

Food Processing & Preservation 3(2-1)

Theory

Postharvest handling and preparation of foods for food processing: introduction, properties of raw materials, storage and transportation of raw materials. Preparatory operations: cleaning, sorting, grading, size reduction, blanching, sulphiting. Heat processing: methods – thermisation, pasteurization, HTST, commercial sterilization, UHT. Canning: unit operations. Retort operation: equipment. Effect of heat processing: nutrients, microorganisms. Low temperature preservation: refrigeration: methods and equipments. Cold storage: requirements, insulation, air circulation, humidity, refrigeration load, controlled atmospheric storage. Freezing: theory, equipment and changes in foods. Evaporation and dehydration: evaporation – concentration and condensation, principles, equipments, applications. Drying – principles, equipments, types of driers – cabinet (tray), kiln, tunnel, conveyer (belt), fluidized, pneumatic (flash), rotary. Dehydration: applications, dehydrated products – vegetables, fruits and milk. Use of chemical additives: contaminants, adulterants, additives. Food additives: classification, criteria for selection, GRAS additives, permissible limits, food safety, E-numbers. Preservation by fermentation technology: principles, objectives, types - alcoholic, acetic and lactic fermentations. Fermented foods: bread, wine, vinegar, yoghurt, sausages, pickles. Food irradiation: principles, applications, equipments, safety aspect, effect on food properties, detection methods.

Practical

Bottling/canning of selected fruits, vegetables. Cold storage of fruits and vegetables. Freezing of fruits and vegetables. Dehydration of fruits and vegetables. Use of chemicals in preservation of food products. Production of vinegar, yoghurt and pickles. Evaluation of bottled, frozen and dehydrated products. Visit to food industries.

Books Recommended

1. Awan, J.A. 2009. Food processing and preservation. Unitech Communications, Faisalabad, Pakistan.
2. Awan, J.A. and Rehman, S.U. 2009. Food preservation manual. Unitech Communications, Faisalabad, Pakistan.
3. Rahman, M.S. 2007. Handbook of food preservation. CRC Press, Taylor & Francis Group, Boca Raton, Florida, USA.
4. Brennan, J.G. 2006. Food processing handbook. Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany.
5. Fellow, P.J. 2005. Food processing technology: principles and practices, 2nd ed. CRC Press, Taylor & Francis Group, Boca Raton, Florida.

Website: www.foodscienceuniverse.com