



Plant Biochemistry, Fourth Edition

By Hans-Walter Heldt, Birgit Piechulla

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Plant Biochemistry, Fourth Edition By Hans-Walter Heldt, Birgit Piechulla

The fully revised and expanded fourth edition of *Plant Biochemistry* presents the latest science on the molecular mechanisms of plant life. The book not only covers the basic principles of plant biology, such as photosynthesis, primary and secondary metabolism, the function of phytohormones, plant genetics, and plant biotechnology, but it also addresses the various commercial applications of plant biochemistry. Plant biochemistry is not only an important field of basic science explaining the molecular function of a plant, but is also an applied science that is in the position to contribute to the solution of agricultural and pharmaceutical problems.

Plants are the source of important industrial raw material such as fat and starch but they are also the basis for the production of pharmaceuticals. It is expected that in the future, gene technology will lead to the extensive use of plants as a means of producing sustainable raw material for industrial purposes. As such, the techniques and use of genetic engineering to improve crop plants and to provide sustainable raw materials for the chemical and pharmaceutical industries are described in this edition. The latest research findings have been included, and areas of future research are identified.

- Offers the latest research findings in a concise and understandable manner.
- Presents plant metabolism in the context of the structure and the function of plants.
- Includes more than 300 two-color diagrams and metabolic schemes.
- Covers the various commercial applications of plant biochemistry.
- Provides extensive references to the recent scientific literature.

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Editorial Review

Review

Praise for the third edition:

"**Plant Biochemistry** will be an invaluable resource for students, teachers and researchers looking for a clear, up to date presentation which covers the essentials without being overwhelmed by details. There are simple, easy to grasp illustrations throughout....I would highly recommend this book as a text in plant biochemistry, physiology and biotechnology courses. The book highlights examples on how an understanding of plant biochemistry is fundamental towards the applications of biotechnology, which are bringing about a revolution in agriculture." - Gerald Edwards, Washington State University "This is a welcome addition to the sparsely populated topic of recent textbooks in plant biochemistry. It complements rather than unnecessarily duplicates the many fine general biochemistry volumes available...The contents are well organized and laid out with logical and informative section titles. The text is nicely illustrated and regularly gives a clear and easily understandable overview of complex subjects, as well as provides some additional detail...This book will be an excellent introduction and overview of plant biochemistry to anyone interested in the subject. It also provides a nice reference for students of pharmacy, nutrition, environmental sciences, and ecology, as well as general biology students. As such, it will be a good textbook for classes associated with these subjects." - David Hildebrand, Agronomy, University of Kentucky in QUARTERLY REVIEW OF BIOLOGY "The book **Plant Biochemistry and Molecular Biology** by Professor Hans Heldt is an outstanding text. The material is elegantly presented, with attention to molecular structures, intracellular compartmentation, and regulatory mechanisms controlling metabolism. Difficult topics are presented with incredible clarity and with a style that reflects many decades of cutting-edge research and effective teaching by the author. I highly recommend this book for both students and researchers in the field of plant biochemistry." - Steve Huber, University of Illinois "The third edition of **Plant Biochemistry** by Hans-Walter Heldt updates my favorite text on this topic. My students preferred the first edition of this book to more encyclopedic treatments by a wide margin. The book covers aspects of biochemistry that are essential to a broad understanding of plant function. The book is focused on clear explanations of the essential concepts rather than an encyclopedic approach. Simple diagrams make even complex topics clear. The typeface and layout of the new edition is improved, with important words in bold, making important topics stand out for easy comprehension. This book is invaluable as a text for any plant biochemistry course." - Thomas Sharkey, University of Wisconsin "This 3rd edition of H.W. Heldt's **Plant Biochemistry** textbook is built around proven artwork from previous editions, with some intelligent additions. It adds substantial new text and more references than in the past that can guide the reader to in-depth studies, often with references from 2004, clearly this textbook is not outdated. This edition places much emphasis on concepts that are presented in lucid fashion, providing an insight into complex processes in a straightforward way. This is particularly obvious in those areas of plant biochemistry that have been the author's own field of research for several decades. This textbook is an excellent vehicle to make green biochemistry understandable to undergraduate students." - Hans Bohnert, University of Illinois

"Heldt (plant science, U. of Gottingen) and Birgit Piechulla (biological sciences, U. of Rostock, Germany) introduce plant biochemistry to students by providing a broad but concise overview of the various aspects of plant biochemistry, including molecular biology. They leave areas of general biochemistry to the many fine textbooks on it, focusing on those aspects particular to plants. Because of the importance of biotechnology, they also emphasize generating and utilizing transgenic plants. Photosynthesis plays a large part in plant

chemistry, along with the large surface-area-to-mass ratio, compared to animals. This first English edition is a translation of the 2008 fourth edition of the German "Pflanzenbiochemie", published by Spektrum Akademischer Verlag Heidelberg)."--**Reference and Research Book News**

From the Back Cover

This fully revised translation of the world-renowned German edition covers the complete and modern knowledge of plant biochemistry. **Plant Biochemistry** enables students to gain a basic knowledge of the entire field, from photosynthesis to all kinds of genetic engineering and its many commercial applications. Topics include cell structure and function of isoprenoids, phenylpropanoids and other secondary metabolites, and plant growth regulation and development. The text covers recent research findings and identifies areas of future research.

This book is suitable for graduate students and advanced undergraduates in plant physiology, plant pathology, plant cell biology, and other plant sciences; researchers in industries actively involved in agrobusiness and other biotechnology enterprises; and researchers in agronomy, agriculture, plant development, and related areas.

Users Review

From reader reviews:

Katherine Ouellette:

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