CBO-1003

TAXONOMY AND PLANT DEVELOPMENT AND REPRODUCTION

Unit-I Taxonomy

Salient features of the International Code of Botanical Nomenclature.

Taxonomic evidence: morphology, anatomy, palynology, embryology, cytology.

Taxonomic tools: Herbarium; floras; histological, cytological, phytochemical, serological, biochemical and molecular techniques; computers and GIS.

Systems of angiosperm classification: Phenetic versus phylogenetic systems; cladistics in Taxonomy; relative merits and demerits of major systems of classification: Takhtajan, Bassaey, Hutchinson.

Unit-II Families

Taxonomical studies of the following families with references to their geographical distribution, systematic position, floral variations and economic importance.

DICOTYLEDONS :

Polypetalae: Menispermaceae, Capparaceae, Sterculiaceae, Anacardiaceae, Rutaceae, Meliaceae, Molluginaceae, Cactaceae.

Gamopetalae: Oleaceae, Convolvulaceae, Salvadoraceae.

Apetalae: Amaranthaceae, Chenopodiaceae.

MONOCOTYLEDONS: Lamnaceae, Typhaceae, Poaceae.

Unit-III Plant Development

Vascular elements, functional differentiation, p-Proteins.

Wood development and environmental factors, heart wood, sap wood and role of cambium.

Shoot development: Organization of vegetative and reproductive shoot apical meristems (SAM).

Root development: Organization of root apical meristem, Vascular tissue differentiation, lateral roots, root hairs.

Unit-IV Plant Reproduction

Male gametophyte: Microsporogenesis, role of tapetum, pollen development and gene expression, pollen germination, pollen tube growth and guidance.

Endosperm development during early, maturation and desiccation stages.

Embryogenesis, ultra structure and nuclear cytology, polyembryony.

Embryology in relation to taxonomy.