

MCC, Department of Botany

M. PHIL. BOTANY

TAXONOMY

PAPER II & III

Paper - II Principles of Angiosperm Taxonomy

Unit - I

Classification systems prior to Darwin: Systems based on habit, sexual systems, systems based on form relationships.

Post-Darwinian systems: Systems based on Ralian school, systems based on Englemann school.

Unit- II

Concept of characters: Primitive and advanced characters, Homologous and Analogous characters, Analytical and Synthetic characters, Qualitative and Quantitative characters.

Unit - III

Concepts of Genus, Species and Intraspecific taxa.

Unit - IV

Phenetic and Cladistic methods of analysis and their application in Taxonomy and Systematics.

Unit - V

Taxonomic evidences: Evidences from Anatomy, Palynology, Cytology, Phytochemistry and Molecular Biology.

Unit - VI

Speciation and Isolation mechanisms.

Paper - III Floristic Research

Unit - I

Field work and Herbarium methods. Functions and kinds of Herbaria. Important Herbaria in India and abroad.

Unit - II

International Code of Botanical Nomenclature: Principles, Priority, Publication, Typification, Citation, Retention, Choice and Rejection of names and epithets.

Unit - III

Taxonomic products: Floras, Revisions and Monographs; Keys and synopses.

Unit - IV

Floristic Studies: Major milestones in floristic studies in India with special reference to Tamil Nadu. Floristic regions of the world. Taxonomic literature. Print and online sources.

Unit - V

Endemic taxa and their distribution with reference to India; IUCN red list categories.

Unit - VI

Applications of Floristic Research: Assessment of Natural Resources; Environmental Impact Assessment; Identification and characterization of Plant raw drugs.

Suggested Reading

- AHMEDULLAH, M., AND M.P. NAYAR. 1987. Endemic Plants of the Indian Region. Vol. I. Botanical Survey of India. Howrah.
- CRONQUIST, A. 1968. The Evolution and Classification of Flowering Plants. Houghton Mifflin. Boston.
- DAVIS, P.H., AND V.H. HEYWOOD. 1965. Principles of Angiosperm Taxonomy. Oliver & Boyd. Edinburgh.
- DOBSON, A.P. 1996. Conservation and Biodiversity. Scientific American Library. New York, U.S.A.
- GAMBLE, J.S., AND C.E.C. FISCHER. 1967. Flora of the Presidency of Madras. Vols. I - III. Botanical Survey of India. Calcutta.
- GRAHAM, L.E. 1993. Origin of Land Plants. John Wiley & Sons. Inc. New York.
- GREUTER, W, (Ed.). 2000. International Code of Botanical Nomenclature. (St. Louis Code). Koeltz Vesentific Books. Germany.
- GROOMBRIDGE, B, (Ed.). 1992. Global Biodiversity: Status of The Earth's Living Resources. Chapman and Hall. London.
- HENRY ,A.N. & M.CHANDRABOSE. 1980. An Aid to International Code of Botanical Nomenclature. Today & Tomorrow's Printers and Publishers. New Delhi.

HESLOP-HARRISON, J. 1953. New Concepts in Flowering Plant Taxonomy. Heinemann Ltd. London.

HEYWOOD, V.H. 1967. Plant Taxonomy. Edward Arnold Ltd. Great Britain.

HEYWOOD, V.H. 1995. Global Biodiversity Assessment. Cambridge University Press, Cambridge, U.K.

HUTCHINSON, J. 1973. The Families of Flowering Plants. 3rd Edition. Oxford University Press. Oxford.

JAIN, S.K. and R.R. RAO. 1977. A Handbook of Field and Herbarium Methods. Today and Tomorrow's Printers and Publishers, New Delhi.

JOHRI, B.M. 1994. Botany in India: History and Progress. Vol-I. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.

JONES, S.B., AND A.E. LUCHSINGER. 1987. Plant Systematics. 2nd Edition. McGraw-Hill Book Company. New York.

JUDD, W. S, C. S. CAMPBELL, E. A, KELLOG, P. F. STEVENS AND N. J. DONOGHUE. 2002. Plant Systematics - A phylogenetic approach. Sinauer Associates, Inc, Massachusetts, USA

LAWRENCE, G.H.M. 1951. Taxonomy of Vascular Plants. The Macmillan Company. New York.

- MABBERLEY, D.J. 2005. *The Plant-Book, A portable dictionary of the vascular plants*. Cambridge University Press, United Kingdom
- MOORE, R., W.D. CLARK, K.R. STERN AND D. VODOPICH. 1995. *Botany : Plant Diversity*. Wm. C. Brown Publishers. London.
- NAIK, V. N. 2000. *Taxonomy of Angiosperms*. Tata McGraw - Hill Publishing Company Limited , New Delhi.
- NAYAR, M.P., AND R.K. SASTRY. 1987-1990. *Red Data Book on Indian Plants*. Vols. I - III. Botanical Survey of India. Howrah.
- NAYAR, M.P., 1996. "Hot Spots" of Endemic plants of India, Nepal and Bhutan. Tropical Botanic Garden and Research Institute, Thiruvananthapuram, India.
- QUICKE, D.L.J. 1993. *Principles and Techniques of Contemporary Taxonomy*. Chapman and Hall. London.
- RADFORD, A.E., W.C. DICKISON, J.R. MASSEY, AND C.R. BELL. 1974. *Vascular Plant Systematics*. Harper & Row. New York.
- RAVEN, P.H., R.F. EVERT, AND S.E. EICHHON. 1992. *Biology of Plants*. 5th Edition. Worth Publishers. New York.
- SANTAPAU, H. AND H.A. HENRY. 1994. *A dictionary of the flowering plants in India*, CSRI, New Delhi.

SINGH, G. 2005. Plant Systematics – Theory and Practice. Oxford & IBH, New Delhi.

SOLTIS, D. E., P. S. SOLTIS, P. K. ENDRESS AND M. W. CHASE. 2005. Phylogeny and Evolution of Angiosperms. Sinauer Associates, Inc, Massachusetts, USA.

SIMPSON, M. G. 2006. Plant Systematics. Elsevier Academic Press, California, USA.

SIVARAJAN, V.V. 1989. Introduction to Principles of Plant Taxonomy. Oxford and IBH Publishing Co. New Delhi.

STACE, C.A. 1989. Plant Taxonomy and Biosystematics. Edward Arnold, London.

STUESSY, T. F. 2002. Plant Taxonomy. Bishen Singh Mahendra Pal Singh, Dehra Dun, India.

SUBRAMANIAM, N.S. 1995. Modern Plant Taxonomy. Vikas Publishing House. New Delhi.

TAKHTAJAN, A. 1997. Diversity and Classification of Flowering Plants. Bishen Singh and Mahendra pal Singh, Dehra Dun, India.