

## Syllabus: Plant Cell, Tissue, and Organ Culture –Practical Course

School Year 2006-2007, Spring Term 2007

- 15.3.07 Introduction: Getting Started with Tissue Culture: Conditions of Axenic Culture, Laboratory Equipment, Sterile Techniques, Culture Vessels and Different Types of Culture, Organization, Protocols, Literature.
- 22.3.07 Training of the Work in Sterile Conditions: Sterilization of Tools, Water, Vessels, Nutrient Media, Working Area, Methods of the Surface Disinfections of Seeds, Sterile Sowing of Seeds, Fern Spores, etc. (*Nicotiana*, *Daucus*, *Linum*).
- 22.3.07 Nutrient Medium Preparation: Different Variants of Nutrient Media Solidified with Agar (MURASHIGE – SKOOG 1962, GAMBORG *et al.* 1968, etc.), Preparation and Pouring into Culture Vessels.
- 29.3.07 Training of the Work in Sterile Conditions: Subculture of Sterile Culture (Carnivorous Plants: *Drosera*, *Dionaea*; Ornamental Plants: *Streptocarpus*, *Saintpaulia*, *Nephrolepis*) - Segmentation and Explant Transfer onto Fresh Medium). Micropropagation/ De Novo Regeneration: Establishment of Primary Culture, Different Sources of Explants - Leaf, Stem and Rhizome (*Saintpaulia*, *Streptocarpus*, *Begonia*, *Nephrolepis*).
- 5.4.07 Micropropagation/ Reproduction: Multiplication by Nodal Segments (*Rosa*). Meristem Culture: Isolation of the Apical and Axillary Meristems of Herbs and Woody Plants (*Dianthus*, *Clematis*, *Rubus*),
- 12.4.07 Callus Culture: Callogenesis Initiation, Primary Culture of Cambial Segments of Carrot Root (*Daucus*). The Effect of Different Auxin and Cytokinin Ratio on Organogenesis of Tobacco Hypocotyl Segments (*Nicotiana tabacum*).
- 19.4.07 A. Induction of Microtuberization on the Potato Nodal Cuttings (*Solanum tuberosum*). B. Culture of Wood Destroyed Fungi: As an Example of the Suspension Culture – Maintenance of the Culture and the Inoculum Preparation, (*Pleurotus*, *Lentinus*)
- 26.4.07 A. Zygotic Embryo Culture: Culture Initiation – Seed Disinfections, Embryo Isolation and Inoculation (*Picea*, *Zea*, *Capsella*). B. Somatic Embryogenesis: Direct Somatic Embryogenesis Induction – Pea Apical Meristems (*Pisum*), Flower Receptacles of Cineraria (*Senecio cruentus* – hybrid), Nondirect Somatic Embryogenesis – Carrot Callus (*Daucus*).
- 3.5.07 Cryopreservation: Potato Axillary Meristem Isolation, Encapsulation of Isolated Meristems into Alginate Beads, transfer of beads to M-S medium, (Dehydration and Freezing of Beads in Liquid N<sub>2</sub>).
- 10.5.07 A. Phytopathology in vitro, Indexing for Microbial Cultivable Contamination of Primary and Long-term Culture, Test of *Solanum tuberosum* a *Nicotiana tabacum* Culture Health. B. Acclimation of Micropropagated Plants. Evaluation of Experimental Results and Control of Protocols, Test.
- 17.5.06 Excursion to the Plant Tissue Culture Lab of Mendel Agriculture and Forestry University and credit.