

Value Added Course
(Offered to Other Faculties Except Faculty of Science)

Course Code	Course Title	Hours/week			Marks		
		L	P	C	CIA	ESE	Total
CHEA415	Phytochemistry and Biological Activities of Medicinal Plants	3	-	-	25	75	100

Phytochemistry and Biological Activities of Medicinal Plants

Unit-1

Extraction – purification of bio-active compounds from plants - cold & hot extract extraction- Soxhlet extraction - crude extracts purification by various solvents.

Unit-2

Isolation of bioactive compounds- chromatographic techniques - thin layer chromatography- liquid chromatography - HPLC and UPLC.

Unit-3

Structural analysis of bioactive compounds - IR spectroscopy - Mass spectroscopy - NMR spectroscopy.

Unit-4

Herbal medicine - History of herbal medicine - different types of herbal medicine - Ayurveda, Siddha and Unani - Pharmacological action - clinical research and traditional uses of Indian medicinal plants - *Eclipta alba*, *Gymnema sylvestre*, *Ocimum sanctum*, *Curcuma longa*.

Unit-5

Phytopharmaceuticals and their health benefits - anthocyanins, carotenoids, lycopene, isoflavones, polyphenols, omega 3 - fatty acids, biological effects of resveratrol.

Activity

1. Extraction of active ingredients from medicinal plants.
2. Demonstration of *in vitro* antioxidant activity of phytochemicals.

Text Books

1. Harbone, J.B. Phytochemical Methods: A guide to modern techniques of plant analysis, Springer (India) Private Limited, 3rd ed. New Delhi. 1998.
2. Silverstein R. M., Wester F. X. - Spectroscopic identification of organic compounds. John-Wiley. 1998.
3. Willard H.H., Merrit L. L., Dean J. A.. Instrumental Methods of Analysis, 1987.
4. Godte V. M.. Ayurvedic pharmacology and therapeutic uses of medicinal plants. Bharathiya Vidya Bhavan, Mumbai. 2000.
5. Grewal R.C. Medicinal Plants. Campus Books International, New Delhi. 2000.