

# Preface

Food engineering has developed to a level at which integrated approaches to the various situations involved in the discipline have become the essential ingredients of successful process and product development. For this reason, it is relevant to identify recent and ongoing efforts toward the use and inclusion of tools and disciplines within the food engineering field.

*Food Engineering: Integrated Approaches* presents an up-to-date review of important food engineering concepts, issues and recent advances in the field. Distinguished food engineers and food scientists from key institutions worldwide have contributed chapters that provide a deep analysis of their particular subjects. At the same time, each topic is framed within the context of a broader more integrated approach, demonstrating its relationship and interconnectedness to other areas. The premise of this work, therefore, is to offer both a comprehensive understanding of food engineering as a whole and a thorough knowledge of individual subjects. This approach appropriately conveys the basic fundamentals, state-of-the-art technology, and applications of the involved disciplines, and further encourages scientific collaboration among researchers.

This book is mainly directed to academics, and to undergraduate and post-graduate students in food engineering, food science and food technology. Scholars will find a selection of innovative topics ranging from bubbles in food and transport phenomena in food systems to practical food processing applications at the industrial level. Professionals working in food research centers and food industries may also find this book useful.

This book was produced through an Iberoamerican effort to integrate food engineering in a comprehensive way. This work has been made possible by the catalyzing activity of the Iberoamerican Program of Science and Technology for Development (CYTED), which has provided an appropriate forum for the launching of food engineering networks and projects from which the Iberoamerican

Congresses on Food Engineering series were conceived. The general subjects covered were discussed in the fifth version of this series, and carefully updated and revised for their inclusion in this book.

The first chapter describes the activity of CYTED program in the Agri-Food area. The next 12 chapters review novel applications of engineering principles, transport phenomena and new scopes for analyzing food processing, and constitute a platform for the next two chapters. These chapters provide a framework for the integrated approach to food engineering and a view of the profound scope of food product design. This framework constitutes the basis for the following 17 chapters, in which specific examples of an integrated approach to food engineering are presented, with the aim of covering as broadly and deeply as possible the different subjects discussed. Finally, two chapters on food engineering education programs are presented, with the purpose of disseminating alternatives for internationalizing students and supervisors' activities in food studies.

It is very likely that many of the procedures and techniques described are being or will be used in the food industry. It is hoped that this volume will constitute a worthy addition to the existing literature on food engineering and that readers will find in it balanced, systematic and harmonized information.

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