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## Preface

The use of fermentation in food processing was originally developed as a method for preserving food and has probably been practised since mankind has been living in settlements. Nowadays food biotechnology involves a lot more than simply preventing spoilage and ranges from improving salubriousness, improving texture to enriching foodstuffs with substances that are favourable to health and well-being and the prevention of illness. The basic principle of fermentation is mostly to exploit the metabolism of a specific microorganism. The activity of these microorganisms takes place in the food-stuff itself or in the intestine (probiotica), whereby they produce primary or secondary metabolites via the fermentation process. Naturally, probiotica or metabolites in particular can be produced as pure cultures or as pure substances and can then be administered as pharma products or food additives.

The food biotechnology field is extremely broad and is developing rapidly. An important factor is that the average age of humans is increasing, but the age of well-being, that is how long one feels fit and healthy, is stagnating. It has been shown that this so-called age of well-being can be influenced by individual nutrition habits and, complemented by genetic predisposition, can even be increased. In addition, common diseases and illnesses such as the prevalence of being overweight or diabetes can even be prevented through food, pro- and prebiotica and food additives. One emphasis of this volume is on this area.

Apart from looking at pro-, pre- and synbiotica as regards health, the volume also focuses on the genetic optimisation of plant raw materials and fermentation organisms used in the processing of food. Although currently molecular genetic methods are generally spurned in Western Europe, in the long term there will be no choice but to use such methods to optimise the utilisation of food resources. In addition, it should not be underestimated that plant cells, in contrast to microorganisms, hold great potential as regards the production of secondary metabolites and food additives, particularly in the areas of "wellness" ingredients. Even though plants have little to do with filamentous fungi, they are an interesting alternative for producing food additives. Now that genetic methods have become more accessible for fungi, they can be used as a powerful biological catalyst that has good secretion abilities. Even though

much seems possible in the field of food biotechnology, one should not lose sight of ethical considerations. The last chapter examines this aspect.

In conclusion, I want to sincerely thank the co-editors and authors who have contributed to this volume for their dedicated effort and their excellent contribution. I hope that you as reader will enjoy the volume.

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