

LS-573 Fungal Biology and Biotechnology
(Prof. Alok Mondal & Dr. Sneha Lata Panwar)

Topic:

1. Introduction to Fungi
2. Fungal diversity, classification, ecology
3. Fungal genetics (haploid-diploid life cycle, mating type switching, mutant isolation, complementation, suppressors and synthetic lethal screen, galactose utilization)
4. Signal transduction pathways in fungi
5. Fungal Cell wall – architecture and biosynthesis
6. Protein sorting, secretion and ER stress response in yeast
7. Vacuolar morphogenesis, vesicle trafficking in fungi, Autophagic processes in yeast - mechanism, machinery and regulation
8. Pathogenic fungi, pathogenicity and virulence factors
9. Antifungal agents and their mode of actions, drug targets
10. Emergence of drug resistance and MDR genes
11. Yeast as model for human diseases
12. Biotechnological importance of fungi, industrially important enzymes from fungi
13. Fungal expression system and production of recombinant protein
14. Engineering protein glycosylation pathway in fungi for humanised protein therapeutics
15. Fungi as host for synthetic biology