

Title Mathematical models for improving spray drying processes for foods
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Abstract

Purpose of review: This paper reviews different approaches for modelling spray drying processes and outlines their potential for improving powder production capability and quality in the food industry.

Main findings: Although industrial applications of spray drying have been well established over the last half century, strategies to design and control its operation as a function of product quality are still required by industry, particularly in the food and flavour sectors. Therefore, for developing such strategies, a more in-depth understanding of this technology, expressed by complete yet simple mathematical models, is required.

Directions for future research: The great challenge for the food industry in the next few years lies in combining the operational spray dryer variables with the characteristic requirements of powders in order to model, simulate, optimise and control the production of high quality food powder. It is possible to intensify the innovation process via validated mathematical models.