

Title Osmotic dehydration
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Abstract

Purpose of review: This article presents an overview of the current state of osmotic dehydration (OD) and covers factors influencing OD, modelling OD, techniques to improve OD mass transfer, osmotic solution management, OD equipment design, and microstructure analysis of the treatment effects of OD.

Main findings: Recent studies have examined factors that influence the OD process including: solid structure; osmotic solution temperature, contact time, solute concentration and composition of the solution; pressure, solution movement, sample size and shape and the ratio of the product to solution. Other studies have focused on modelling the OD process using microscopic and macroscopic approaches and techniques for improving mass transfer (vacuum, high pressure, pulsed electric field, supercritical carbon dioxide, ultrasound and microwave heating).

Directions for future research: OD offers great potential for concentration/impregnation at a reasonable technical and economic cost. However, there is scope for further research and development in this area for a more widespread industrial adoption. Future research areas should also focus on better mass transfer modelling, solution management, equipment design and the effect of OD on product quality and shelf-life.