

BIOCHEMISTRY OF FOODS

SECOND EDITION

N. A. MICHAEL ESKIN

Biochemistry of Foods

Second Edition

N. A. Michael Eskin

*Department of Foods and Nutrition
The University of Manitoba
Winnipeg, Manitoba, Canada*



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This book is dedicated to my wife,
Nella,
and our four sons,
Katriel, Joshua, Ezra, and Daniel,
and in celebration of the
ninetieth year of my mother,
Ethel Eskin

“How much better it is to get wisdom than gold,
And more desirable to get understanding than silver.”
Proverbs.

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Preface

Our understanding of food biochemistry has increased substantially since the publication of the first edition of this book. This has necessitated major revisions of a number of chapters plus reorganization with additional sections incorporated in the text. These changes are reflected by the four major parts in this book. Part I deals with those biochemical changes taking place in raw foods and includes four chapters. Chapter 1 discusses postmortem changes in muscle responsible for the production of edible meat and fish and includes an examination of the role of connective tissue and myofibrillar proteins in this process. Chapter 2 covers the postharvest changes in fruits and vegetables and includes a more extensive treatment of flavor and texture. Chapter 3 examines the biochemistry of cereal development with particular emphasis on wheat, and Chapter 4 reviews the complex biochemical processes involved in milk biosynthesis. Part II focuses on biochemical changes associated with processing with four areas selected. Chapter 5 covers nonenzymatic browning reactions in foods during heating and storage. Chapter 6 includes a detailed discussion of the brewing of beer, and Chapter 7 deals with the biochemistry of baking. The final chapter in this part, Chapter 8, covers the biochemistry of cheese and yoghurt. Part III deals with selected areas in the biochemistry of food spoilage with Chapter 9 on enzymatic browning and Chapter 10 on off-flavors in milk. Part IV on Biotechnology includes a detailed coverage of enzymes in the food industry, including immobilized enzymes, enzyme electrodes, and genetic engineering.