

SB-S 324

M.Sc. Botany – IIIrd Semester
Paper 304: Plant Physiology

Plant water Relations: free energy and chemical potential, osmotic potential, water potential and its determination, active and passive absorption of water, stomatal physiology and mechanisms of stomatal opening and closing, Soil-plant-atmosphere-continuum concept (SPAC) and mechanism of water transport through xylem.

Mineral Nutrition: Passive and active uptake of ions, translocation of minerals in plants, essential elements, their functions and symptoms of mineral deficiency, importance of foliar nutrition and use of chelates in agriculture, root microbe interactions in facilitating nutrient uptake and mechanism of assimilate translocation.

The flowering Process: Phytochrome structure, photochemical and biochemical properties and role in photomorphogenesis, photoperiodism and its significance, mechanisms of floral induction, role of vernalization, morphological, biochemical and metabolic changes accompanying seed germination.

Plant growth regulators and Elicitors: Biosynthesis, physiological effects and mechanism of action auxins, gibberellins, cytokinins, ethylene, abscisic acid, brassinosteroids, polyamines, jasmonic acid and salicylic acid, role in agri-horticulture, and hormone receptors.

Stress Physiology: Plant responses to biotic and abiotic stress, mechanisms of biotic and abiotic stress tolerance, water deficit and drought resistance, salinity stress, metal toxicity, heat stress and oxidative stress.

Fundamental of Enzymology: General aspects, allosteric mechanism, regulatory and active sites, isozymes, kinetics of enzymatic catalysis, Michaelis-Menten Equation and its significance, Mechanism of enzyme action.

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