

Study Programme: Phytomedicine
Course Unit Title: Plant bacteriosis
Course Unit Code: 19.FTM019
Name of Lecturer(s): prof. Mila Grahovac
Type and Level of Studies: Undergraduate academic study
Course Status (compulsory/elective): Compulsory
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: 3
Prerequisites: Passed General phytopathology
Course Aims: Mastering basics of phytobacteriology with economically significant bacteriosis of cultivated plants and control strategies.
Learning Outcomes: Acquired knowledge presents the base for application and management of different plant protection measures, with an aim to reduce losses, environmental pollution and costs. The acquired knowledge is also the base for further scientific work.
<p>Syllabus:</p> <p>General section: Economic significance. Development of phytobacteriology. Characteristics of phytopathogenic bacteria (morphological, cultural, biochemical-physiological, serological, genetic). Origin and specialisation. Classification. Pathogenesis (signal molecules, enzymes, toxins, polysaccharides). Effect of pathogenic bacteria on plants. Symptoms. Plant resistance (classic selection, genetic engineering). Plant protection measures (administrative, cultural, mechanical, physical, chemical, biological).</p> <p>Specific section: Occurrence, distribution, damage. Morphological characteristics, symptoms, epidemiology, control. Species identification (conventional and contemporary identification methods). <i>Pseudomonas syringae</i> pvs., and other fluorescent <i>Pseudomonas</i> spp. Nonfluorescent <i>Pseudomonas</i> spp., <i>Xanthomonas</i> spp., <i>Erwinia</i>, groups «<i>amylovora</i>» and «<i>cartovora</i>», <i>Agrobacterium</i> spp., <i>Clavibacter</i>, and close genera. Phytoplasmas (basic characteristics of phytoplasmas, identification methods, economically the most important representatives).</p> <p><i>Practice</i></p> <p>Symptoms (overview of herbarized and conserved material). Isolation of phytopathogenic bacteria (MPA medium). Inoculation of plants (different methods). Morphological characteristics (Gram staining, bacterial size and spore formation). Cultural characteristics (development of bacteria on different nutrient media). Biochemical-physiological characteristics (catalase activity, oxidase activity, O/F test, decomposition of carbon compounds, reactions in milk, indole formation, hydrogen sulfide, nitrate reduction etc.). Serological methods (agglutination, ELISA). Basics of molecular identification methods. Use of identification keys.</p>
<p>Required Reading: Balaž, F., Balaž, J., Tošić, M., Stojšin, V., Bagi, F. (2010): Fitopatologija – bolesti ratarskih i povrtarskih biljaka. Poljoprivredni fakultet, Novi Sad.</p> <p>Ivanović, M., Ivanović M. (2017): Bolesti voćaka i vinove loze. Univerzitet u Beogradu, Poljoprivredni fakultet.</p> <p>Arsenijević, M. (1997): Bakterioze biljaka. Univerzitet u Novom Sadu, Poljoprivredni fakultet, Novi Sad.</p> <p>Delibašić, G., Obradović, A., Tanović, B. (2018): Bolesti sadnog materijala povrtarskih biljaka. Univerzitet u Beogradu, Poljoprivredni fakultet.</p> <p>Janse, J.D. (2006): Phytobacteriology. Principles and Practice CABI.</p>

Weekly Contact Hours: 5	Lectures: 3	Practical work: 2	
Teaching Methods:			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	20
Practical work		oral exam	50
Preliminary exam(s)	20	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			