

SHIVJI UNIVERSITY,
DEPARTMENT OF BOTANY
M.Phil.

Paper-III: Angiosperm Systematics, Biodiversity and Conservation.

1. **International Code of Botanical Nomenclature** (St. Louis code): Principles; Rules and Recommendations: taxa and their ranks, status, typification, priority of names, nomenclature of taxa according to their ranks, effective and valid publication, rejection of name; provisions for the governance of the code; names of hybrids.
2. **Species:** concept of species, reproductive isolation mechanisms, speciation: kinds of speciation.
3. **Reproductive Biology and Taxonomy:** Types of reproductive data, efficacy of reproductive data in the taxonomic hierarchy, concerns with reproductive data.
4. **Phenetic Classification** (Taxometrics): Principles, OTUs, coding, cluster analysis, applications of numerical taxonomy in Angiosperms.
5. **Phylogenetic classifications** (Cladistics): terms and concepts, methodology, OEU, construction of cladograms, classifications.
6. **Angiosperm Classification:** (APG) Angiosperm Phylogeny Group
7. **Molecular Systematics:** molecular evolution, molecular techniques: Polymerase chain reaction, DNA sequencing reaction, Analysis of DNA sequence data, RFLPs, Alloenzymes, Microsatellite DNA, RAPDs, AFLPs, molecular data and systematics.
8. **Biodiversity:** definition, magnitude, threats, loss, direct and indirect benefits, endemism, endemic angiosperms of India, Red list.
9. **Conservation Biology:** Ex-situ and In-situ conservation, conservation at the population and species level, conserving biological communities, Protected Area (PAs), Restoration, conservation and sustainable development

REFERENCE BOOKS:

- Ahmedullah, M. and M. P. Nayar. 1987. *Endemic Plants of the Indian Region* Vol I. Botanical Survey of India.
- Cronquist, A. 1981. *An Integrated System of Classification of Flowering Plants*. Columbia University Press, New York.
- Cronquist, A. 1988. *The Evolution and Classification of Flowering Plants* (2nd ed.) Allen Press, U.S.A.
- Davis, P. H. and V. H. Heywood 1991. *Principles of Angiosperm Taxonomy*. Today and Tomorrow Publications, New Delhi.
- Endress Peter, K. 1994. *Diversity and Evolutionary Biology of Tropical Flowers*. Cambridge.
- Greuter, W. (ed) 1999. International code of Botanical Nomenclature (Saint Louis code).
- Lawrence George H. M. 1951. *Taxonomy of Vascular Plants*. Oxford and IBH Publ. Co. Pvt. Ltd. New Delhi .
- Manilal, K. S. and M. S. Muktesh Kumar [ed.] 1998. *A Handbook of Taxonomic Training*. DST, New Delhi.
- Naik, V. N. 1984. *Taxonomy of Angiosperms* Tata McGraw-Hill Publication Com. Ltd. New Delhi.
- Nayar, M. P. 1996. *Hot Spots of Endemic Plants of India, Nepal and Bhutan*. Tropical Botanic Gardens and Research Institute, Palode, Kerala
- Primack, R. B. 2004. *A Primer of Conservation Biology*. Boston University.
- Quicke, Donald, L. J. 1993. *Principles and Techniques of Contemporary Taxonomy*. Blakie Academic & Professional, London.
- Rao, R. R. 1994. *Biodiversity of India (Floristic Aspects)*. Bishen Singh Mahendra Pal Singh, Dehra-Dun.
- Richard, A. J. 1997. *Plant Breeding Systems*. (2ed.) Chapman and Hall.
- Shivanna, k. R. and B. M. Johri 1985. *The Angiosperm Pollen: structure and Function*. Wiley Eastern limited, New Delhi.
- Simmpson M. G. 2006. *Plant Systematics*. Academic press
- Singh, G. 2005. *Plant systematics: Theory and practice*. Oxford and IBH Publishing Co. Pvt. Ltd.
- Stuessy, T. F. 2002. *Plant Taxonomy. The Systematic Evaluation of Comparative Data*. Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Taylor, D. V. and L. J. Hickey 1997. *Flowering Plants: Origin, Evolution and Phylogeny*. CBS Publishers & Distributers, New Delhi.
- Syngé, Hugh (ed.) 1980. *The biological aspects of Rare Plant Conservation*. John Wiley & Sons.