

STUDY PROGRAMME	CHEMICAL ANALYSIS, 653F18001
SUBJECT TITLE	Extraction and Purification of Bioproducts
NUMBER OF CREDITS	6
DURATION OF SUBJECT	Total: 160 hours (88 contact hours, 72 self-study hours)
TEACHING PERIOD	Spring Semester
SUBJECT CONTENT	<p>Subject objective Provide students with the knowledge and skills of the detection and purification of bioproducts, expand chemical analysis specialist's skills and develop biomanufacturing competences.</p> <p>Learning outcomes Be able to: examine properties and sources of bioproducts; analyse areas of bioproduct application and the set quality requirements; explain the operating principles and opportunities of the equipment used in bioproduct extraction and purification; compare the expediency of methods used for protein and nucleic acid extraction and purification; compare methods used for exoproduct purification and endoproduct extraction; explain exceptional requirements set for working in a controlled environment; operate safely the equipment used in bioproduct extraction and purification; characterise the requirements for water used in the production of bioproducts; compare the properties of solutions used in the production of bioproducts; apply the knowledge of the effect of the target product immunochemical properties on its qualitative and quantitative analysis and separation; discuss quality and quantity requirements set for preparations; describe the stages of bioproduct purification process; evaluate the application of chromatographic purification method; define conditions needed for the storage and transportation of bioproducts.</p> <p>Content (topics)</p> <ol style="list-style-type: none"> 1. Bioproducts: sources and application 2. The process of purification 3. Purification of water for biotechnological purposes 4. Preparation of solutions for the production of bioproducts 5. Purification of exoproducts 6. Extraction of endoproducts 7. Cell disassembly by the nucleic acid products 8. Sedimentation and centrifugation 9. Fractionation of bioproducts 10. Tangential filtration 11. Basics of bioproduct chromatography 12. Stationary phases used for the purification of bioproducts 13. Chromatographic methods 14. Methods of chromatographic division 15. Chromatographic equipment 16. Bioproduct preparations 17. Production facilities and procedures
ASSESSMENT	Cumulative assessment (intermediate settlements, Practical classes/laboratory work, self-study, examination)
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