CERTIFICATE COURSE ON TISSUE CULTURE

Duration: 30 Hours

Course Objectives:

➢ Provide theoretical knowledge and to familiarize with the tools and techniques of plant tissue culture

➢ Give the students exposure to virtual procedure and functioning of tissue culture techniques through videos

➢ Help the students to learn applications of tissue culture in various fields.

Course outcome: By successfully completing the course, students will be able to:

➢ Gain the knowledge of tissue culture techniques

➢ Learn how to do tissue culture in laboratory

➢ Learn applications of techniques in various fields

Syllabus

Module 1: Introduction and historical background of Plant Tissue Culture- Totipotency, invitro differentiation- dedifferentiation and re-differentiation. General Laboratory Techniques. Maintenance of Laboratory. Culture Room Culture vessels and washing.

Module 2: Equipments: Principle and working - Autoclave, LAF. Sterilization techniques- Dry heat sterilization, Wet Heat sterilization and Surface sterilization of explants-Surface sterilization -different Methods. Media preparation, Composition of Nutrient Media, Role of components.

Module 3: Inoculation -Laminar Air Flow, Procedure of inoculation. Incubation -Maintenance of inoculation record, subculture and temperature, Humidity & Hardening Techniques

Module 4: Applications of tissue culture -Brief study of: Meristem culture, Anther culture, Pollen culture, Embryo culture, Protoplast culture, hybridization. Somaclonal variation - genetic basis of somaclonal variation. Synthetic seeds – Preparation.

References

1. Kalian Kumar De (2003). An introduction to plant tissue culture, New central book agency pvt. Ltd. 7. V.N. Pathak, NagendraYadav and Maneesha Gaur, Mushroom Production and Processing Technology/ VedamsEbooksPvt Ltd., New Delhi (2000)

2. LGamborg, G C Philips (Eds.) (2005). Plant cell, tissue and organ culture: Fundamentalmethods. Narosa Publishing House.

3. M.K. Razdan (2003)- Introduction to plant tissue culture. Science Publishers.