

SELF STUDY

NUTRACEUTICALS AND NUTRIGENOMICS

OBJECTIVES

To enable the students to

- Gain knowledge on Nutraceutical and Nutrigenomics
- Study the applications of Nutrigenomics in health and disease.

UNIT I

NUTRACEUTICALS AND FUNCTIONAL FOODS

Definition of functional and traditional foods, nutraceuticals, designer foods and pharma foods, history of functional foods, components of functional foods, foods containing nutraceuticals and classification of nutraceuticals – based on plant sources, mechanism of action and chemical nature

UNIT II

ROLE OF DIETARY SUPPLEMENTS AND NUTRACEUTICALS IN HEALTH AND DISEASE

Concept of dietary supplements, sources and functions of phytochemicals with suitable examples, FOSHU foods – concepts, regulatory aspects

UNIT III

PROBIOTICS AND PREBIOTICS

Human gastrointestinal tract and its microbiota, functions, concept of probiotic, prebiotics and symbiotics; applications of probiotics in human nutrition

UNIT IV

NUTRIGENOMICS

Definition of nutrigenomics, gene expression – transcription, translation, post translational modification, nutrition in the omics era- elementary concepts on epigenetics, transcriptomics, proteomics, metabolomics; genetic variation and nutritional implications

UNIT V

NUTRITION AND GENE EXPRESSION AND NUTRIGENOMICS AND COMPLEX DISEASES

Nutrient control of gene expression – amino acids, nucleotides, basic concepts of nutrigenomics and complex diseases – diabetes, cancer and obesity

REFERENCES:

1. Mahtab, S, Bamji, Kamala Krishnasamy, G.N.V. Brahnam, Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi, 2009.
2. Srilakshmi, B. Second Edition, Food Science, New Age International (P) Limited Publishers, New Delhi, 2010.B.Sc. Nutrition, Food Service Management and Dietetics: Syllabus (CBCS)57
3. Simopoulos, A.P. and Ordovas, K.J.M., 2004, Nutrigenetics and Nutrigenomics, Vol. 93, Karger, Switzerland.
4. Watson, David, H., 2003, Performance Functional Foods, CRC Press, Wood Head Publishing Ltd., England
5. Tamine, A., 2005, Probiotic Dairy Products, Blackwell Publishing Ltd., UK 6. Narasinga
6. Rao, B.S., 2005, Nutrition Research in India – A Country Report, Published by INSA, New Delhi.
7. Webb, G.P., 2006, Dietary Supplementations and Functional Foods, Blackwell Publishing Ltd., New York.
8. Tai, E.S. and Gillies, P.J., 2007, Nutrigenomics – Opportunities in Asia, Karger, Singapore. B.Sc. Nutrition, Food Service Management and Dietetics: Syllabus (CBCS)58