



B.Sc. PLANT BIOLOGY & PLANT BIOTECHNOLOGY

Paper 16a SEED TECHNOLOGY

B.Sc. va (Candidates admitted from the academic year 2008-2009)

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Core Theory

UNIT I

Seed structure and morphology. Seed types; Monocot / Dicot seeds; Albuminous and ex-albuminous seeds. Apomictic seeds.

Key words: Seed coat, Cotyledons, Endosperm, sterile seeds, seed reserves.

UNIT II

Classification of seeds based on embryo. Storage reserves in Seeds: Carbohydrates, Proteins and lipids.

Key words : Aleurone layer, Starch bodies, Phytin, Invertase, Lipase, Protease.

UNIT III

Seed Viability: Orthodox and recalcitrant seeds. Viability tests - TTC, seed leachate EC, seed floatation test and Germination; ISTA.

Key words: Tetrazolium +ve / -ve seeds, seed vigour Index, Genetically superior seeds.

UNIT IV

Seed dormancy: Types of seed dormancy : significance of dormancy in Plants. Laboratory methods to break dormancy.

Key words: Primary / innate dormancy, secondary dormancy, non-dormant seeds, Morphological / physiological dormancy, chemical dormancy, seed coat dormancy.

UNIT V

Seed Germination: Process of seed germination - stages; Germination mechanism in typical monocot / dicot seeds.

Key terms: Epigeal / hypogeal germination, Durian, Vivipary, Semi-hypogeal.

UNIT VI

Seed Priming and seed Pelletting; Commercial seed Trade; Genetically Modified Seeds; Seed Industry; Terminator Gene Technology. Seed Certification. Quarantine measures. In seed marketing.

Key terms: Hybrid seeds, seed banks, cryopreservation, seed orchards

Selected Reading

AGRAWAL, P. K. 1993. Handbook of seed testing. Division of seed science and Technology. Indian Agricultural Research Institute, New Delhi, India.

BEDELL, P. E. 1998. Seed science and Technology: Indian Forestry species. Allied Publishers Ltd.

BEWLEY, I. D. and M. BLACK. 1982. Physiology and Biochemistry of seeds in relation to Germination. Springer - Verlag, New York.

COPELAND, L. O. and M. B. Mc DONALD. 1985. Principles of seed science and Technology. McMillan Publishing Co, New York.

DAHIYA, B. S. 1997. Seed Technology. Kalyani Publishers, Ludhiana, India.

HARTMAN, T. HUDSON and DALE E. KESTER. 1997. Plant Propagation: Principles and Practices. Prentice Hall of India Pvt Ltd, New Delhi, India.