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Imran H. Khan, Szilvia Anett Nagy, M.A. Karim

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Transport of Cellular Water during Drying: An Understanding of Cell Rupturing Mechanism in Apple Tissue

Md Imran H. Khan[1, 2], Szilvia Anett Nagy[3, 4], M. A. Karim[1*]

[1] Science and Engineering Faculty, Queensland University of Technology (QUT), Brisbane, Queensland, Australia

[2]Department of Mechanical Engineering, Dhaka University of Engineering & Technology, Gazipur, Bangladesh, Gazipur-1700

[3]Pécs Diagnostics Center, H-7623 Pécs, Rét Street 2, Hungary

[4]MTA - PTE Neurobiology of Stress Research Group, H-7624 Pécs, Ifjúság Street 20, Hungary

[*]Corresponding Author: Email: azharul.karim@qut.edu.au

Phone: 3138 6879, Fax: 3138 1516

Abstract

The cellular structure of food tissue is complex, and it is difficult to understand the morphological changes during drying. Three different cellular environments, namely intracellular space, intercellular space, and cell wall in food tissue contain a different proportion of water. It is crucial to understand the moisture migration mechanisms from different cellular environments during drying for improving energy efficiency and for ensuring better quality dried foods. Due to the lack of sufficient understanding of transport mechanisms of different types of water, existing mathematical models for food drying have been developed without considering these components separately. Therefore, the main aim of the present work is to investigate the transport mechanisms of cellular water during drying.