朝陽科技大學 093學年度第1學期教學大綱
Biological Fertilizers 生物肥料

當期課號	6239	Course Number	6239
授課教師	簡宣裕	Instructor	CHIEN,SHIUAN YUH
中文課名	生物肥料	Course Name	Biological Fertilizers
開課單位	應用化學系(二進)五A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	生物肥料課程之授課內容包括 1.氮、磷及鉀等植物生長所需之養分於生態系統循環的途徑， 2.生物肥料與化學肥料之區別， 3.生物肥料種類， 4.固氮細菌特定培養基化學成份與配製及分離純化方法介紹， 5 固氮細菌固氮酵素活性測定及生物肥料菌劑製備， 6.固氮細菌生物肥料菌劑功效之評估， 7.溶磷菌特定培養基化學成份與配製及分離純化方法介紹， 8.溶磷菌溶磷能力測定， 9.溶磷菌生物肥料菌劑功效之評估， 10.菌根菌特定培養基化學成份與配製及分離純化方法介紹， 11.菌根菌產孢介紹， 12.菌根菌生物肥料菌劑功效之評估， 13.蛋白分解菌特定培養基化學成份與配製及分離純化方法介紹， 14.蛋白分解菌蛋白分解酵素活性測定及菌劑製備， 15.蛋白分解菌生物肥料菌劑功效之評估， 16.複合功能生物肥料菌株及菌劑之效益。希望經由課程內容之介紹，讓學生對生物肥料之種類、功效及應用能有輪廓性之瞭解。	Objectives	The scope of the course contains nitrogen, phosphorus and potassium cycle in an ecosystem, differences between bio-fertilizer and chemical fertilizer, the variety of bio-fertilizers, cultural media and isolation methods of nitrogen-fixing bacteria, methods of determining nitrogenase activity and preparing nitrogen-fixing bacterium inoculants, assessing the beneficial effects of applying nitrogen-fixing bacterium inoculants on the growths of plants, cultural media and isolation methods of phosphorus-solubilizing bacteria,. methods of determining phosphorus-solubilizing ability and preparing phosphorus-solubilizing bacterium inoculants, assessing the beneficial effects of applying phosphorus-solubilizing bacterium inoculants on the growths of plants, cultural media and isolation methods of mycorrhiza, methods of determining spore numbers and preparing mycorrhiza inoculants, assessing the beneficial effects of applying mycorrhiza inoculants on the growths of plants, cultural media and isolation methods of proteolytic microorganisms, methods of determining protease activity and preparing proteolytic microorganism inoculants, assessing the beneficial effects of applying proteolytic microorganism inoculants on the growths of plants, multiple function bacteria and the beneficial effects of applying their inoculants on the growths of plants. The final objectives of the course are to let student get familiar with the outline of the kinds, functions and applications of bio-fertilizers.
教材	Class note	Teaching Materials	
成績評量方式	期中考與期末考各占50%,額外加分其依據是上課點名與參與課堂討論.	Grading	The course grading is according to the performance of mid-term and final examinatin (50% for each). Bonus credits (10%) will be given to students who always present the course and join the discussions actively.
教師網頁	_		
	本課程介紹生物肥料之種類功能用途。授課內容包括1.氮、磷及鉀等植物生長所需之養分於生態系統循環的途徑。2.生物肥料與化學肥料之區別。3.生物肥料種類。4. 固氮細菌特定培養基化學成份與配製及分離純化		The main purposes of the course are to let student know about the kinds, functions and applications of biofertilizers. The scope of the course contains: 1. Nitrogen, phosphorus and potassium cycle in an ecosystem. 2.

教學內容	方法介紹。5. 固氮細菌固氮酵素活性測定及生物肥料菌劑製備。6. 固氮細菌生物肥料菌劑功效之評估。7. 溶磷菌特定培養基化學成份與配製及分離純化方法介紹。8. 溶磷菌溶磷能力測定。 9. 溶磷菌生物肥料菌劑功效之評估。 10.菌根菌特定培養基化學成份與配製及分離純化方法介紹。 11.菌根菌產孢介紹。 12.菌根菌生物肥料菌劑功效之評估。 13.蛋白分解菌特定培養基化學成份與配製及分離純化方法介紹。 14.蛋白分解菌蛋白分解酵素活性測定及菌劑製備。 15. 蛋白分解菌生物肥料菌劑功效之評估。 16.複合功能生物肥料菌株及菌劑之效益。	**Syllabus**	Differences between biofertilizer and chemical fertilizer. 3. The variety of biofertilizers. 4. Cultural media and isolation methods of nitrogen-fixing bacteria. 5. Methods of determining nitrogenase activity and preparing nitrogen-fixing bacterium inoculants. 6. Assessing the beneficial effects of applying nitrogen-fixing bacterium inoculants on the growths of plants. 7. Cultural media and isolation methods of phosphorus-solubilizing bacteria. 8. Methods of determining phosphorus-solubilizing ability and preparing phosphorus-solubilizing bacterium inoculants. 9. Assessing the beneficial effects of applying phosphorus-solubilizing bacterium inoculants on the growths of plants. 10. Cultural media and isolation methods of mycorrhiza. 11. Methods of determining spore numbers and preparing mycorrhiza inoculants. 12. Assessing the beneficial effects of applying mycorrhiza inoculants on the growths of plants. 13. Cultural media and isolation methods of proteolytic microorganisms. 14. Methods of determining protease activity and preparing proteolytic microorganism inoculants. 15. Assessing the beneficial effects of applying proteolytic microorganism inoculants on the growths of plants. 16. Multiple function bacteria and the beneficial effects of applying their inoculants on the growths of plants.