Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): **Carotenoids. Vol. 3: Biosynthesis and Metabolism.** - Birkhäuser Verlag, Basel- Boston - Berlin 1998. ISBN 3-7643-5829-7. 414 pp., DM 278.00.

The series of high-quality books on all aspects of carotenoid chemistry, functions, and applications (for review of the previous volume see Photosynthetica **33**: 466, 1997) continues with the volume dedicated to carotenoid biosynthesis and metabolism in various organism types. It contains seven chapters, six of them with a comprehensive list of references (unfortunately, brief references without article title only). The chapters were prepared by eight authors, from England (1), Germany (1), Israel (1), Norway (1), Sweden (2), and Switzerland (2).

Chapters 1 to 3 deal with various aspects of carotenoid biosynthesis. Chapter 1 (prepared by the Editors) is a general talk on the history of carotenoid biosynthesis (including biotechnology), chemosystematics, aspects of carotenoid metabolism in animals and humans, carotenoid nomenclature, and prospects for the future. All details of carotenoid biosynthesis (the isoprenoid pathway) are reviewed in chapter 2: G. Britton describes individual steps and components, modifications of the polyene chain, enzymes in individual organisms and the coordinated actions of enzymes, biosynthesis inhibitors, effects of environmental, nutritional, and developmental factors on the biosynthesis, *etc.* (305 references!). Chapter 3 is on molecular biology of carotenoid biosynthesis (J. Hirschberg), including the recombinant DNA technology, techniques for cloning the respective genes, characterisation of the genes and enzymes, ways of regulating carotenoid biosynthesis (mainly in bacteria and algae), phylogeny and evolution of the genes, and their use in biotechnology.

Chapter 4 (I. Wahlberg and A.-M. Eklund) deals with degraded carotenoids, a group of substances that contains several potent aroma compounds (*e.g.*, in saffron, quince, purple passion, red currant, peach, and apple fruits, rose flowers, wine grapes, wines and brandies, tea leaves), and abscisic acid and related compounds. Their structure, biosynthesis, and metabolism are dealt with. Next chapter (S. Liaaen-Jensen) is on carotenoids in taxonomy and chemosystematics (they are used as important markers, for example in the taxonomy of photosynthetic bacteria and algae). The following two chapters (F.J. Schweigert; K. Schiedt) deal with the metabolism of carotenoids in mammals, birds, fishes, and crustaceans. Chapter 8 (S. Liaaen-Jensen) reviews papers dedicated to the carotenoid role in food chains of plants, herbivores, carnivores, *etc.*

Chapter 9 (G. Britton) is on methodical aspects of carotenoid studies. It deals with the use of radioactive and stable isotopes (warning of the potential hazards), inhibitors, cell-free and enzyme systems in experiments with higher plants (tomato, red pepper, daffodil), fungi (*Phycomyces, Neurospora*), and bacteria (*Flavobacterium*).

The book is a very useful tool for plant and animal physiologists, biochemists, biotechnologists, *etc.*

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