

Code: 1673 Food Spoilage and Food Pathogen Control

Degree: 2nd cycle –Food Science and Engineering

Stream: Food Quality and Safety

Curricular Year: 2nd

Semester Course: 1st

Credits: 6 ECTS

Optional

Language: Portuguese/English

Responsible: Maria Luísa Lopes de Castro e Brito

Other lecturer(s): -

Web Site: <http://www.isa.utl.pt/home/node/3867>

1. Contact hours:

Lectures/Practicals 70 Outras 14 Total 84

2. Objectives:

- To describe the conditions and the procedures needed to produce high quality and safety food and beverages.
- To supply relevant information about the prevalence and the type of microbes that causes illness and/or loss of commercial value (spoilage) of food and drinks.
- To understand physical, chemical and biological concepts associated with the control of contaminant microorganisms.

3. Programme:

Didactic Unit 1 – Principles of Food Sanitation

- 1.1. Introduction of the course and working method
- 1.2. Making safe food
 - 1.2.1. Raw materials and ingredients
 - 1.2.2. Equipments and facilities
 - 1.2.3. Food handlers/man
 - 1.2.4. Sources and routes of contamination
 - 1.2.5. HACCP
 - 1.2.6. Food regulation

Didactic Unit 2 – Foodborne Pathogens

- 2.1. Foodborne illnesses: interaction host/pathogen
- 2.2. Consumer groups at risk
- 2.3. The more relevant foodborne pathogens
- 2.4. Determinants of bacterial virulence
- 2.5. Resistance, adaptation and stress
- 2.6. The role of probiotics against pathogens
- 2.7. *Quorum-sensing*

Didactic Unit 3 – Food spoilage microorganisms

- 3.1. Spoilage yeasts
- 3.2. Spoilage molds
- 3.3. Spoilage bacteria
- 3.4. Shelf-life of food and beverages

Didactic Unit 4 – Control of the Survival and Growth of Food Contaminants

- 4.1. Physical, chemical and biological factors affecting the growth of microbes in food
- 4.2. Predictive microbiology
- 4.3. Food biopreservation
- 4.4. Conventional methods for food safety and quality evaluation
- 4.5. Forensic microbiology applied to food safety and quality

4. Bibliography:

Main Bibliography

- Principles of Food Sanitation*, Norman G. Marriott, Robert B. Gravani, 2006, Fifth Edition, Food Science Text Sciences, Springer. [BISA Q03-482].
- Foodborne Pathogens: Hazards, risk analysis and control*, Clive de W. Blackburn, Peter J. McClure, 2002, CRC Press, Woodhead Publishing Limited (available at Microbiology Lab).
- Food Consumption and Disease Risk*, Morris Potter (ed), 2006, CRC Press, Woodhead Publishing Limited (available at Microbiology Lab).
- Understanding Pathogen Behaviour: Virulence, stress response and resistance*, 2005, Mansel Griffiths (ed), CRC Press, Woodhead Publishing Limited [BISA Q03-489].
- Food Spoilage Microorganisms*, 2006, Clive de W. Blackburn (ed), CRC Press, Woodhead Publishing Limited (available at Microbiology Lab).

Other Bibliography

- Sanitation in Food Processing*, John A. Troller, 1993, Second Edition, Academic Press, Inc. [BISA Q03-360].
- Safe Handling of Foods*, Jeffrey M. Farber, Ewen C. D. Todd (eds.) 2000, Marcel Dekker, Inc. [BISA Q03-401].
- Queijo Serra da Estrela – Cartilha de Boas Práticas – da Quinta ao Prato*, 2004, Luisa Brito, João Madanelo, Miguel Saraiva Lima (2004) [BISA Q03-469/470/471]

5. Assessment:

The students could not miss more than 7 sessions in the semester, and 2 sessions per DU. The students will answer 3 questionnaires and will perform 3 seminars. The final mark in the discipline will be obtained by a weighted average in which the questionnaires mark and the seminars mark will represent 50% of the final mark, respectively. If this mark is ≥ 12 and in each questionnaire the mark is ≥ 8 , the students will be dispensed from the final examination. If the student go to the final examination, the final mark in the discipline will be obtained by a weighted average, in which the examination mark and the continuous evaluation mark will represent 60% and 40% of the final mark, respectively.

6. Estimated Workload:

168	Hours
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7. Last Update:

19/7/2010
