

Course:	L025 - Food Quality and Nutrition
Degree:	Bachelor
Curriculum Unit:	9025004 - Preservation and Quality of Food
Scientific field:	Food Science and Technology
ECTS^(*):	5
Curriculum year:	1st
Curriculum semester:	2nd
Frequency Regime:	Mandatory
Teacher(s):	Paula Maria dos Reis Correia
Contact hours ^(**):	T - 30; TP - 30
Total work time (hours):	132

(*) - ECTS - European Credit Transfer and Accumulation System

(**) – T- Theoretical; TP- Theoretical/Practical; LP- Lab Practice; S- Seminars; I- Internships; TU - Tutorials; O- Other (Evaluations)

Objectives / Competences

Objectives of the curricular unit and competences:

Describe the objectives of conservation methods and their implications in food quality; acquire knowledge about conservation methods; identify and handling equipment related with the processing and preservation of food.

Students must know how to conserve vegetable and animal food stuff, in order to allow students to apply this knowledge in future curricular units and in their professional activities. Furthermore, the student must recognize the importance of the application of the general conservation methods on the food quality.

Syllabus

Fundamentation, importance and objectives of food conservation.

Perceptibility of food and their quality.

Process of deterioration/ prevention of foods.

Consequences of bad preservation on food quality and nutritional value.

Food composition on conservation.

Factors that affect food conservation and quality: water activity, pH, light, temperature and environment atmosphere.

Food conservation strategies.

Cold conservation methods: refrigeration and freezing.

Heat conservation: bleaching, pasteurization, sterilization, lyophilization, drying, and concentration.

Smoking, osmotic desiccation, fermentation and food additives.

Irradiation and controlled atmosphere.

Conservation by other methods.

Changes on food due to conservation methods.

Packing: introduction (history, concepts and functions); suitability of food packages.

Package: plastic, metal and cellulosic. Glass package.

Teaching methodologies and evaluation criteria

This curricular unit will be taught by e-learning methodology and lectures, with theoretical and practical lectures, some of them with laboratory classes. The theory subjects will be based on the exposition of these contents on theoretical lectures by the professor. The practical component will be realized on the laboratory with industrial simulation of food conservation methodologies to some vegetable food products, based on the actual legislation, studying the effect that these methods produce on food quality and nutritional value. The evaluation of the curricular unit is based on writing final exam, with the acquired knowledge on the theory subjects, a group investigation work, and a group report of the work developed during the practical classes. Furthermore, it will be part of the teaching methodologies the execution of study visits, with the correspondent group report of activities, also for evaluation.

Short bibliography

Food Preservation Techniques. Zeuthen, Peter; Bøgh-Sørensen, Leif, 2003 Woodhead Publishing

Food Chemical Safety, Volume 2 – Additives, Watson, D.H. 2001 Woodhead Publishing

Food Processing Technology - Principles and Practice (2nd Edition). Fellows, P.J. 2000 Woodhead Publishing

Food Irradiation - Principles and Applications, Molins, Ricardo A., 2001 John Wiley & Sons

Novel Food Packaging Techniques, Ahvenainen, Raija, 2003 Woodhead Publishing

Wiley Encyclopedia of Food Science and Technology (2Ed) Volumes 1-4, Francis, Frederick J., 1999 John Wiley & Sons

Food Packaging Technology, Coles, Richard; McDowell, Derek; Kirwan Mark J., 2003 Blackwell Publishing

Introdução à Tecnologia de Alimentos. Barbosa, J.J. Rio de Janeiro: Kosmos, 1976. 118p.

Thermal Processing of Packaged Foods. Holdsworth, D. and Simpson, R. 2nd Edition. Springer. 2007. 407p.

Some websites and hyperlinks with technical-scientific relevance.