CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of CHEMISTRY

Semester 1st Skill Enhancement Course (SEC)

Course Title: Food Additives & Adulteration-I

Course Code: UGCHM22S101 **Max. Marks 100**
Credits: 4 (Theory: 1, Practical: 3) **Theory External: 15; Min Marks: 06**
Contact Hrs: 105 (Theory: 15, Practical: 90) **Theory Internal (Continuous Assessment): 10 Marks, Min Marks: 04**
Practical Experimental Basis= 45 Marks, Min. Marks: 18
Practical Internal (Continuous Assessment): 30 Marks, Min. Marks: 12

Course Objectives

1. To acquaint students with different techniques of detecting various additives in milk and milk products.
2. To familiar students with thickeners, neutralizers and preservatives used in milk
3. To acquaint students with permissible limits of additives in the milk and milk products.

Course Outcomes

After completion of the skill course the students will be well versed with

1. Chemical techniques for detection of additives in milk and milk products
2. Determination of different additives, their permissible limits and hazards, if any.
3. Determining safety in use of milk and milk products.

THEORY

Unit I: Food and Food additives introduction

1. Introduction to food science: Concept of food, food science, functions of food, basic components of food.
2. Food additives – Introduction to food additives, definitions, classification and function, chemistry, food uses and functions in formulations.
3. Risks and benefits of food additives.
4. Consumer attitudes towards food additives.

PRACTICALS:

Unit II: Sample preparation and standardization

1. General Laboratory Rules and Personal Safety Precautions.
2. Preparation and standardization of solution.
3. Sampling: Sample preparation, storage and preservation.
4. Sample Handling of Milk and Milk Products
5. Detection of Added Water in Milk
6. Detection of Added Starch and Cereal Flours.

Unit III: Analysis of additives and adulterants in milk

1. Detection of Added Cane Sugar in milk.
2. Detection of Added Urea in milk.
3. Detection of Ammonium Salts in Milk
4. Detection of Added Sulphates in Milk
5. Detection of Sodium Chloride in Milk
6. Detection Hydrogenated Fat in Milk

Unit IV: Qualitative analysis of preservatives/additives in milk

1. Detection of Nitrates (Pond Water) in Milk
2. Detection of Neutralizers in Milk
3. Test For Skimmed Milk Powder in Natural Milk
4. Detection of Gelatin in Milk
5. Detection of Preservatives added to Milk
    a. Formalin
    b. Hydrogen peroxide
    c. Boric Acid and Borate
    d. Benzoic and Sodium benzoate in Milk
    e. Salicylic Acid.
6. Detection of Thickeners in Milk.

References/Books

- Food adulteration and food fraud *by Jonathan Rees, London, Reaktion Books, 2020.*
- Detection of the Common Food Adulterants by Edwin Morris Bruce ; Palala Press, 2016.
- Fennema's Food Chemistry by Damodaran Parkin Fennema, CRC Press, 2017.
- Rapid Detection of Food Adulterants and Contaminants; Theory and Practice by Shyam Narayan Jha; Academic Press, 2016.
- A first course in Food Analysis – A.Y. Sathe, New Age International (P) Ltd., 1999.
- Manuals of Methods of Analysis of Foods – Food Safety & Standards Authority of India.