

# NUTRACEUTICALS AND FUNCTIONAL FOODS

## THEORY

<b>Paper No.</b>	:	<b>8.2</b>
<b>Maximum Marks</b>	:	<b>100</b>
<b>Credits</b>	:	<b>4</b>
<b>Teaching Period</b>	:	<b>4 Theory + 1 seminar / Week</b>
<b>Teaching Load</b>	:	<b>48 Theory Periods + 12 seminar / Semester</b>

### Objectives:

- To develop comprehensive understanding of different nutraceuticals and functional foods
- To understand the potential of various functional foods in promoting human health

### CONTENTS

#### **Unit 1: Introduction (8 lectures)**

Background, status of nutraceuticals and functional food market, definitions, difference between nutraceuticals and functional foods, types of nutraceutical compounds and their health benefits, current scenario. **(Ch 1 Wildman, 2001 and Journals)**

#### **Unit 2: Nutraceuticals (17 lectures)**

Types of nutraceutical compounds – Phytochemicals, phytosterols and other bioactive compounds, peptides and proteins, carbohydrates (dietary fibers, oligosaccharides and resistant starch), prebiotics, probiotics and synbiotics, lipids (Conjugated Linoleic Acid, omega-3 fatty acids, fat replacers), vitamins and minerals; their sources and role in promoting human health. **(Ch 2-10, 17-19, 25-27 Wildman, 2001 and Journals)**

#### **Unit 3: Functional Foods (17 lectures)**

Cereal and cereal products, Milk and milk products, egg, oils, meat and products, sea foods, nuts and oilseeds, functional fruits and vegetables, herbs and spices, beverages (tea, wine etc), Fermented foods – their health benefits and role in conditions like cardiovascular diseases, hypertension, diabetes etc. Future prospects of functional foods and nutraceuticals and their potential for use in improving health. Development in processing of functional foods. Formulation and fabrication of functional foods. **(Ch 11-15, 18, 21, 24-25 and 28 Wildman, 2001 and Journals)**

#### **Unit 4: Legal Aspects (6 lectures)**

Stability of nutraceuticals. Safety, Consumer acceptance and assessment of health claims, labeling, marketing and regulatory issues related to nutraceuticals and functional foods. **(Ch 30-31 Wildman, 2001 and Journals)**

### **Recommended reading:**

1. Wildman REC, *Handbook of Nutraceutical and Functional Foods*, CRC Press 2001
2. Ghosh D *et al*, *Innovations in Healthy and Functional Foods*, CRC Press 2012
3. Pathak YV, *Handbook of nutraceuticals* Volume 2, CRC Press 2011
4. Various journals of food technology, food science and allied subjects.

## **PRACTICALS IN NUTRACEUTICALS AND FUNCTIONAL FOODS**

<b>Maximum Marks</b>	<b>:</b>	<b>50</b>
<b>Credits</b>	<b>:</b>	<b>2</b>
<b>Teaching Period</b>	<b>:</b>	<b>4 / Week</b>
<b>Teaching Load</b>	<b>:</b>	<b>48/ Semester</b>

### **CONTENTS**

1. Identification of various nutraceuticals and functional foods available in the market
2. Estimation of polyphenol content of various foods
3. Estimation of lycopene in tomato and tomato products
4. Extraction and quantification of flavonoids in functional foods
5. Estimation of crude fibre content in cereals and their products
6. Estimation of vitamin A, vitamin C and vitamin E in some functional foods
7. Preparation and evaluation of probiotic foods

### **Recommended Readings**

1. Ranganna S.1986. Handbook of analysis and quality control for fruits and vegetable products, Tata McGraw-Hill publishing company limited, Second edition