

UNIVERSITY OF SARGODHA COLLEGE OF AGRICULTURE

COURSE OUTLINE

Spring Semester: 2020

Course Title:	Insecticide Toxicology
Course Code:	ENT-7114
Credit Hours:	3(2-1)
Instructor:	Dr. Abubakar Muhammad Raza
Email:	abu.bakar@uos.edu.pk

DESCRIPTION AND OBJECTIVES

This course is of Master-level that deals with nature, properties, effects and detection of different insecticidal groups in insects, animals, plants, human and environment. The course aims to elaborate the general concepts of insecticide toxicology, theory and principles of bioassay, chemistry and comparative toxicology of some common insecticides, mechanism of action of major groups of insecticides, enzyme activation and inhibition by insecticides at various levels, detoxification mechanisms and joint action of insecticides (synergism and antagonism).

INTENDED LEARNING OUTCOMES

To impart knowledge about toxicity of important groups of insecticides in insects and higher animals with reference to their biochemical and genetic basis of mechanism of action

COURSE CONTENTS

1. Introduction to Insecticide Toxicology
2. General concepts of insecticide toxicology
3. Theory and principles of bioassay
4. Chemistry and comparative toxicology of some common insecticides
5. Mechanism of action of major groups of insecticides
6. Mammalian and phyto-toxicity of insecticides
7. Enzyme activation and inhibition by insecticides at various levels
8. Detoxification mechanisms
9. Joint action of insecticides, (synergism and antagonism)
10. Handling and standardization of insects in insecticide tests
11. Methods for testing of formulations of different groups of insecticides under field and laboratory conditions

READINGS

Recommended Books

1. Gupta, H.C.L. 2001. Insecticides: Toxicology and Uses. Agrotech Publishing Academy, Udaipur.
2. Hassal, K.A. 1990. The Biochemistry and Uses of Pesticides: Structure, Metabolism, Mode of Action and Uses in Crop Protection. ELBS/Macmillan, U.K.
3. Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
4. Saleem, M.A.2004. Principles of Insect Toxicology. Izhar sons Printers, Lahore

COURSE SCHEDULE

Weeks	Topics and Readings	Reference Books
1.	Introduction to Insecticide Toxicology	Gupta, H.C.L. 2001. Insecticides: Toxicology and Uses. Agrotech Publishing Academy, Udaipur
2.	Importance and concont of Insecticide Toxicology	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
3.	Theory and principles of bioassay	Hassal, K.A. 1990. The Biochemistry and Uses of Pesticides: Structure, Metabolism, Mode of Action and Uses in Crop Protection. ELBS/Macmillan, U.K
4.	Chemistry and comparative toxicology of some common insecticides	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
5.	Chemistry and comparative toxicology of some common insecticides	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
6.	Chemistry and comparative toxicology of some common insecticides	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
7.	Mechanism of action of major groups of insecticides	Ishaaya, I. and Degheele, D. 1998. Insecticides with Novel Modes of Action: Mechanism and Application. Norosa Publishing House, New Delhi, Madras, Bombay, Calcutta, London
8.	Revision and Mid exams/Term Paper	
9.	Phyto-toxicity of insecticides	Ishaaya, I. and Degheele, D. 1998. Insecticides with Novel Modes of Action: Mechanism and Application. Norosa Publishing House, New Delhi, Madras, Bombay, Calcutta, London
10.	Enzyme activation and inhibition by insecticides at various levels	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.

11.	Metabolism and detoxification mechanisms	Saleem, M.A.2004. Principles of Insect Toxicology. Izhar sons Printers, Lahore
12.	Joint action of insecticides, (synergism and antagonism)	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
13.	Mammalian toxicity of insecticides	Srivastava, RP. and R.C. Sexena, 1989. Textbook of Insect Toxicology, Himanshu Publications, Udaipur.
14.	Standardization of insects in insecticide tests	Robert. I. and Krieger, W.C. 2001. Handbook of Pesticide Toxicology. 2 nd Ed. Elsevier Inc
15.	Methods for testing of formulations of different groups of insecticides under field and laboratory conditions	Sree Ramulu, U.S. 1995. Chemistry of Insecticides and Fungicides. (2 nd Ed.) Oxford & IBH Publishing Co. Pvt. New Delhi, Bombay, Calcutta
16.	Final Exam	

RESEARCH PROJECT /PRACTICALS /LABS /ASSIGNMENTS

Assignment= Handling and standardization techniques for insecticides applications

ASSESSMENT CRITERIA

Theory Final Exams Marks	20
Mid Exams/Term Paper Marks	12
Practical Exams Marks	20
Sessional Marks	08

