Course Unit Descriptor

Study Programme: Agronomy

Course Unit Title: Detection and identification of phytopathogenic bacteria

Course Unit Code: 19.AGR107

Name of Lecturer(s): full prof. Mila Grahovac, ass. prof. Marta Loc

Type and Level of Studies: Doctoral

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: 10

Prerequisites: -

Course Aims: Knowledge about techniques for detection and identification of plant pathogenic bacteria.

Learning Outcomes: Enabling student to independently work on detection and identification of phytopathogenic bacteria in scientific and other companies within the field of plant pathology.

Syllabus:

Theory

Modern methods for the identification of phytopathogenic bacteria require the application of polyphasic approaches, encompassing conventional, serological, and molecular techniques. The course covers familiarization with equipment used in a classical phytobacteriological laboratory; sterilization of instruments and the workspace; preparation and sterilization of culture media; microscopic techniques for analyzing symptoms of bacterial diseases; bacterial isolation (extraction of bacteria from infected plant material and plating on selective media); bacterial cultivation; establishment and maintenance of bacterial collections; various plant inoculation methods; biochemical and physiological assays; commercial automated techniques for carbon-source utilization profiling such as BIOLOG (Inc., Hayward, CA) and various API tests; serological assays (ELISA, IF); and molecular methods, including various PCR-based techniques.

Practice

Student research work in introduction to various techniques used for detection and identification of phytopathogenic bacteria, with the accent on up-to-date methods.

Required Reading:

Janse, J.D. (2006): Phytobacteriology, Principles and Practice. CABI.
Agrios, N.G. (2005): Plant pathology. Elsevier Academic Press.
Schaad N.W., Jones J.B., Chun W. (2003): Laboratory guide for identification of plant pathogenic bacteria. APS Press.
Kado, C. (2010): Plant bacteriology. APS Press

Weekly Contact Hours: 8	**Lectures: 3**	**Practical work: Student research work - 5**

Teaching Methods:

Interactive teaching

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	

Practical work		oral exam	70
Seminar(s)	30		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			