BT 621 Advances in Plant Genetic Engineering and Genomics (3 0 0 6)

Pre-requisites: Nil

Targeted gene manipulation; Genetic engineering approaches for developing abiotic stress tolerance and pathogen resistance, plant microRNAs and their targets, RNAi mediated protection; Manipulation of storage proteins for improvement of nutritional quality; Plant metabolic engineering, novel oils; Engineered phytoremediation of toxic pollutants; RNA editing in plant organelles; Plant riboswitches; Functional genomics strategies, whole genome expression analysis, single cell expression profiling, RNA fingerprinting; High-throughput functional screening of genes in planta, microarrays tools to decipher transcriptomes; RNA interference, virus-induced gene silencing tools for characterization of plant genes and cellular processes; Transposon tagging; Nanotechnologies for in planta functional genomics; Bioinformatics tools for plant functional genomics

Texts:

1. C. N. Stewart Jr, *Plant Biotechnology and Genetics*, Wiley-VCH, 2008
2. A. K. Rai and T. Takabe, *Abiotic Stress Tolerance in Plants*, Springer, 2006
3. B. B. Buchanan, W. Gruissem, R. L. Jones, *Biochemistry and Molecular Biology of Plants*, Wiley-VCH, 2002

Reference:

1. G. P. Rao, Y. Zhao, V. V. Radchuk, S. K. Bhatnagar, *Advances in Plant Biotechnology*, Studium Press, 2008.
2. G. Kahl and K. Meksem, *The Handbook of Plant Functional Genomics: Concepts and Protocols*, Wiley-VCH, 2008.