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## Nonthermal technology for production of fruit juices

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Juices, in general, are good sources of vitamins and minerals and other valuable components to human health. Fruit juices are highly perishable commodity and are thermally processed to aid their preservation. However, heat processing particularly under severe conditions may induce several chemical and physical changes that impair the organoleptic properties and may reduce the content or bioavailability of some bioactive compounds. In pasteurization, sterilization and blanching, the use of heat can destroy nutrients such as thermally labile vitamins and also components responsible for product flavor and taste. Non thermal technologies are preservation treatments that are effective at ambient or sub-lethal temperatures, thereby minimizing negative thermal effects on fruit juice nutritional and quality parameters. In addition

to their possible beneficial effects on nutritional and bioactive content many of these novel technologies are more cost-efficient and environment friendly for obtaining premium quality juices which have led to their revival and commercialization. Non thermal technologies including high-pressure processing, irradiation, ozone treatment, ultrasonication, pulsed electric field and their combinations are suitable alternatives for achieving the same preservation effect without the adverse effects of heat on the quality of juices. The main requirement that these new technologies must meet is to ensure product microbial safety while preserving sensory and nutritional characteristics to obtain products more similar to fresh foods.

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