FOOD BIOCHEMISTRY

Syllabus

GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE & NUTRITION		
PROGRAMME	UNDERGRADUATE		
COURSE CODE	**MK615**	**SEMESTER**	**F**
COURSE	FOOD BIOCHEMISTRY RESPONSIBLE: D. MAKRIS		

TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**CREDIT UNITS**
LECTURES	3	5
LABORATORY	3	

COURSE TYPE	EXPANSION OF BASIC KNOWLEDGE
PREREQUISITES:	NO
TEACHING AND EXAM LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE SITE (URL)	

LEARNING OUTCOME

Learning outcome

The objective of the course is the understanding of biochemical reactions and processes that take place in foods. Specific attention is given to comprehension of basic enzymic reactions and their effect on the organoleptic characters, the safety and the nutritional value of foods. Laboratory exercices intent to accustom students with basic concepts of enzymic reactions and train them to fundamental calculations related with the kinetics of enzymic reactions.

Upon successful completion of the course, students will be able to:

- *Understand basic biochemical reactions in foods*
- *Comprehend the impact of such reactions on food quality.*
- *Understand the application of biochemical technologies in food production and preservation.*
- *Understand methodologies of detection and determination of enzymic reactions.*
- *Propose food preservation methodologies*

General skills

Upon completion of the course, the students will acquire the following skills:

- *Search, analysis and combination of data and information with the use of cutting edge technologies*
- *Decision making*

Syllabus

1st week: Enzymes – General information
2nd week: Enzyme kinetics
3rd week: Inhibition of enzymic activity
4th week: Enzymic oxidation of lipids
5th week: Enzymic browning
6th week: Meat biochemistry
7th week: Lipases
8th week: Amylases and glycosidases
9th week: Pectolytic enzymes
10th week: Bioreactors
11th week: Fermentation technology
12th week: Fermented foods
13th week: Overview - summary

Laboratory course: 1. Introduction 2. Determination of protein concentration 3. Enzyme activity measurement and determination of kinetic parameters – theoretical background 4. Polyphenoloxidase activity – comparative assessment of plant tissues 5. Onion peroxidase activity – pH effects 6. Inhibition of enzyme activity - Determination of kinetic constants. 7. Effect of heat treatment on onion peroxidase activity. 8. Determination of β-glycosidase activity 9. Overview - summary

TEACHING AND LEARNING METHODS - EVALUATION

TEACHING MODE	On campus. In laboratory courses, following a short demonstration by the teaching staff, students carry out the experiment. Furthermore, students get accustomed to writing of scientific reports, in which the experimental data are appropriately given and discussed.
USE OF COMPUTER SERVICES	Lectures are delivered by power point presentations and other audio media
TEACHING ORGANISATION	

Activity	***Semester workload***
Lecture course	39
Laboratory course	39
Study	47
Sum	**125**

STUDENT EVALUATION	The language of evaluation is Greek. The final grade is 50% the grade of the lecture course and 50% of the laboratory course. The exams of the lecture course include multiple choice questions. The exams of the laboratory course include exercises (50%) and reports (50%).

RECOMMENDED BIBLIOGRAPHY

Klonis I., 2020. Enzymic biotechnology. Crete University Press. ISBN: 9789605245870
Klonis I., 2018. Enzymology. EMBRYO Publ. ISBN: 9786185252014