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Evolving Non-Thermal Techniques of Food Preservation

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Food, being the lease of life is indispensable for survival but unhygienic food can transmit disease as well as serve as a growth medium for bacteria. Food preservation is the process of treating and handling food to stop or slow down food spoilage. Loss of quality, edibility and nutritional value are allowed for longer food storage. The process usually involves preventing the growth of bacteria, fungi and other micro organisms. Moreover, food preservation adds variety to food for sound health.

To achieve healthy consistently hygienic food for sound health various food preservation technologies addressing chemical thermal and non-thermal processes have emerged. Traditional food processing relies on heat to kill the food borne bacteria where as thermal food preservation includes processing of food to reduce in numbers of food-borne pathogens or elimination of food spoilage organisms ensuring food safety.

These non-thermal food preservation techniques are still better techniques and that provides us an abundant safe and nutrition food supply.

Non-Thermal food preservation techniques help in sending food free of pathogenic and spoilage organism, relating colour and flavor as well as improve shelf of life and texture.

High Hydrostatic Pressure (HHP) or High pressure processing subjects liquid or solid food without or with packaging pressuring between without or with packaging preserving between 40 and 100 Mpa (1-20 min) acts instantaneously informally throughout a mass of food independent of size, shape and food composition.

Pulsed Electronic field is yet to be applied to foods place between two electrodes by applications of high voltage pulses.

Ultrasound application in food processing covers mechanical effects as well as biochemical effects like degassing, freezing, drying and oxidation, sterilization of equipments etc.

Pulsed light processing well reduces the need for chemical disinfectants and preservatives penetrating to depths in food. It is very effective on product surfaces to take short duration and light exposed to a food or packet.

Irradiation of food as the exposure of food to ionizing radiation and wide range affects killing bacteria compared to pasteurization.

High Intensity oscillating Magnetic field processing at coils which produces DC field and energized by the discharge of energy stored in a capacitor with super conducting coils. For instance, food preserved with OMF milk and Yogurt or curd orange juice etc.

Ozone is a very successful microbycide in water treatment without residual effect of water. Ozone treatment reduces E.Coil upto 97% and does not cause any significant difference in colour and texture of the food keeping it hygienically intact.

Non thermal plasma is electrically energized matter, composed of highly reactive species including gas, molecules charged particles in the form of positive ions, negative ions, free radicals, electrons and quanta of electromagnetic radiation at a near room temperature.

Non Thermal Food preservation techniques are emerging technology with potential application for decontamination in the food industries. The above said Non thermal food preservation techniques still on evolving stage seen to have given us an abundant, safe, convenient, affordable and nutritious food supply giving better potential than others.

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