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ADVANCED TECHNIQUES (METHODS) OF FOOD PREPARATION AND PRESERVATION

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ABSTRACT:

Cooking of food and preservation of food are the two basic and vital concept of Nutrition science. Contrasted to days methods ovens, stoves and microwaves older methods of cooking and preservation of food are used on small scale. New technology and researches provides various methods for food preparation and preservation. Induction cooking, microwave cooking Infra-red cooking, Different types of frying and roasting are some of the advanced methods of cooking food. In food preservation also irradiation, Asepsis, centrifugation, Trimming, (LTLT) , HTST (Higher Tempe. Shorter time) pasteurization, controlled and modified Atmosphere (CAS and MAS), chemical preservatives are the techniques of food preservation. Advanced methods of food preparation, preservation are popularly known day by day.

Keywords:

Food preparation and preservation, Advanced methods , CAS, Irradiation, Induction cooking etc.

INTRODUCTION:

Cooking food and preservation of food are the basic and vital concept of Nutrition science. Today there are so many methods of food preparation security and quality. How many ways can you think of to prepare raw food to eat safely? What if you had no electricity to help you? In ancient times cooking was done in various ways, In ancient times cooking was done in various ways, many of which centered on the fire. With the discovery and use of fire, humans were able to cook foods. Contrasted todays methods, ovens, stoves and microwaves these older methods seem rather primitive, But are they? How we preserve food : Preservation is the technique to store food in good condition without any microbial growth

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and preventing from favourable condition. In order to prevent deteriorating the foods should be carefully stored and preserved for future use. Any condition opposing the growth of bacteria and causing their destruction aids in preservation of food.

MATERIAL AND METHOD:

Ancient Preservation method:

Fermentation :

• Extends shelf life

• Ancient noticed milk will turn into a solid or semisolid yogurt.

• Yeast can be used to create wine and beer.

• Some foods are better when fermented (rice, milk, chocolate, cofee)

Drying :

• Oldest methods of dehydration

• use of sun to dry foods and extends use

• Foods may also be dried over fires or with smoke from fire.

Curing salt :

• Packing salt around food pulls on moisture

• Without water, food becomes in hospitable for bacteria.

• No bacteria = decreased spoilage (but we still have to deal with moulds)

Advanced preservation method :

Canning :

1) Process of preserving food by heating and sealing it in containers for storage. 2) Preserving food for times of need.

3) Risk of botulism poisoning

4) Botulism bacteria is most resilient to heat due to endosperm coating.

Dehydration :

1) Longer storage

2) Creating environment where bacteria can not grow.

3) Bacteria on food is still there, just dormant.

4) Upon thawing bacteria will resume replieating.

5) Freeze dried foods lasts months to yrs.

6) Examples of uses of strawberries in muffin mixes. sea food fruit juice.

7) Recirculated air will not dry food.

8) Sun dry, room dry, oven dry, dehydrators.

Irradiation: Food is exposed to a controlled amount of radiation destroy organisums responsible for spoilage.

Physical Methods:

• Asepsis

• Centrifugation

• Trimming – remove spoiled portion of food.

• Low temperature long time (LTLT) at 650 C at 30min.

Cryofreezing :

1. Cooling food stuffs in cryogenic gases

2. Different freezers with controls.

3. Liquid CO2 C. Controlled and modified Atmosphere storage (CAS and MAS) CAS result in preventing microbial growth due to unfavorable condition. Chemical preservatives : Organic acids, lactic, citric, malic acid propionates, sorbates, epoxides, sulphites, nitrites, sugar and salt alcohol antibioties, antioxidants, bacteriocins, antifungal agents.

Pasturization : Mean the process of heating every particle of milk or milk product, in properly designed and operated equipment to one temperatures and held continuously at or above that temperature for at lest the corresponding specified time. What are the important scientific methods of food preparation food preparation is much more than science, it is an are, for it is linked with the total cultural pattern of people. Food preparation requires a sense of discrimination in the blending of flavours as well as of textures ,colours and shapes.

Different traditional and advanced methods of cooking are as follows :

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A. Dry heat

i) Broiling ii) Baking – Earthern oven iii) Roasting

B. Moist heat

i) Boiling ii) Stewing iii) Braising iv) Steaming

C. Cooking under pressure

D. Frying

i) Sauting ii) Shallow frying iii) Deep frying

E. Solar cooking

F. Infra red radiation or microwave cookery Microwave : The principle of microwave involves a type of electronic heating and is concerned with the production of high frequency waves called magnetron the energy transferred to food molecule and heat cooks the food. Factors affecting the microwave cooking are a) Density b) Quantity c) Shape d) containers

Induction cooking : Induction food preparation is a way of preparing that heats preparation diversely when compared with standard energy as well as gasoline stove tops. Electric powered and also petrol cooktops heat your container ultimately often providing wrinkled heat that may affect this doneness from the meals along with end in low quality distance. Induction cooking food increases energy performance rate as well as manage the kitchen using superior models of which match seamlessly into almost any recent work environment.

Infrared cooking : Dry heat is excellent for cooking meat, fish and other items which are fairly tender to begin with. The food is placed a few inches above or below the heat source some of the heat is given off by the heat source is carried to the food by means of convection the rest by means of radiation. The radiation is in the form of infra red rays which are little longer than microwave waves.

RESULT AND DISCUSSION:

MAS of fruits and Veg. Item % CO2 % O2 Apple 1.5 – 10 2.5 lettuce 2.5 2.5 Cabbage 2.5 5 Table 2 PASTURIZATION Temperature Time Pasteurization type vat Pasteurization 630C (1450F) 30min Vat Pasteurization 720C (1610F) 15 sec. High temp. Short time Pasteurization (HTST) 890C (191oF) 1.0sec.(HHST) 900C (194oF) 0.5sec.HHST Higher temp.Shorter time 1380C (2800 F) 2.0Sec.ultra pasteurization Figure INFRARED COOKING

CONCLUSION:

Advanced and modern methods of food preservation and preparation used on large scale day by day. Useful in many food industries and at home based level. It is useful for quality and quantity Food service and for cafeateria.

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