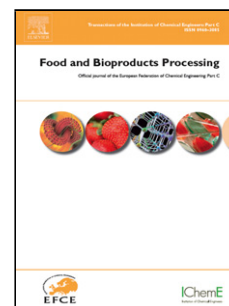


## Accepted Manuscript

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PII: S0960-3085(17)30124-4  
DOI: <https://doi.org/10.1016/j.fbp.2017.09.009>  
Reference: FBP 909

To appear in: *Food and Bioproducts Processing*

Received date: 10-1-2017  
Revised date: 18-9-2017  
Accepted date: 27-9-2017

Please cite this article as: Urošević, Tijana, Povrenović, Dragan, Vukosavljević, Predrag, Urošević, Ivan, Stevanović, Snežana, RECENT DEVELOPMENTS IN MICROFILTRATION AND ULTRAFILTRATION OF FRUIT JUICES. *Food and Bioproducts Processing* <https://doi.org/10.1016/j.fbp.2017.09.009>

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## RECENT DEVELOPMENTS IN MICROFILTRATION AND ULTRAFILTRATION OF FRUIT JUICES

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### Highlights

- An overview of recent developments in microfiltration and ultrafiltration.
- Analysis from recent studies of operating parameters during MF and UF.
- Comparison between MF and UF, advantages and disadvantages of processes.
- An overview of the effects of various techniques to improve fruit juice flux.
- The effects of MF and UF on juice clarification and properties of juices.

**Abstract:** This article provides an overview of recent developments and the published literature in microfiltration (MF) and ultrafiltration (UF) of fruit juices. In this review, we summarise studies by relating basic concepts of membrane filtration with reported results and outlining the important factors to consider in the practical use of MF and UF. The important factors influencing the filtration rate and product quality are type of feed solution (type of fruit juice), membrane selection and operating parameters (temperature, transmembrane pressure, cross-flow velocity and volume concentration ratio). According to physicochemical and sensory tests confirmed by many types of research, juices produced by membrane filtration are of an excellent quality. Membrane fouling is a critical issue and inhibits the wider application of membranes in the fruit juice industry. The use of cross-flow filtration is one of the main requirements for increasing permeate flux, but overall insufficient, so we considered various techniques (enzymatic pretreatment, mechanical and electrical techniques) for improving fruit juice flux during membrane clarification.

**Keywords:** membrane filtration, fruit juice, microfiltration, ultrafiltration.

attention.

Nomenclature:

AIS – alcohol insoluble solids;  
CA - cellulose acetate;  
CFV - cross - flow velocity (m/s);  
CJ – centrifuged juice;  
EF - electric field;

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