Plant Pathogenic Prokaryote

Obligatory module or Selective module	**Plant Pathogenic Prokaryote**	**PNH 2210**
Semester	IV	
Module level	Undergraduate	
Module Coordinator	Dr. Tri Joko, SP, M.Sc.	
Lecturer(s)	Prof. Dr. Ir. Siti Subandiyah, M.Agr.Sc. Dr. Tri Joko, S.P., M.Sc.	
Type of Module	Lecture: 1 hour and 40 minutes Practical	
Status	C (Compulsory courses)	
Exam	Written	
Number of participants	64	
Credit Points:	2/1 (5.02 ECTS)	
Description:	Plant Pathogen Prokaryotes is a course that provides learning for students to recognize microbial groups of bacteria and phytoplasms that cause disease in plants. This course covers the importance of these microbes in disturbing plants, classification, identification, and detection of these bodies associated with plants and / or their presence in the environment, dispersal, survival, pathogenesis and control. With these learning topics aimed at getting students to know in more detail about bacteria and phytoplasms that cause plant diseases and their life cycle control. The learning method is carried out by lecturing in class with active discussion material about issues that are being warmly exposed globally or nationally, and practicum in the laboratory to analyze bacterial isolates as a result of student isolation, tests of biochemical and physiological and molecular properties and interaction of pathogens with plants the host. The assessment method is carried out by observing the activeness of students in submitting questions and opinions when attending lectures and practicums, quizzes or assignments, examinations and practical reports.	
Academic goal (competency):	After completing this course, students will understand the importance of prokaryotes as plant pathogens, be able to analyze the diagnosis of plant diseases due to bacteria and phytoplasmas and recognize ways to control them.	
Course outcomes: CO1 = Being able to make a diagnosis of plant diseases due to prokaryotes CO2 = Understanding the mechanism of pathogenesis in causing disease in its host, understanding the ways of spread and survival CO3 = Know the techniques of prevention and management of diseases due to prokaryotes		

Contents:

1. Introduction and college contract
2. The importance and history of research on diseases caused by Prokaryotes
3. Taxonomy of Plant Pathogen Prokaryotes
4. Diagnosis of Plant Diseases due to Prokaryotes:
   a. Morphology, physiology and biochemistry identification
   b. Serological and molecular identification
5. The physiology of the disease
6. Genetics of pathogenic bacteria
7. Pathogenesis and the process of infection - molecular interactions
8. Plant resistance to prokaryotes
9. Life Cycle and Distribution of Plant Pathogen Prokaryotes
10. Epidemiology of plant diseases due to prokaryotes
11. Infections and Disease Development
12. Traditional management (exclusion, technical culture, chemistry)
13. Biological and mechanical management
14. Examples of important plant diseases due to bacteria (identification-physiology-management)

Which previous course required? Plant Protection, Phytopathology

Literature:

1. Plant Bacteriology. Clearence I Kado 2010 APS. ISBN 0890543887, 9780890543887 336 pp
2. Plant-Associated Bacteria. Samuel S. Gnanamanickam 2007
3. Fundamental of Plant Bacteriology. M Goto 1992
4. Virulence Mechanisms of Plant-Pathogenic Bacteria. Eds: Nian Wang, Jeffrey B. Jones, George W. Sundin, Frank White, Saskia Hogenhout, Caroline Roper, Leonardo De La Fuente, and Jong Hyun Ham 2015. ISBN 978-0-89054-444-0
5. Bacterial Disease Resistance in Plants: Molecular Biology and Biotechnological Applications. P. Vidhyasekaran 2002.ISBN 1-56022-924-1
6. Sustainable Approaches to Controlling Plant Pathogenic BacteriaV. Rajesh Kannan, Kubilay Kurtulus Bastas, 2015 CRC Press ISBN 9781482240535
7. Laboratory Guide for Identification of Plant Pathogenic Bacteria, 3rd Ed. Edited by N.W. Schaad, J.B. Jones, and W. Chun 2001. ISBN 0-89054-263-5
8. Phytoplasmas: Genomes, Plant Hosts and Vectors. Phyllis G. Weintraub,Phil Jones 2010

Materials provided: Power Point Presentation

Requirements for exam:75% attendance

Teaching method(s)	Classes Special assignment related to the subject matters

Workload (hrs).

1. Theoretical of course:14 times
2. Lab work:10 times
3. Home studies:related to the chapter discussed in the class