

## **SEMESTER-II SUPPORTIVE PAPER**

### **MOLECULAR ONCOLOGY**

**Paper Code: 12ZOOS01**

**Credits: 4  
Hours: 4/Wk**

#### **Unit – I**

History, scope and current scenario of cancer research. Cancer ó Types and their prevalence ó Carcinoma, Lymphoma and Malignancy - Classification based on origin/organ: breast, colon, lung, prostate, cervical and oral cancers.

#### **Unit – II**

Molecular mechanism of oncogenesis ó Proto oncogenes, oncogene, oncoproteins, other tumour suppressor proteins and receptors proteins involved in cancer.

#### **Unit- III**

Apoptosis and cancer : Mechanism of apoptosis - proteins involved in apoptosis- Signaling pathways : types and their impact on apoptosis and oncogenesis - Significance of ó RB, Cyclins, RTK, CDKs, related pathways ó Relationship between cancer and antiapoptotic proteins.

#### **Unit- IV**

Principle and methods of cancer diagnosis: ó Biochemical, Genetic, Cytotoxic and cell growth and viability tests. Current status of cancer proteomics.

#### **Unit- V**

Cancer therapy ó at cellular level- at gene level- at protein level. Principles of cancer biomarker and their applications ó chemotherapeutics for cancer, Phytotherapy for cancer.

#### **REFERENCES:**

- Ian F. Tannock, Richard P. Hill. 1998. The Basic Science of Oncology; Third edition; McGraw- Hill, New York.
- Miguel H. Bronchud, Maryann Foote, Giuseppe Giaccone, Olufunmilayo olopade, Paul Workman. 2008 Principles of Molecular Oncology; Third edition; Humana Press; New Jersey.
- Klaus-Michael Depatin, Simone Fulda. 2008. Apoptosis and Cancer Therapy; WILEY-VCH Verlag GmbH & Co., New York.
- M. A. Hayat; 2010. Methods of Cancer Diagnosis, Therapy, and Prognosis; Vol-7; Springer; Netherland.
- Sotiris Missailidis.2008. Anticancer Therapeutics; John Wiley & Sons, Ltd; USA.

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## **SEMESTER-III SUPPORTIVE PAPER**

### **VERMICULTURE & VERMICOMPOSTING**

**Paper Code: 12ZOOS02**

**Credits: 4**  
**Hours: 4/Wk**

#### **UNIT- I**

Earthworms ó Taxonomic position and diversity; types ó morphological and ecological grouping ó Epigeic, Anecic and Endogeic species; Ecological role and economic importance of earthworms.

#### **UNIT- II**

Vermiculture ó definition, scope and importance; Local and exotic species for culture; Environmental requirements; Culture methods ó wormery ó breeding techniques; indoor and outdoor cultures ó monoculture and polyculture.

#### **UNIT- III**

Applications of vermiculture ó Vermicomposting ó use of vermicastings in organic farming, earthworms for management of municipal organic solid wastes. Nutrient value of worm cast/vermicompost ó Effect of vermicompost on plants.

#### **UNIT- IV**

Marketing the products of vermiculture ó quality control, market research, marketing techniques ó creating the demand by awareness and demonstration, advertisements, packaging and transport.

#### **UNIT- V**

Future perspectives ó Predator/pathogen control in wormeries; Potentials and constraints for vermiculture in India.

#### **REFERENCES:**

1. Ismail, S.A. 1997. *Vermicology: The Biology of Earthworms*. Orient Longman, India. 92 pp.
2. Ismail, S.A. 2005. *The Earthworm Book*. Second Revised Edition, Other India Press, Apusa, Goa, India. 101 pp.
3. Ranganathan, L.S. 2006. *Vermibiotechnology – From Soil Health to Human Health*. Agrobios, India. 139 pp.

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