

Course Unit: 935022 - Food Biotechnology

Year 2 Semester 4 ISCED Code: 721 ECTS: 5,0

Type of Course Unit: Compulsory **Delivery Mode:** Face-to-face **Language of Instruction:** Portuguese

COURSE COORDINATOR: Maria Teresa Pereira Gonçalves dos Santos

HOURS OF WORK

| TOTAL HOURS | Contact Hours | | | | | | | | Hours in autonomous work |
|-------------|---------------|---------------------|-------------------------------|------------|---------|------------|-------------------|-------|--------------------------|
| | Theory | Theory and practice | Practical and laboratory work | Field work | Seminar | Internship | Tutorial guidance | Other | |
| 125 | 30 | | 45 | | | | | | 50 |

Prerequisites (if applicable): Not applicable.

LEARNING OUTCOMES (knowledge, skills and competence)

At the end of the Curricular Unit (CU) students should have knowledge to develop, optimize and control biotechnological processes used in the preparation of fermented foods, biomass, enzymes or other additives and products of interest to the food industry

CONTENTS

1. Introduction to food biotechnology. 2. Organization of a biotechnological process. 3. Microorganisms with industrial interest - characterization, production and conservation. 4. Kinetics of microbial growth. 5. Fermented products of animal and vegetable origin. 6. Microbial biomass production. 7. Production of additives and enzymes with application in the food industry. 8. Control of food fermentations and other biotechnological processes.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

The microorganisms are the primary agents of biotechnological transformations and can be used in biotechnological production of foods and additives and enzymes used in the food industry. Moreover the production of microbial biomass for use as food or "starter" is another important aspect of food biotechnology.

The development, optimization and control of all these biotechnological processes, learning objectives of this Course, will only be achieved with the syllabus presented. These provide the student of Food Technology with general knowledge under microbial growth and its control, as well as more specific knowledge of the application of biotechnology in the food area. These contents will allow the technician to act in a conscious way in this area, under the performance of their profession.

TEACHING METHODOLOGIES

- Lectures
- Carrying out visits to industrial units that use biotechnological processes with completion of report.
- Installation, monitoring and control of laboratory food fermentations with preparation of report.
- Individual research on each topic to treat and creation of discussion groups .
- Treatment and discussion of articles related to the topics addressed. ax 1000 characters with spaces>>

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

The acquisition of knowledge by the student through teaching methodologies proposed, is only noticeable if the student knows expose, either writing or orally, themes into question.

It is therefore considered that the written tests, theoretical and practical, in which the student demonstrates knowledge of the subject, as well as an oral discussion of various issues, confirms that the student knows develop and expose the subject being studied and is a coherent methodology for the objectives of the CU.

EVALUATION METHODS

- Assiduity and participation of students in the activities proposed.
- Evaluation of reports.
- Carrying out practical tests.
- Conducting a final theory test

MAIN BIBLIOGRAPHY

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- BOURGEOIS, C. M., LARPENT, J. P., 1995, Food Microbiology 2. Food Fermentations, Ed. Acribia.
- BU`LOCK, 1991, Basic Biotechnology, Ed. Acribia.
- CRUEGER, W., CRUEGER, A., 1993, Biotechnology: Manual of Industrial Biotechnology, Ed. Acribia.
- LACASSE, D., 1998, Introduction to Food Microbiology, Instituto Piaget
- LIMA, N., MOTA, M., 2003, Biotechnology. Fundamentals and Applications, Ed. LIDEL
- SCRAGG, A. H., 1988, Biotechnology for Engineers. Biological Systems in Technological Processes, Ed. Ellis Horwood Limited.
- TREVAN, M. D., 1990, Biotechnology: Biological Principles, Ed. Acribia.
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