Food Biochemistry: Enzyme Kinetics in Processing Training Course

Professional Development Training Course Outline

Category	Food processing and Technology	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Food biochemistry plays a vital role in advancing food technology, nutritional quality, and industrial food processing efficiency. Enzyme kinetics in food processing has emerged as a trending field due to its potential to enhance food preservation, flavor optimization, and texture improvement. Food Biochemistry: Enzyme Kinetics in Processing Training Course is designed to equip participants with practical insights into enzyme catalysis, substrate specificity, reaction mechanisms, and the industrial applications of enzymes in modern food industries. By integrating biochemistry, food science, and biotechnology, participants will gain in-depth knowledge of enzyme kinetics and how it directly impacts food quality, safety, and sustainability.

This training emphasizes both theoretical understanding and real-world applications, with a focus on trending areas such as sustainable food processing, enzymatic hydrolysis, biosensors, and biocatalysis in the food sector. Case studies will provide learners with exposure to industry practices, enabling them to critically evaluate enzymatic processes and apply enzyme kinetics for improved food production systems. The course is structured to provide valuable skills for professionals seeking competitive advantage in the global food and biotechnology market.

Programme Curriculum

Food Biochemistry: Enzyme Kinetics in Processing Training Course

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Course Objectives

1. Understand the fundamentals of food biochemistry and enzyme kinetics.
2. Explore enzyme-substrate interactions in food processing.
3. Analyze factors influencing enzyme activity and stability.
4. Apply enzyme kinetics in food preservation and safety.
5. Examine industrial applications of enzymes in dairy, meat, and cereal processing.
6. Investigate enzyme inhibitors and their impact on food systems.
7. Study the role of enzymes in improving nutritional quality.
8. Assess modern techniques for enzyme immobilization in processing.
9. Explore enzymatic biocatalysis for sustainable food production.
10. Develop skills to evaluate enzyme activity through kinetic models.
11. Interpret enzyme kinetics data for food industry applications.
12. Apply biosensor technology for monitoring enzymatic reactions.
13. Integrate enzyme kinetics into food innovation and product development.

Organizational Benefits

- Improved food quality and consistency.
- Enhanced production efficiency and cost-effectiveness.
- Competitive advantage through enzyme-based innovations.
- Reduction of chemical additives in processing.
- Greater food safety compliance.
- Increased shelf-life of processed products.
- Adoption of sustainable food processing methods.
- Enhanced staff technical expertise.
- Strengthened research and development capabilities.
- Better alignment with global food industry trends.

Target Audiences

1. Food scientists and technologists
2. Biochemists and microbiologists
3. Food processing engineers
4. Quality assurance professionals
5. Research and development specialists
6. Nutritionists and dieticians
7. Biotechnology professionals
8. Academic researchers and postgraduate students

Course Duration: 5 days

Course Modules

Module 1: Fundamentals of Food Biochemistry

- Introduction to food biochemistry concepts
- Biomolecules relevant to enzyme kinetics
- Structure and function of food enzymes
- Classification of enzymes in food processing
- Importance of enzyme kinetics in food technology
- Case study: Enzyme role in fruit ripening

Module 2: Principles of Enzyme Kinetics

- Enzyme-substrate complex formation
- Michaelis-Menten kinetics in food systems
- Turnover numbers and catalytic efficiency
- Enzyme concentration and reaction rate relationships
- Enzyme specificity and food processing implications
- Case study: Lactase in dairy industry

Module 3: Factors Affecting Enzyme Activity

- Temperature effects on enzyme stability
- pH influence on enzyme activity
- Substrate concentration and saturation kinetics
- Effect of inhibitors and activators
- Industrial relevance of enzyme activity conditions
- Case study: Amylase in baking industry

Module 4: Enzyme Inhibition in Food Processing

- Types of enzyme inhibitors
- Competitive and non-competitive inhibition
- Enzyme regulation mechanisms
- Application in controlling enzymatic browning
- Industrial uses of inhibitors for food safety
- Case study: Polyphenol oxidase inhibition in fresh produce

Module 5: Enzymes in Dairy Processing

- Enzymes used in milk processing
- Enzyme kinetics in cheese making
- Lactase application for lactose-free products
- Rennet activity and reaction mechanisms
- Enzyme stability in dairy production
- Case study: Enzymatic cheese ripening

Module 6: Enzymes in Meat and Cereal Processing

- Proteases in meat tenderization

- Amylases in bread making
- Enzyme roles in cereal malting and brewing
- Substrate specificity in cereal enzymes
- Texture modification using enzymes
- Case study: Protease use in meat products

Module 7: Enzyme Immobilization Techniques

- Principles of enzyme immobilization
- Benefits in food processing industries
- Common immobilization methods
- Factors affecting immobilized enzyme performance
- Industrial applications of immobilized enzymes
- Case study: Immobilized enzymes in juice clarification

Module 8: Biosensors and Enzyme Kinetics in Food Industry

- Introduction to biosensors in food processing
- Enzyme-based biosensors for detection
- Monitoring enzyme kinetics using biosensors
- Role of biosensors in quality control
- Biosensors in sustainable food production
- Case study: Glucose biosensors in beverage industry

Training Methodology

- Instructor-led interactive lectures
- Group discussions and problem-solving activities
- Practical demonstrations and hands-on exercises
- Case study analysis and real-world applications
- Assessments through quizzes and feedback sessions

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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