Professional Certificate in Food Chemistry

Food Processing and Packaging

Food Processing and Packaging Glossary

Acidification: The process of adding acids to food products to lower the pH, increase acidity, and enhance microbial stability. It is commonly used in the production of pickles and fermented foods.

Aseptic Packaging: A method of packaging food products in a sterile environment to prevent contamination and extend shelf life. This technique involves sterilizing the packaging materials and food product separately before filling and sealing the package.

Bacteriostatic: Refers to substances or processes that inhibit the growth of bacteria without killing them. Bacteriostatic agents are often used in food preservation to prevent spoilage.

Blanching: A food processing technique that involves briefly immersing food products in boiling water or steam to deactivate enzymes, remove air, and improve color retention. It is commonly used in the preparation of fruits and vegetables for freezing.

Bottling: The process of filling and sealing food products in glass bottles or jars for preservation and distribution. This method is commonly used for packaging jams, sauces, and beverages.

Canning: A preservation method that involves sealing food products in airtight containers and heat processing them to destroy microorganisms. Canning extends the shelf life of foods such as fruits, vegetables, and meats.

Carbonation: The process of dissolving carbon dioxide gas into a liquid to create carbonated beverages. Carbonation adds fizziness and enhances the sensory experience of the drink.

Dehydration: The removal of water from food products through methods such as air drying, freeze-drying, or sun drying. Dehydration reduces the moisture content of foods, preventing microbial growth and extending shelf life.

Emulsification: The process of combining two immiscible liquids, such as oil and water, into a stable emulsion. Emulsifiers are used in food processing to create products like mayonnaise and salad dressings.

Enzymatic Browning: A chemical reaction that occurs when enzymes in fruits and vegetables react with oxygen, leading to discoloration and off-flavors. Enzymatic browning can be prevented by blanching or adding antioxidants.

Fermentation: A metabolic process in which microorganisms like yeast and bacteria convert sugars into alcohol, acids, or gases. Fermentation is used in the production of foods like bread, cheese, and yogurt.

Flash Freezing: A rapid freezing technique that involves exposing food products to very low temperatures to

freeze them quickly. Flash freezing helps preserve the texture, flavor, and nutritional content of foods.

Food Additives: Substances added to food products to improve their taste, texture, appearance, or shelf life. Common food additives include preservatives, colorants, and flavor enhancers.

Foodborne Pathogens: Microorganisms like bacteria, viruses, and parasites that can contaminate food products and cause foodborne illnesses. Proper food processing and packaging techniques are essential for preventing the growth of foodborne pathogens.

Fortification: The process of adding vitamins, minerals, or other nutrients to food products to enhance their nutritional value. Fortification is used to address nutrient deficiencies and improve public health.

Freeze-Drying: A dehydration method that involves freezing food products and then removing water through sublimation. Freeze-drying preserves the texture, flavor, and nutritional content of foods without the need for heat.

High-Pressure Processing (HPP): A non-thermal pasteurization method that uses high pressure to inactivate microorganisms and enzymes in food products. HPP helps preserve the freshness and nutritional quality of foods.

Modified Atmosphere Packaging (MAP): A packaging technique that involves modifying the atmosphere inside a package to extend the shelf life of food products. MAP can help control oxygen and carbon dioxide levels to inhibit microbial growth.

Non-Thermal Processing: Food preservation methods that do not rely on heat to inactivate microorganisms. Non-thermal processing techniques include high-pressure processing, pulsed electric field processing, and irradiation.

Osmotic Dehydration: A process that involves immersing food products in a hypertonic solution to remove water and enhance preservation. Osmotic dehydration is used in the production of dried fruits and vegetables.

Pasteurization: A heat treatment process that involves heating food products to a specific temperature for a set period to destroy pathogenic microorganisms. Pasteurization helps improve food safety and extend shelf life.

Preservation: Techniques used to prevent the spoilage of food products and extend their shelf life. Common preservation methods include canning, freezing, drying, and fermenting.

Pulsed Electric Field Processing: A non-thermal food preservation method that uses short pulses of high-voltage electricity to inactivate microorganisms. Pulsed electric field processing helps preserve the quality and freshness of foods.

Quality Control: The process of ensuring that food products meet predetermined quality standards through testing, inspection, and monitoring. Quality control measures help maintain consistency and safety in food processing.

Shelf Life: The length of time a food product can be stored under specific conditions before it deteriorates in quality. Shelf life is influenced by factors like packaging, storage temperature, and product formulation.

Sous Vide: A cooking method that involves vacuum-sealing food products in plastic bags and cooking them at precisely controlled temperatures in a water bath. Sous vide cooking helps retain moisture and flavor in foods.

Thermal Processing: Food preservation methods that use heat to inactivate microorganisms and enzymes. Thermal processing techniques include pasteurization, blanching, and canning.

Vacuum Packaging: A packaging method that involves removing air from a package before sealing it to create a vacuum. Vacuum packaging helps prevent oxidation and microbial growth, extending the shelf life of food products.

Water Activity: A measure of the amount of water available for microbial growth in a food product. Controlling water activity is essential for preventing spoilage and ensuring the safety of processed foods.