



Shri Sangameshwar Education Society's
Sangameshwar College, Solapur [Autonomous]
(Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur)
Kannada Linguistic Minority Institute
NAAC Accredited with 'A' Grade (III Cycle CGPA 3.39)

CERTIFICATE COURSE IN FOOD ADULTERATION

LEARNING OBJECTIVES:

- To understand the chemistry of food components.
- To understand relationship between food, nutrition and health
- To learn about food safety and adulteration.

COURSE OUTCOME:

- 1. Students are able to learn about various food components and their nutritional value.
- 2. Students will learn about various sources of food adulteration and its detection.
- 3. Students will be able to use laboratory techniques for detecting food adulteration.

ELIGIBILITY:

Minimum 12th pass or equivalent from a recognized board or university .

COURSE CONTENTS:

(Theory + Practical)

- **Unit-I: NUTRITION** (5 Periods)

Nutritional role of water, carbohydrates, proteins, fats, fibre, vitamins and minerals Concept of calorie and energy requirements of person of different age groups with reference to height, Weight, physical activity, job status etc. Anti-nutritional factors , Effect of food processing on major nutrients and vitamin content of food.

- **Unit-II: NATURAL PIGMENTS** (5 Periods)

Chlorophylls, anthocyanin, carotenoids and curcumin (structure, composition and application in food industry)

- **Unit-III: ADDITIVES** (5 Periods)

(i) Organic acids, propionate, benzoates, sorbets, acetates (ii) Ethylene and propylene oxide (iii) Sugar and salt (iv) Alcohol (v) Wood smoke (vi) Esters (vii) Legal aspects

- **Unit-IV: Food Adulterants & Food Safety** (5 Periods)

Methods of detection of common food adulterants in

- i. Spices
- ii. Grains
- iii. Coffee
- iv. Tea
- v. Oil fats
- vi. Food colours
- vii. Milk

Acts related to food adulteration -HACCP, GMP, role of FDA, Agmark , ISO

- **PRACTICALS** (10 Periods)

- 1) Demonstration of saponification value of groundnut oil
- 2) Demonstration of common food adulterants by simple tests
- 3) Qualitative analysis of tea and coffee extracts (Alkaloids from Datura leaves)
- 4) Separation of chlorophyll and carotenoids from spinach (by TLC)
- 5) Separation of carotenoids from carrot (by TLC)

TEACHING-LEARNING METHODOLOGY:

Theory Lectures

Practicals /Laboratory techniques

E- Contents related to food adulteration

Seminars

EVALUATION: 50marks (15+35) (internal +external)

References:

- 1) Biochemical Methods, S. Sadasivan and A. Manickam, 2nd edition, New age international (P) Ltd, Tamilnadu Agricultural University, Coimbatore
- 2) Fundamentals of Biochemistry, Dr.A.C.Deb, New central book agency (P) Ltd
- 3) Fundamentals of Analytical chemistry, Douglas A. skoog, Donald M. West, F. James Hollar, 6th Edition, Saunders College Publishing
- 4) Introductory Practical Biochemistry, S. K. Sawhney, Randhir Singh, Narosa Publishing House
- 5) Biochemistry, Satyanarayan U, Books and Allied Ltd
- 6) General Biochemistry, Weil J. H, New Age International (P) Ltd
- 7) Laboratory manual in Biochemistry, J. Jayaraman, New age international (P) Ltd