Special Issue

Acoustic and Hydrodynamic Effects in Food Processing

Message from the Guest Editor

This Special Issue aims to present an updated overview of the applications of ultrasound and hydrodynamic cavitation in food processing. Starting with a description of the physical concepts and phenomena behind cavitational effects, shear forces and the microjets generated during sonication and hydrodynamic treatment, the final goal is to provide insight into existing industrial processes that take advantage of these energy sources. An accurate analysis of observed mechanical, physical, chemical and biochemical changes should facilitate process optimization and minimize the risk of food component degradation and the loss of functional and flavoring properties. The wide range of operations that make use of this technology include extraction, emulsification, solid dispersion, freezing, drying, cutting, degassing/defoaming, thawing, brining, microorganism inactivation, meat tenderization, filtration and crystallization. The huge production volumes found in the food industry require highly efficient, large-scale reactors that are designed for flow processes where turbulence, share and cavitational effects are modelled in numerical simulations.

Guest Editor

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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