

Name of the Programme: M. Sc. (Botany)

Course Code: BOT-528

Title of the Course: Lab in Mycorrhizal Biotechnology

Number of Credits: 1 (30 hours)

Effective from AY: 2022-23

<u>Prerequisites for the course:</u>	Basic knowledge of Mycology.	
<u>Objective(s):</u>	Exercises are designed so that the students will have hands-on training in mycorrhizal biotechnology and development.	
<u>Content:</u>	<ol style="list-style-type: none">1. Isolation of AM fungal spores from rhizosphere soil.2. Estimation of AM fungal spore numbers.3. Techniques of staining roots for AM colonization.4. Histochemical staining for polyphosphate granules in AM fungal hyphae using Toluidine blue O (TBO).5. Histochemical staining for lipid bodies in AM fungal hyphae and vesicles using Sudan Black.6. Preparation of AM fungal inocula: trap and pure cultures.7. Identification of some commonly occurring AM fungal species based on spore morphology.8. <i>In vitro</i> culture of AM fungi.	2 hours 4 hours 4 hours 2 hours 2 hours 6 hours 6 hours 4 hours
<u>Pedagogy:</u>	Laboratory Practicals.	
<u>References/ Readings:</u>	<p>Allan, M. F. (1991). The Ecology of Mycorrhizae. Cambridge University Press.</p> <p>Bacon, C. W. and White, J. H. (2000). Microbial Endophytes Marcel Dekker, New York.</p> <p>Dwivedi, B. K. and Pandey, G. (1994). Biotechnology in India. Allahabad: Bioved Research Society.</p> <p>Read, D. J., Lewis, D. H. Fitter, A. H. and Alexander, I. J. (1996). Mycorrhizas in Ecosystems. Oxford University Press.</p> <p>Rodrigues, B. F. and Muthukumar, T. (2009). Arbuscular Mycorrhizae of Goa – A Manual of Identification Protocols. Goa University, Goa. 135 pp.</p> <p>Schenck, N. C. (1982). Methods and principles of mycorrhizal research. St. Paul Minnesota.</p> <p>Schenck, N.C. and Perez, Y. (1990). Manual for the identification of VA mycorrhizal fungi. International Culture Collection of VA Mycorrhizal Fungi. Synergistic Publications, Gainesville, Florida, USA.</p> <p>Sylvia, D. M., Hung, L. L. and Graham, J. H. (1987). Mycorrhizae in the next Decade, Practical Applications and Research Priorities. University of Florida. Gainesville, Florida.</p> <p>Willis, A., B. F. Rodrigues, and Harris, P.J.C. (2013). The ecology of arbuscular mycorrhizal fungi. Critical Reviews in Plant Sciences 32:1-20.</p>	
<u>Learning Outcomes:</u>	Better prospects in agro-based industries.	