

Preface

Food quality and safety are of paramount importance for consumers, retailers as well as regulators engaged in enacting food laws. Mostly quality and safety parameters are checked using the traditional laboratory (wet-chemistry) methods, which are time consuming, laborious and leaving samples after test unfit for consumptions. Nondestructive methods, which are fast, accurate and keeping samples intact, nowadays are being increasingly tried for various kinds of food. Numerous articles and research papers are being published every year that deal with the applications of various rapid and nondestructive methods of food testing. These methods are: near infrared spectroscopy, colour and visual spectroscopy, electronic nose and tongue, computer vision (image analysis), ultrasound technology, radiography, computer tomography and magnetic resonance imaging. All these technologies are theoretically different and only a few books dealing separately with some of them are available. None of them presents all these topics at one place. This book fills the void, including one chapter on each of the above topic covering theory/basics in brief, practical applications for evaluation of quality attributes of food and some recent works reported in literature. The purpose of this book is to guide the researchers at one platform to use any technology before and during experimentation, data analysis and reporting. The editor and authors of chapters are though not responsible for any kind of loss/damage while practicing any technique or using any data reported in this book; the contents of the book would help the most the new researchers coming in this field.

The book has mainly been designed to serve as a text book for postgraduate including the Ph.D. students and new scientists having interest in these fields. It would also be useful to researchers engaged in developing fast, reliable and nondestructive methods for evaluation of food quality and safety aspects directly; and the food industries and regulators responsible to check food quality to minimize public hazards indirectly.

The nondestructive methods of evaluation of food quality involve various techniques and therefore this book could not have been possible without the help of personnel engaged in these fields. Contributions of authors of four different chapters without which this useful volume could not have been possible are highly

acknowledged. The editor wishes to acknowledge some of his colleague for reading some chapters and rendering suggestions for improvement in the manuscript.

The editor is indebted to his parents, uncle (*Lal kaka*) and the late elder brother who made him to reach such stage of editing a book of international standing. Sacrifices of my wife Bandana and two lovely daughters Priya and Preeti, especially during my 4 months stay in USA when major portions of manuscripts were prepared and editing of the same were carried out after returning to India are highly acknowledged.

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Theory and Practice

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