



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Bacteriocins							
Course Code		MBTK622		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	10	Workload	247 ( <i>Hours</i> )	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The aim of this course is to teach peptide antimicrobial substances produced by bacteria							
Course Content		The definition of bacteriocins, mode of action, bacteriocin genetics and regulation, uses of bacteriocins, recombinant bacteriocin production							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Discussion, Individual Study					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

### Recommended or Required Reading

1	Bacteriocins of Gram positive bacteria
2	Bacteriocins: current knowledge and future prospects
3	The bacteriocins

Week	Weekly Detailed Course Contents	
1	Theoretical	Bacteriocin definition. Differences between bacteriocins and antibiotics
2	Practice	Bacteriocins produced by Gram positive bacteria, bacteriocin activity determination
3	Practice	Bacteriocins produced by Gram negative bacteria, bacteriocin activity determination
4	Theoretical	Bacteriocins produced by extremophilic prokaryotes, bacteriocin activity determination
5	Theoretical	Mode of action of bacteriocins
6	Practice	Genetics and regulation of bacteriocin production, bacteriocin gene screening by PCR
7	Theoretical	Bacteriocins in food technology
8	Intermediate Exam	Midterm exam
9	Theoretical	Isolation and purification of a bacteriocin
10	Practice	Isolation and purification of a bacteriocin
11	Theoretical	Bacteriocin characterization
12	Practice	Bacteriocin characterization
13	Theoretical	Recombinant bacteriocin production
14	Practice	Bacteriocin databases
15	Final Exam	Final exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	0	2	26
Lecture - Practice	13	0	2	26
Assignment	5	0	15	75
Project	5	0	4	20
Laboratory	3	0	8	24
Individual Work	13	0	4	52
Quiz	6	0	3	18
Midterm Examination	1	0	3	3



Final Examination	1	0	3	3
Total Workload (Hours)				247
[Total Workload (Hours) / 25*] = ECTS				10
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	Be able to describe bacteriocin concept
2	Be able to give examples of bacteriocins
3	Be able to understand mode of action of bacteriocins
4	Be able to understand molecular determinants and regulation of bacteriocins
5	Be able to describe uses of bacteriocins
6	Be able to understand recombinant bacteriocin production

### Programme Outcomes (Molecular Biotechnology( English) Interdisciplinary Doctorate)

1	Ability to identify, analyze and understand problems related to molecular biotechnology and finding valid conclusions with basic knowledge in biotechnology
2	Ability to appropriately use laboratories and their associated equipment as part of research and observation activities through various branches of sciences
3	Ability to understand and interpret biological processes at cell, tissue, organ, system and organism levels
4	Ability to decide and apply appropriate tools and techniques in biotechnological manipulation
5	Ability to comprehend fundamentals of genetics and molecular biology and carry out basic methods in relevant applications
6	Ability to apply the fundamentals of protein and DNA chemistry, and immunology to techniques in biotechnology
7	. Ability to understand and practice basics of applied biotechnology, with acquired knowledge on problem solving approaches
8	Ability to understand and interpret basics of molecular applications within medical, agriculture, veterinary and forensic sciences
9	Ability to perceive biological existence at the global and regional scales, together with comprehension of associated problems
10	Acquiring appropriate knowledge in the field of basic sciences to support perception, analysis and interpretation of biological facts, and ability to use and practice relevant methods for this goal
11	Ability to develop proficiency in laboratory management, including maintenance of an orderly work environment, inventory and ordering, and set up or maintenance of equipment
12	Ability to learn essential methods in microbiology and basic skills in a microbiology labortaory
13	Ability to demonstrate proficiency with standard techniques in liquid measurement, recombinant DNA technology, protein purification and identification, and cell culture

### Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5	L6
P1	5	5	5	5	5	5
P2	5	5	5	5	5	5
P3	3	3	3	3	3	3
P4	5	5	4	4	4	4
P5	5	5	4	4	4	4
P6	3	3	3	3	3	3
P7	4	4	5	5	5	5
P8	4	4	5	5	5	5
P9	4	4	5	5	5	5
P10	4	4	5	5	5	5
P11	3	3	3	3	3	3
P12	3	3	3	3	3	3
P13	5	5	5	5	5	5

