

OS6b - Food biotechnology - course description

General information	
Course name	OS6b - Food biotechnology
Course ID	13.4-WB-OS2P-BT.żyw-S17
Faculty	Faculty of Biological Sciences
Field of study	Environmental Protection
Education profile	academic
Level of studies	First-cycle studies leading to Bachelor's degree
Beginning semester	winter term 2021/2022

Course information	
Semester	5
ECTS credits to win	5
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none">dr Andrzej Jurkowski

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Exam
Class	30	2	-	-	Credit with grade

Aim of the course

Study of application possibilities of biotic factors in food technology

Prerequisites

Basic of biotechnology, chemistry, physics

Scope

Lecture. Bioreactors: principle of operation, requirements, criteria of division, criteria of scale change. Bioprocesses: biosynthesis, biotransformation, biohydrolysis, fermentation, bioleaching, biodegradation. Basic operations and processes in biotechnology. Fermentation technologies: types, characteristics, significance, application. Methods of securing biotechnological products: filtration, filtration, centrifugation, flotation. Processing of vegetable and animal raw materials. By-products, unfavorable biotechnological processes in the food industry. Microbiological synthesis of vitamins.Dangers from biotechnology - Classification of microorganisms for biohazards, factors that reduce risks, categories in which biohazard analysis should be considered. Exercises. Application of fermentation technologies in food production processes from plant and animal raw materials and food ingredients and additives. Starter cultures and enzyme preparations. Enzymatic processes used in biotechnological treatment of food ingredients. Biological methods of food analysis.

Teaching methods

-feeding (lecture in form of multimedia presentation)

-practical (laboratory exercises in the form of experiences with the use of equipment and facilities in the biotechnology laboratory)

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student works in a group and organizes work in a certain area.	<ul style="list-style-type: none">K1A_K01	<ul style="list-style-type: none">a pass - oral, descriptive, test and other	<ul style="list-style-type: none">LectureClass
The student characterizes the techniques used in food biotechnology.	<ul style="list-style-type: none">K1A_W53	<ul style="list-style-type: none">a pass - oral, descriptive, test and other	<ul style="list-style-type: none">LectureClass
The student explains the possibilities of using biotechnological processes in food production.	<ul style="list-style-type: none">K1A_W53	<ul style="list-style-type: none">a pass - oral, descriptive, test and other	<ul style="list-style-type: none">LectureClass

Assignment conditions

The lectures - the test is conducted in written form. It lasts 45 minutes and contains 5 opened questions. 60% points are required to get mark credit.

The laboratory classes: - provided credit is to make an oral presentation prepared on the basis of selected scientific articles (including English language). Estimated is also preparing for training exercises and activities during exercises and test checking knowledge (open questions, a positive rating - min. 60% of the points.

Recommended reading

[1] Bednarski W., Reps A. Biotechnologia żywności. WNT. 2001.

[2] Tabiś B., Grzywacz R. Procesy i reaktory biochemiczne. Wydawnictwo Politechniki Warszawskiej. 1993.

[3] Twardowski T. Korzyści, oczekiwania, dylematy biotechnologii. Edytor Poznań. 2001.

[4] Chmiel A. Biotechnologia. Podstawy mikrobiologiczne i biochemiczne. PWN. 1998.

[5] Pijanowski., Dłużewski M.: „Ogólna technologia żywności” WNT W-wa, 1996

Further reading

[1] Russel; S.: „Biotechnologia” PWN W-wa, 1990

Notes

Modified by dr Olaf Ciebiera (last modification: 19-05-2021 22:02)

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