

Course Code:

Plant Anatomy, Embryology and Ethenobotany

Course Code: BEB 310

Contact Hours: 60

Credit: 04 (L-3, T-1, P-0)

MM: 100

Course objectives:

1. Observe plant structures of monocot and dicot angiosperm plants.
2. To provide students with skills necessary to section and stain fresh plant materials.
3. To train students in the proper use of the compound light microscope and to give them experience in interpreting images.
4. To provide students with skills in modern microscopic processing and analysis techniques.
5. To learn the complexity of tissue organization within plant bodies to develop as integrated organisms in diverse environments.

Unit I: Introduction: scope of plant anatomy, applications in systematics. Tissues: classification of tissues, simple and complex tissues, secretory system: hydathodes, cavities, lithocysts and laticifers. **Wood anatomy:** axially and radially oriented elements; sapwood and heartwood, ring and diffuse porous wood; dendrochronology.

Unit II: Root and Stem: organization of root apex (Apical cell theory, Histogen theory, Korper-Kappe theory); Quiescent centre; root cap; structure of dicot and monocot root and origin of lateral root. Stem organization of shoot apex (Apical cell theory, Histogen theory, Tunica Corpus theory). Structure of dicot and monocot stem.

Unit III: Leaf: structure of dicot and monocot leaf, Kranz anatomy, vascular cambium structure, function, seasonal activity of cambium; secondary growth in root and stem.

Unit IV: Embryology: Structure and development of male and female gametophytes – microsporogenesis, megasporogenesis, embryo sac types. Double fertilization, development of embryo, endosperm development and its morphological nature, apomixis and polyembryony.


Unit V: Ethnobotany and folk medicines: definition, ethnobotany in India, methods to study ethnobotany, applications of ethnobotany, national interact, palaeo-ethnobotany, folk medicines of ethnobotany, ethnomedicine, ethnoecology, ethnic communities of India; application of natural products to certain diseases- Jaundice, cardiac, infertility, diabetics, Blood pressure and skin diseases.


Suggested Reading:

1. Plant Anatomy: S.N. Pandey and A. Chadha. 1st Edition. Vikas Publishing House, New Delhi, India.
2. An introduction to Plant Taxonomy. Jeffrey, C. 1982. . Cambridge University Press, Cambridge, London. Jones, S.B. Jr. Luchsinger, A.E. 1986.
3. S.K. Jain, Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.
4. Glimpses of Indian. Ethnobotany, Oxford and I B H, New Delhi, 1981.
5. S.K. Jain (ed.) 1989. Methods and approaches in ethnobotany. Society of ethnobotanists, Lucknow, India.
6. S.K. Jain, 1990. Contributions of Indian ethnobotany. Scientific publishers, Jodhpur.
7. Trivedi P C, 2006. Medicinal Plants: Ethnobotanical Approach, Agrobios, India.
8. Purohit and Vyas, 2008. Medicinal Plant Cultivation: A Scientific Approach, 2nd edn. Agrobios, India.

CO: By the end of this course, students will be able to:

1. Understand the scope & importance of Anatomy and Embryology.


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