

CBO-404 ANGIOSPERM TAXONOMY AND PLANT 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.

Main Reference(s):

Singh V and Jain D K (1999) *Taxonomy of Angiosperms*, Rastogi Publications, Meerut (2nd Edition's Reprint).

Sambamurty A V S S (2005) *Taxonomy of Angiosperms*, I K International P Ltd, New Delhi (1st Edition)

Pandey B P (2004) *A Text Book of Botany: Angiosperms*, S Chand & Company Ltd., New Delhi (1st Edition's Reprint)

Other Reference(s):

Reddy S M, Madhusudana Rao M, Reddy S A, Reddy M M and Chary J S (2004) *University Botany-3*, New Age International (P) Ltd, Publishers, New Delhi (1st Edition).

Subrahmanyam N S (1999) *Modern Plant Taxonomy*, Vikas Publishing House Pvt. Ltd., New Delhi (1st Edition's Reprint).

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, Lamiaceae.

Apetalae: Nyctaginaceae, Amaranthaceae, Chenopodiaceae, Euphorbiaceae.

MONOCOTYLEDONS: Lamnaceae, Typhaceae, Cyperaceae, Poaceae.

Main Reference(s):

Lawrence G H M (1967) *Taxonomy of Vascular Plants*, Oxford & IBH Publishing Co.Pvt Ltd., New Delhi (1st Indian Edition).

Singh V Pande P C and Jain D K (1995) *A Text Book of Botany-Angiosperms*, Rastogi Publications, Meerut (1st Edition's Reprint).

Singh V and Jain D K (1999) *Taxonomy of Angiosperms*, Rastogi Publications, Meerut (2nd Edition's Reprint).

Unit-III Plant Reproduction

Microsporangium: Anther wall, Sporogenous tissue, Microsporogenesis.

Male gametophyte-development: Formation of vegetative and generative cells, pollen wall.

Male gametophyte-morphology: Introduction, pollen wall features, Scope of Palynology, preparation of pollen grains,

Megasporangium: Types of ovules, integuments, megasporogenesis.

Unit-IV Plant Reproduction

Female gametophyte: General, types of embryo sacs, Mature embryo sac, Haustorial behaviour of embryo sac, nutrition of embryo sac

Fertilization: pollen germination, pollen tube growth and guidance, *in-vitro* pollen germination, pollen viability test, double fertilization.

Endosperm development during early, maturation and desiccation stages.

Embryogenesis, ultra structure and nuclear cytology, polyembryony.

Main Reference(s):

Reddy S M, Madhusudana Rao M, Reddy S A, Reddy M M and Chary J S (2004) **University Botany-3**, New Age International (P) Ltd, Publishers, New Delhi (1st Edition).

Pandey B P (2003) **Simplified Course in Botany –B Sc-II**, S Chand & Company Ltd., New Delhi (1st Edition's Reprint)

Other Reference(s):

Bhojwani S S and Bhatnagar S P (2001) **The Embryology of Angiosperms**, Vikas Publishing House Pvt Ltd., New Delhi (4th Revised Edition's Reprint).

Maheshwari P (1989) **An Introduction to the Embryology of Angiosperms**, Tata McGraw-Hill Publishing Company Ltd., New Delhi (10th Edition's Reprint).