e-ISSN: 2319-9873
p-ISSN: 2347-2324

RESEARCH & REVIEWS: JOURNAL OF FOOD AND DAIRY TECHNOLOGY

Food Processing Techniques and Its Effects

Parthasarathi Das[1], Kathula Rajyalakshmi

[1] Department of Bioscience and Biotechnology, Fakir Mohan University, Balasore, Odisha
[2] Department of Biotechnology, Govt City College, Afzalgunj, Telangana

Editorial Article

Received: 15/04/2015
Revised: 17/04/2015
Accepted: 17/04/2015

*For Correspondence
Department of Biotechnology & Bioscience,Fakir Mohan University, Balasore-756019, Odisha, India E-mail: parthasarathi5ds@yahoo.co.in

FOOD PROCESSING TECHNIQUES AND ITS EFFECTS

Food processing can be defined in many ways; one of them is 'transformation of the raw ingredients into food, or of food into other forms is food processing'. Food processing is typically used to produce attractive, marketable and to increase the shelf-life of food products.

The food products can be basically be divided into different categories like solid food, liquid food, value added food, packed food.

SOLID FOOD PROCESSING

Use of Ultrasound is a well-known and commonly used technology in the food industry for processing the food this is used because of its High frequency waves which can be used as a pretreatment or for improving the main process [1-5]. The treatment of food with ultrasound also kills some of the organisms like Francisella tularensis which causes tularemia [6, 7]. Physical technologies like cold gas plasma and periodic light-weight may be promising alternatives for reducing the microbiological risk related to fresh manufacture and each technology have proved their potency for the quick inactivation of microorganisms on varied surfaces [8].

Microwave heating is invented for its operational safety and nutrient retention capability with borderline loss of heat-labile nutrients like B and C vitamins, dietary inhibitor phenols and carotenoids [6,7].Microwave drying at 450W increases the phenol extractable content from the peel of orange [8].

There are few techniques which might be used for process any kind of food like fruits, vegetables, diary merchandise, meat, starch merchandise area unit air mass Technology [12], this maintains the nutritionary qualities for extended time.

LIQUID FOOD PROCESSING

Activated Charcoal is most commonly used for processing the liquid food materials. This is used to remove the impurities to a greater extent along with the other factors like temperature, the viscosity of the fluid etc. [13]. This charcoal is also used for de-colorization and purification method. High hydraulics pressure [14] may be wont to preserve nutritionary content and flavor of the drink. Pasteurization [15] is another technique that is employed to extend the steadiness and merchandise period of time.

Heat inactivated process helps in protective the viability of bifidobacteria. Ultrafiltration (UF), Reverse diffusion (RO), and Microfiltration (MF) processes are in use within the dairy farm business [16].

The incorporation of fructooligosacharides and internal secretion in several percentages reckoning on the sort of food, whether or not it's a food, frozen dessert or yoghurt it helps in up the standard of the merchandise alongside the period of time

PRESERVED FOOD

In order to preserve the freshness of the food many chemicals are used and some of them being Potassium sorbate [17,18], sodium benzoate [18], calcium chloride, which prevents or inhibits the microbial and fungal proliferation and also helps in increasing the shelf life when combined with the other parameters like air filters, heat treatment and MAP (modified atmosphere packaging). The natural source like Sugars, salt, acids, spices, etc. is used to preserve food [19]. Some other natural products like unripe banana flour [20] can be used for improving the oil content and resistant starch content in the snack items like papad and Solar dryers or open air drying [21] can be used to protect the vitamins of the food which are meant for preserving or for export. Hydrocolloid improves the stability, quality like water absorption capacity of certain foods like bread [22].

Blanching and drying methods [23, 24] helps in retaining most of the chemical constituents and viscosity of the food.

CONCLUSION

Different techniques and its research in food processing is promising and needed by the fast moving societies, but at the same time it should be remembered that the traditional technologies like thermal processing (solar drying) [25] and use of antimicrobials are efficient in increasing the value of nutrition but they might not be as effective at ensuring the food safety and retaining the food properties. So there should be balanced combination of traditional methods and the industrial methods to revolutionize the food processing technology such that food security of the world in general and society in particular can be maintained without compromise on the nutritive value.

REFERENCES

1. Pakbin B, Rezael K, Haghighi M. An Introductory Review of Applications of Ultrasound in Food Drying Processes. J Food Process Technol 2014;6:410.
2. Cansino NC, Carrera GP, Rojas QZ, Olivares LD, García EA, Moreno ER. Ultrasound Processing on Green Cactus Pear (Opuntia ficus Indica) Juice: Physical, Microbiological and Antioxidant Properties. J Food Process Technol 2013;4: 267.
3. Jambrak AR. Application of High Power Ultrasound and Microwave in Food Processing: Extraction. J Food Process Technol 2013;4: e113.
4. Puligundla P, Abdullah SA, Choi W, Jun S, Oh SE, Sanghoon K. Potentials of Microwave Heating Technology for Select Food Processing Applications - a Brief Overview and Update. J Food Process Technol 2013;4: 278.
5. Jambrak AR, Lerda D, Mirčeta R, Šimunek M, Lelas V. Experimental Design and Optimization of Ultrasound Treatment: Functional and Physical Properties of Sonicated Ice Cream Model Mixtures. J Food Process Technol 2012;3:145.
6. Al-Muhtaseb AH , McMinn W , Megahey E , Neill G , Magee R. Textural Characteristics of Microwave-Baked and Convective- Baked Madeira Cake. J Food Process Technol 2013;4: 209.
7. Kammoun Bejar A, Kechaou N, Boudhrioua Mihoubi N. Effect of Microwave Treatment On Physical and Functional Properties of Orange (Citrus Sinensis) Peel and Leaves. J Food Process Technol 2011;2:109.
8. Jambrak AR. Application of High Power Ultrasound and Microwave in Food Processing: Extraction. J Food Process Technol 2012;3:e111.
9. Muranyi P. Novel Decontamination Technologies for Fresh-cut Industry. J Food Process Technol 2012;3:e108.
10. Umesh Kumar PK, Chand K. Application of Response Surface Method as an Experimental Design to Optimize Clarification Process Parameters for Sugarcane Juice. J Food Process Technol 2015;6: 422.
11. Bisconsin-Junior A, Alvarenga JFR, Rosenthal A, Monteiro M. Effect of High Hydrostatic Pressure on Ascorbic Acid, Phenolic Compounds and Antioxidant Activity of Pera Rio Orange Juice. J Food Process Technol 2015;6: 416.
12. Kunitake MT, Ditchfield C, Silva CO, Petrus RR. Effect of Pasteurization Temperature on Sensory Stability of an Acidified Sugarcane Juice Beverage. J Food Process Technol 2014;5: 399.
13. Marella C, K Muthukumarappan, L E Metzger. Application of Membrane Separation Technology for Developing Novel Dairy Food Ingredients. J Food Process Technol 2013;4: 269.

14. Lucera A, Costa C, Padalino L, Conte A, Lacivita V. Combination of Process Technology and Packaging Conditions to Improve the Shelf Life of Fresh Pasta. J Food Process Technol 2014;5: 403.
15. Khan A, Shamrez B, Litaf U, Zeb A, Rehman Z. Effect of Sucrose Solution and Chemical Preservatives on Overall Quality of Strawberry Fruit. J Food Process Technol 2014;6: 413.
16. Rais M, Acharya S, Sharma N. Food Processing Industry in India: S&T Capability, Skills and Employment Opportunities. J Food Process Technol 2013;4: 260.
17. Mohammed Zafar IM, Bhatawale SP, Mehrajfatema ZM, Mirza RS, Mohammad UI. Effect of Unripe Banana Flour Incorporation in Rice Papad and Resistance Starch Content. J Food Process Technol 2012;3:169.
18. Eze JI. Studies on the Effect of Different Solar Dryers on the Vitamin Content of Tomato (Solanum lycopersicon). J Food Process Technol 2012;3:179.
19. Mana LV, Orikasab T, Muramatsuc Y,Tagawaa A. Impact of Microwave Drying on the Quality Attributes of Okra Fruit. J Food Process Technol 2012;3:186.
20. Jouki M, Khazaei N. The Effect of Modified Atmosphere Packaging and Calcium Chloride Dripping on the Quality and Shelf Life of Kurdistan Strawberries. J Food Process Technol 2012;3:184.
21. Abano EE, Ma H, Qu W. Influence of Air Temperature on the Drying Kinetics and Quality of Tomato Slices. J Food Process Technol 2011;2:123.
22. Kadam PS, Jadhav BA, Salve RV, Machewad GM. Review on the High Pressure Technology (HPT) for Food Preservation. J Food Process Technol 2012;3:135.
23. Rodge AB, Sonkamble SM, Salve RV, Hashmi SI. Effect of Hydrocolloid (guar gum) Incorporation on the Quality Characteristics of Bread. J Food Process Technol 2012;3:136.
24. Satyanarayana SDV, Pavan Kumar P, Amit S, Dattatreya A, Aditya G. Potential Impacts of Food and it's Processing on Global Sustainable Health. J Food Process Technol 2012;3:143.
25. Bala BK, Nipa D. Solar Drying Technology: Potentials and Developments. J Food Process Technol 2012;2: 5.