

Study Programme: Soil and plant nutrition			
Course Unit Title: Production and application of biopreparates			
Course Unit Code: ZMZ11110			
Name of Lecturer(s): Associate Professor Simonida Djuric, Assistant Professor Timea Hajnal – Jafari, Assistant Professor Dragana Stamenov			
Type and Level of Studies: Master Academic Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: None			
Course Aims: Introduce students with microorganisms that improve the supply of plant nutrient elements and promote the growth and development of plants.			
Learning Outcomes: Acquiring knowledge about the possibilities of application of microorganisms in plant production.			
Syllabus: <i>Theory</i> Microbial preparations in agricultural production. Biofertilizers. Plant growth promoting microorganisms (PGP). Microorganisms as biocontrol agents. Production of microbial preparations: isolation, pure culture process, investigation of efficiency in controlled and productive conditions, production, packing, transport and application. Results of biofertilizers and biostimulators application in productive conditions under the field, vegetable and fruit crops. Results of microorganisms – antagonist application.			
<i>Practice</i> Isolation, growth and identification of Free and symbiotic N-fixing bacteria, P-mineralisers microorganisms and mycorrhiza fungi from soil. Isolation, growth and determination of rhizospheric microorganisms – plant growth promoters. Isolation and determination of microorganisms antagonists.			
Required Reading: Mahendra Rai: Handbook of Microbial Biofertilizers, CRC Press, Taylor & Francis Group, 2006.			
Weekly Contact Hours: 4	Lectures: 2	Practical work: 2	
Teaching Methods: Lectures and Practical classes, Consultations if needed.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	
Practical work	10	oral exam	50
Preliminary exam(s)	30	
Seminar(s)	5		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			