

Accepted Manuscript

Revisiting the recent applications of nanofiltration in food processing industries:
Progress and prognosis

Kaushik Nath, Haresh K. Dave, Tejal M. Patel

PII: S0924-2244(16)30622-7

DOI: [10.1016/j.tifs.2018.01.001](https://doi.org/10.1016/j.tifs.2018.01.001)

Reference: TIFS 2143

To appear in: *Trends in Food Science & Technology*

Received Date: 17 December 2016

Revised Date: 27 December 2017

Accepted Date: 5 January 2018

Please cite this article as: Nath, K., Dave, H.K., Patel, T.M., Revisiting the recent applications of nanofiltration in food processing industries: Progress and prognosis, *Trends in Food Science & Technology* (2018), doi: 10.1016/j.tifs.2018.01.001.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Revisiting the recent applications of Nanofiltration in Food processing industries: progress and prognosis

Kaushik Nath*, Haresh K Dave and Tejal M Patel
Department of Chemical Engineering
G H Patel College of Engineering & Technology
Vallabh Vidyanagar-388120, Gujarat, India

ABSTRACT

The use of nanofiltration (NF) in food processing industries has evolved from a novel approach into a reliable and techno-economically attractive standard unit operation. The lower operating pressures compared to reverse osmosis, and unique selectivity of the membranes render NF as a less energy-intensive and eco-friendly downstream operation. NF finds its applications in concentrating, fractionating and/or purifying various edible products from the dilute streams thereby enhancing process efficiency to a great extent. It can significantly reduce levels of dissolved solids, colors, organics, hardness, turbidity, divalent and multivalent ions and facilitate the required desalting of permeate streams. Food-processing industries dealing with fruit-juice, beverage, dairy, sugar, lactic acid, and vegetable oils successfully employ NF in a myriad of applications. It is also used in wastewater treatment, recovery of value added components and solvents from food waste, deacidification and nutritional enrichments of certain food products. The present paper reviews the recent status of NF technology in food industries along with its trends and future potentials in the production of high quality foodstuff. Effects of important physicochemical parameters on the permeate flux, solute rejection and product quality are briefly assessed and critically compared with pertinent literature. Fouling propensity of membranes and strategies for its mitigation are also highlighted with special reference to food processing industries.

Key words: Nanofiltration, flux, fouling, rejection, wastewater

*Corresponding author

E-mail: kaushiknath@gcet.ac.in

Download English Version:

<https://daneshyari.com/en/article/8428393>

Download Persian Version:

<https://daneshyari.com/article/8428393>

[Daneshyari.com](https://daneshyari.com)