

**P.B.SIDDHARTHA COLLEGE OF ARTS & SCIENCE**  
**DEPARTMENT OF CHEMISTRY**  
**M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)**  
**III SEMESTER**

**Paper Code & Title: 22CH3E3: NATURAL PRODUCTS**

**No. of hours per week: 04**  
**Total marks: 100**

**Total credits: 04**  
**(Internal: 30 M & External: 70M)**

<b>Course: NATURAL PRODUCTS (code 22CH3E3)</b>		
S.No	COURSE OUTCOMES	PO'S
	The student will be able to	
1	Memorize the concepts related to Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids and Pigments.	2
2	Understand the chemical role of Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids and Pigments.	1,7
3	Execute the conceptual knowledge gained in the areas of Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids and Pigments.	1,6
4	Analyze the role of methods involved in structure elucidation of Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids and Pigments.	1,7

#### **UNIT-I**

**Alkaloids:** Introduction, Definition, occurrence, role of alkaloids in plants, classification, isolation and general methods for structural elucidation of alkaloids. Structure elucidation and synthesis of Morphine, Quinine, Ephedrine and Nicotine.

#### **UNIT-II**

**Terpenoids:** Introduction, Definition, nomenclature, classification, isolation, isoprene rule and general methods for structural elucidation of Terpenoids. Structure elucidation and synthesis of Zingiberene, farnesol and  $\alpha$  - Terpineol.

#### **UNIT-III**

**Steroids:** Introduction, Definition, nomenclature, classification. Occurrence, isolation, physiological action, structure elucidation and synthesis of Cholesterol, Androsterone, Progesterone, and Testosterone.

#### **UNIT-IV**

**Flavonoids and Isoflavonoids:** Introduction, Definition, classification, isolation, physiological action, structure elucidation and synthesis of Kaempferol and Quercetin.

#### **UNIT-V**

**Pigments:** Introduction, classification of natural pigments, introduction and classification of carotenoids, functions of carotenoids in plants and animals, structure and synthesis of  $\alpha$  – carotene and  $\beta$  – carotene.

#### **References:**

1. Organic Chemistry, Vol:2, I.L.Finar, 5<sup>th</sup> Edition.
2. Chemistry of Natural Products, K.W.Bentley
3. Chemistry of Natural products by P.S.Kalsi Kalyani Publishers. 1983, low cost university edition.
4. Chemistry and physiology of alkaloids by Manske Vol.I&II, VII