

BIOPROCESS

LEVEL: MASTER 1

PERIOD: SEMESTER 1

LANGUAGE: EN (FR IN SEMESTER 2)

ECTS: 3

TEACHER/COORDINATOR: CAROLINE CHOMA



1-Main objectives

Discoveries and uses of biotechnology and bioprocesses – agro-industry and agriculture applications. In this teaching unit, students will have a view on the complexity of bioprocesses:

- › Microbial biomass production;
- › Fermented foods production;
- › Biomolecules used in food industries, food products and agriculture

2-Skills developed

- › To comprehend the complexity of bioprocesses;
- › To better grasp the opportunity to participate in the development and implementation of strategies and action plans for a sustainable food industry;
- › To analyze and solve quality problems associated with fermented foods or compounds obtained thanks to the use of bioprocesses (from a scientific and technical point of view).

3-General content

Lectures/conferences; Visiting companies (Roquette, DSM, Lesaffre, etc); Tutorial work and/or Practical work (biomass production and yield of production calculation)

1. INTRODUCTION (bioprocesses and biotechnology definitions).
2. MICROORGANISMS POTENTIALITIES: What are they? and their life dissection (nutrient requirements; biomass production & anabolism; growth phases)
3. VARIOUS USES, INDUSTRIAL APPLICATIONS: What characteristic/specificity of a microorganism is used and for what application or which final industrial product? (Primary and secondary metabolites; Enzymes...).
4. PROCESSES AND EQUIPMENT/ HOW TO MANAGE BIOPROCESSES (Biomass production; Equipment: and their control devices; Culture management).
5. OPTIMIZATION AND PERSPECTIVES

4- Evaluation

Written works