

Title Pulsed electric field assisted juice extraction
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Abstract

Purpose of the Review: Recently, there has been renewed interest in the extraction of juice and functional ingredients from fruits and vegetables. Several consumer-related factors support the adoption of non-thermal technologies. This paper reviews application of pulsed electric field (PEF) in juice extraction processes. It highlights novel designs of extractors that allow simultaneous application of PEF and pressure. Parameters that influence juice extraction and juice quality issues are also discussed.

Main findings: PEF can be used successfully to induce electroplasmolysis or homogenisation of tissues and intensify juice extraction from fruits and vegetable materials. The PEF must be applied strategically in order to optimise juice extraction.

Directions for Future Research: Future studies on PEF-assisted juice extraction will involve applications to extract specific chemical components along with the juice, optimisation of the different PEF parameters to obtain desired extraction kinetics and detailed chemical evaluation of extracts to validate quality. There is currently limited or no commercially available equipment. Equipment manufacturers may be involved to design and fabricate easy-to-use PEF extractors.