



DEPARTMENT OF BIOCHEMISTRY
Sree Krishna College, Guruvayur – 680102

Certificate course 2024-25

Certificate Course on ‘Food Additives’

Course Code: CERSKCBCH 01/24

Total Hours: 30 hours

Total Marks: 40

The course is aimed to equip participants with the knowledge and skills necessary to assess, design, and implement effective community nutrition interventions that improve public health.

Objectives of course

1. Understand the types and functions of food additives.
2. Explore the biochemical mechanisms behind food additives.
3. Learn about the safety assessments and regulations of food additives.
4. Conduct practical experiments to analyze the effectiveness of additives.

Course outcome

By the end of the course, participants will be able to:

1. Understand the types and functions of food additives.
2. Explore the biochemical mechanisms by which additives affect food properties.
3. Learn about regulatory aspects and safety assessments of food additives.

Syllabus

Module I: Introduction to Food Additives and Preservatives (6 hours)

Introduction to Food Additives - Definition, classification, and historical context, Overview of food additive types and their significance in food science

Preservatives and Their Mechanisms - Chemical vs. natural preservatives, Biochemical mechanisms: inhibition of microbial growth and prevention of oxidation

Module II: Flavor Compounds and Color Additives (6 hours)

Flavor Compounds in Food Additives - Chemistry of natural vs. artificial flavors, Interaction of flavor compounds with taste receptors

Color Additives and Their Effects -Types of colorants: natural, synthetic, and health implications , Mechanisms of color retention and fading

Module III : Texture Modifiers and Sweeteners (6 hours)

Texture Modifiers and Stabilizers - Role of hydrocolloids and starches in modifying food texture, Biochemical properties affecting food stability

Sweeteners and Their Metabolic Impact - Overview of sugars, sugar alcohols, and artificial sweeteners, Biochemical pathways of sweetener metabolism

Module IV: Safety and Regulatory Aspects (6 hours)

Overview of safety assessments by regulatory agencies (e.g., FSSAI, FDA, EFSA), Debates and controversies around food additives: health implications and ethical concerns

Module IV: Practicals (6 hrs)

Efficacy of Preservatives: Compare the effectiveness of natural and synthetic preservatives in food samples.

Sensory Analysis of Flavor Additives: Conduct sensory analysis of food samples with different flavor profiles.

Taste Testing Sweeteners: Conduct a taste test and analysis of various sweeteners in baked goods

References

- Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., & Walter, P., Molecular Biology of the Cell, Garland Science, 6th Edition, 2014.
- JECFA (Joint FAO/WHO Expert Committee on Food Additives), Evaluation of Food Additives: Monographs, FAO/WHO, Various Years.
- Soni, M.G., Carabin, I.G., & Burdock, G.A., Safety of Food Additives and Contaminants, CRC Press, 2010.
- Damodaran, S., Parkin, K.L., & Fennema, O.R., Fennema's Food Chemistry, CRC Press, 5th Edition, 2017.

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