Universitat de Lleida

DEGREE CURRICULUM

BIOACTIVE COMPOUNDS OF FOODS

Coordination: ODRIOZOLA SERRANO, ISABEL ANDREA

Academic year 2023-24

BIOACTIVE COMPOUNDS OF FOODS 2023-24

Subject's general information

<table>
<tr><td>Subject name</td><td>BIOACTIVE COMPOUNDS OF FOODS</td></tr>
<tr><td>Code</td><td>100625</td></tr>
<tr><td>Semester</td><td>1st Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Human Nutrition and Dietetics</td><td>4</td><td>OPTIONAL</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><th>PRALAB</th><th>PRAULA</th><th>TEORIA</th></tr>
<tr><td>Number of credits</td><td>1.6</td><td>1.4</td><td>3</td></tr>
<tr><td>Number of groups</td><td>1</td><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>ODRIOZOLA SERRANO, ISABEL ANDREA</td></tr>
<tr><td>Department</td><td>FOOD TECHNOLOGY, ENGINEERING AND SCIENCE</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>-H. On-site:60
Lecture 32
Practice and tutorials 16
Seminars 12

-H. Off-site: 90</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>English
Catalan</td></tr>
</table>

BIOACTIVE COMPOUNDS OF FOODS 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
ODRIOZOLA SERRANO, ISABEL ANDREA	isabel.odriozola@udl.cat	6	

Subject's extra information

1. Introducció a l'assignatura

Food, in addition to providing nutrients, contain a number of non-nutritive substances (bioactive compounds), which are involved in secondary metabolism of plants (pigments, protective against parasites, aromatic ...) that do not have a definite classical nutritional function, but can have a significant impact on disease prevention.This subject will introduce the main bioactive components of food, its bioavailability in different matrices and their effect on the body. It also aims to introduce students to the knowledge of functional foods and dietary supplements, within the context of the regulations of the European Union, and the relationship between these products and different diseases. After the course, students must be able to critically evaluate the use of functional foods or dietary supplements to provide better quality of life to individuals.

Learning objectives

1. To know the main bioactive food components and their effect on health.

2. To classify foods according to the containing bioactive components.

3. To know the factors that influence the bioavailability of the bioactive compounds

4. To acquire the aptitude to incorporate bioactive compounds to complement the diet.

5. To assess the current state of the scientific study of bioactive components.

6. To understand the use of functional foods to provide a better quality of life for individuals

7. To analyze the use of dietary supplements.

Objectives	Activities	On-site hours	Student work
1-7	Lectures	32	80
1-4	Practice and tutorials	16	32
1-3, 5, 7	Seminars	12	38

*Student work = on-site hours + off-site hours

Competences

Specific Competences

CE25 Know the nutrients, their functions and their metabolic utilization

CE28 Apply the knowledge of Food and Nutrition Sciences to dietetic and dietetic practice

CE30 Identify the bases of a healthy diet

General Competences

CG3. Recognize one's own limitations and the need to maintain and update professional competence, giving special importance to learning, autonomously and continuously, new knowledge, products and techniques in nutrition and food, as well as motivation for quality.

CG4. Carry out effective communication, both orally and in writing, with people, health professionals or industry and the media, knowing how to use information and communication technologies, especially those related to nutrition and health. life habits.

CG5. Know, critically assess and know how to use and apply the sources of information related to nutrition, food, lifestyles and health aspects.

Basic skills

CB2 That students know how to apply their knowledge to their work or vocation in a professional way and possess the competencies that are usually demonstrated through the development and defense of arguments and problem solving within their area of study.

CB3 That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

CB4 That students can transmit information, ideas, problems and solutions to both specialized and non-specialized audiences.

CB5 That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

Transversal Competences of the UdL

CT1 Have a correct oral and written expression

CT2 Master a foreign language

CT5. Acquire essential notions of scientific thought.

Subject contents

Theme 1.-Introduction. Definition of bioactive component and functional food. Classification. Factors that affect their concentration.

Theme 2.-Bioactive components present in plant products. Structure. Classification. Properties. Intake. Absorption and bioavailability. Metabolism. Health benefits. Food sources. Stability in food.

Theme 3.-Bioactive components present in animal products. Structure. Classification. Properties. Intake. Absorption and bioavailability. Metabolism. Health benefits. Food sources. Stability in food.

Theme 4.-Bioactive components present in microorganisms and other sources.Structure. Classification.

Properties. Intake. Absorption and bioavailability. Metabolism. Health benefits. Food sources. Stability in food.

Theme 5.-Functional foods. Concept and scientific evaluation of functional foods. History. Nutrional and health claims. Context. Legislation in the European Union. Critical analysis of functional foods on the market. Functional foods and disease (coronary, cancer, obesity, diabetes and bone health). Functional foods and intellectual function.

Theme 6.-Dietary Supplements. Definition. Examples of supplements. Regulations. Analysis of the risk / benefit of using antioxidant supplements vs foods rich in antioxidant compounds and discussion of existing information.

Methodology

Lectures

These will be taught with the whole group. The aim is to provide a general view of the contents specificly related with the course.

Seminars

Seminars will consist in the analysis of scientific papers and/or search of information that will complement the contents developed in lectures. Participation and discussion will be encouraged.

Tutorials

They will be conducted in groups of 2-4 students. Assistance is mandatory and tutorials must do in the assigned groups. They will aim to guide in learning avoiding dispersion, clarify doubts and establish a conceptual diagram of the subject.

Laboratory practice

Assistance to this activity is NOT compulsory. Lab practice will be carried out in groups of 2-3 students.

Three types of activities will be undertaken:
-To know foods rich in bioactive components using different analytical techniques.
-To determine the antioxidant activity of plant extracts.
-To elaborate dishes rich in bioactive components.

To achieve the objectives and acquire the competences the following activities were scheduled:

Activities	Objectives	Description
Lectures	1-7	Acquisition of knowledge about bioactive compounds, functional foods and dietary supplements
Seminars	1,2,3,5,7	Explanation, treatment and discussion on various topics related to the subject.
Tutorials	1-7	Guide in learning and clarifying the doubts about the course content
Lab practice	1,2,3,4	Practical application of the knowledge acquired in the classroom

Evaluation

The **continuous evaluation** will consist of the following elements:

Block 1. Written exam I (individual): 25%

Block 2. Written exam II (individual): 25%

Block 3. Practice and tutorials 25%

Practice will be conducted in groups. A memory will be presented. Formal and conceptual aspects will be evaluated and the rest of the qualification will be assessed during the development of the laboratory practices.

Tutorials for monitoring the practices will be made.

Bloc 4. Seminars: 25%

Qualification:

-The qualification will be obtained from the arithmetic mean of the different proposed activities.

-In order to average the other qualification, a qualification above 5 is required for the average of the two written examinations.In any other case, to pass the subject, the student will have to do a written exam that will include the contents of the two parcials. To pass the subject students should have a 5 in this exam.

-The presentation of the reports are required to pass the course.

The **alternative evaluation** will be carried out through a written test that will include a theoretical part, practice and seminars.

Bibliography

Books

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