

<b>Title:</b>	<b>Microbial products and their application.</b>
<b>Laboratory hours:</b>	20
<b>Study period: (summer/winter)</b>	winter
<b>Number of credits:</b>	3
<b>Assessment methods:</b>	Assessment of written report (laboratory) and assessment of test
<b>Language of instruction:</b>	English
<b>Prerequisites:</b>	High-school level knowledge of microbiology
<b>Course content:</b>	<ol style="list-style-type: none"> <li>1. Composition and preparation of culture media.</li> <li>2. The use of food waste for the production of lactic acid by <i>Lactobacillus rhamnosus</i>.</li> <li>3. Impact of culture conditions on biomass production of yeast species <i>Saccharomyces cerevisiae</i> and <i>Kluyveromyces marxianus</i>.</li> <li>4. Methods of selecting microorganisms capable to biosynthesis of surfactin as one of the most effective biosurfactants. Depositing, preserving and storing of isolated cultures.</li> <li>5. Biosynthesis of surfactin by the native <i>Bacillus subtilis</i> strain using a variety of carbon sources.</li> <li>6. Examples of bioproducts synthesized by various groups of microorganisms and their application.</li> </ol>
<b>Learning outcomes:</b>	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> <li>1. Indicate products of microbial origin and their application in industry, environmental protection.</li> <li>2. Describe methods used in selection of microorganisms useful in biotechnology.</li> <li>3. Describe methods of stability of isolated cultures.</li> <li>4. Indicate techniques for obtaining substances synthesized by microorganisms.</li> <li>5. Plan, prepare and conduct of experiment connected with biosynthesis of selected bioproducts by microorganisms.</li> <li>6. Demonstrate skill in working effectively in a team.</li> <li>7. Properly interpret the obtained data and formulate conclusions.</li> <li>8. Demonstrate skill in communication in oral presentation and to understand information from scientific papers.</li> </ol>
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