

Maheshwari, P. 1950. An introduction to the embryology of Angiosperms. McGraw Hill book Co., Inc., NY

Maheshwari, P. 1963. Recent advances in the embryology of angiosperms. Edited by the International Society of Plant Morphologists, New Delhi

Bhojwani, S. S. & Bhatnagar, S. P. 1978. The embryology of Angiosperms. Vikas Publishing House, New Delhi.

Turing, A. M. 1952. The chemical basis of morphogenesis. Phil. Trans. R. Soc. Lond. B. 237: 37-72.

Sinnot, E. W. 1960. Plant Morphogenesis. Mc Graw-Hill Book Co. Inc. New York, USA.

Steeves, T.A. & Sussex, I. M. 1989. Patterns in Plant development. 2nd edition, Cambridge University Press. Chasan, R. 1994. Tracing tracheary element development. The Plant Cell 6:917-919.

Lyndon, R. F. 1990. Plant Development : The Cellular basis. Unwin Hyman, London.

Aloni, R. 1987. Differentiation of vascular tissues. Annu. Rev. Plant Physiol. 38:179-219.

Raman, A. 2007. Insect induced plant galls of India; unresolved questions. Curr. Sci. 92 (6): 748-757.

Smith, H. 1975. Phytochrome and Photomorphogenesis-an introduction to the photocontrol of plant development. Mc Graw-Hill Book Co. (UK), Ltd.

Mohr, H. 1972. Lectures in photomorphogenesis. Springer-Vohrleg, Berlin, Germany

BOE463(REV22) - Medicinal Plants

Teaching Hours: 9/Unit

Course outcome:

- Contains basic chapters required to understand scientific study of plants
- They will learn the use of plants in different systems of medicine
- Also, topics on various approaches for plant conservation, IPR and IUCN classification of threatened categories are included
- There is a detailed account on the cultivation practices of certain medicinal plants
- This will give the basics of medicinal plant cultivation and if perceived students can take this as a career

Unit I:

Plant classification - Broad outline of major groups and ranks of taxa, Plant Nomenclature- Common names, Binomial nomenclature, IUBN- brief outline of methods in nomenclature; Typification.

Herbarium- Methods of collection, processing of herbarium specimens; Major herbaria of the world, Botanical Survey of India- brief outline of its organization and its role and significance.

Unit II:

Medicinal plants - system of herbal medicine, threatened medicinal plants- Threats, various approaches to conservation -*in-situ* and *ex-situ*; MPCA, Biosphere reserves, National parks, Sacred grooves, CITES, IUCN categories of plant, Brief account of Biodiversity Act.

Unit III:

Ethnobotany: Concept, scope and objectives; ethnic groups and ethnobotany, major and minor ethnic groups of India.

Methodologies of ethnobotanical studies (a) Field work - documenting the information; questionnaire, interviews, video recording, identification and herbarium. Role of ethnobotany in modern medicine with examples. Ethnobotanical uses of *Withania somnifera*, *Phyllanthus amarus*, *Bacopa monnieri*, *Artemisia annua*, *Rauwolfia serpentina*.

Unit IV:

Plants as medicine: Drugs of botanical origin. Medicinal properties of important local plants, Nutraceuticals Bioprospecting, Biopiracy.

Intellectual property Rights: Forms of protection, Patents, Trademarks, Trade secrets, Designs, Geographical indications, Plant variety protection.

Unit V:

Cultivation potential of important medicinal plants
Agroclimatic requirements, propagation, Transplanting and
aftercare of the following medicinal plants.

Acorus calamus
Andrographis paniculata
Asparagus racemosus
Azadirachta indica
Centella asiatica
Piper longum
Rauwolfia serpentina
Zingiber officinale
Vinca rosea
Emblica officinalis
Cinnamomum suphuratum

Suggested Reading:

Agarwal.S.S.M.Paridhavi (2007) Herbal Drug Technology,
University press, Hyderabad.

Bennet, S.S.R. 1979. An Introduction to Plant nomenclature.
International Book Distributors. 9/3. Rajpur Road, Dehra Dun
248001. India.

Davis, P.H., V.H. Heywood. 1963. Principles of Angiosperm
Taxonomy. Oliver and Boyd Ltd., Tweeddale Court, Edinburgh.

Heywood V.H., 1976. Botanical Systematics, Academic Press
London.

Stace, C.A. 1989. Plant Taxonomy and Biosystematics (2nd
Edition). Edward Arnold Ltd., London.

Sumy, Ved & Krishnan (2000) Tropical Medicinal Plants, FRLHT,
Bangalore.

SEMESTER III

BOH501(REV22)- Plant Ecology & Environment

Teaching Hours: 10/Unit

Course outcome: