Special Issue

The Behavior of Food Matrices During Dehydration Processes—Insights by Experiments and Modelling

Message from the Guest Editors

Dehydration remains one of the most fundamental and widely applied techniques for food preservation and formulation. However, the physical, chemical, mechanical, and structural transformations of complex food matrices during drying are still not fully understood. This Special Issue showcases recent advances made in experimental investigations, modeling approaches, and artificial intelligence, aiming to explore these phenomena. Contributions should highlight how the interaction of food matrices with dehydration processes determines heat and mass transfer and product properties such as shrinkage and porosity, thus shaping the quality of products and process efficiency. Novel experimental methods such as tomographical and microscopical approaches provide deeper insights into microstructural evolution and nutrient stability, while state-of-the-art modeling frameworks facilitate predictive understanding across different food systems and scales. By bridging theory and practice, these studies not only refine our mechanistic knowledge but also point towards strategies for optimizing food drying operations with respect to energy use, product safety, and quality attributes.

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Message from the Editor-in-Chief

Foods (ISSN 2304-8158) is an open access and peer reviewed scientific journal that publishes original articles, critical reviews, case reports, and short communications on food science. Articles are released monthly online, with unlimited free access. Currently, Foods has been indexed by the Science Citation Index Expanded (SCIE - Web of Science), PubMed, and Scopus. Our aim is to encourage scientists, researchers, and other food professionals to publish their experimental and theoretical results as much detail as possible. We therefore invite you to be one of our authors, and in doing so share your important research findings with the global food science community.

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