production of phenolic monomers from lignin.** Leriche, T. Clément, F. Brunissen, H-E. Spinnler, F. Duchiron & F. Allais. 13th European Conference on Fungal Genetics, Paris (Fr), 4/4/2016

## Oral communications

[1] **Dépolymérisation contrôlée de la lignine pour la production de composés phénoliques d'intérêt.** M.Leriche, T. Clément, F. Brunissen, H-E. Spinnler, F. Duchiron & F. Allais. Phytoday, Reims (Fr), 4/23/2017