

Effect of pulsed electric field processing on flavor and color of liquid foods

ABSTRACT

This review shows that pulsed electric field (PEF) is a non-thermal preservation method that uses electric pulses to inactivate microorganisms and most especially high-intensity pulsed electric field (HIPEF) treatment involving application of pulses of high voltage (typically 20–80 kV/cm) to foods placed between two electrodes could achieve better flavor preservation and color retention in liquid foods than heat processing. HIPEF processing has been shown to deliver safe and chillstable fruit juices with fresh-like sensory and nutritional properties. In addition, studies have shown that hurdle application of the different non-thermal treatments offers synergistic advantage over separate application of the individual treatment. PEF treatment in combination with other hurdles (such as microfiltration with large pore 1.2 mm, ultraviolet irradiation, high-intensity light pulses, etc.) has the potential to increase the preservation of liquid foods while retaining sensory attributes.

Keyword: Pulsed electric field (PEF); Liquid foods; Preservation; Flavor; Color