

Book reviews

K. Davies (Ed.), *Plant pigments and their manipulation*. In: *Annual Plant Reviews*, vol. 14, Blackwell Publishing, 2004, ISBN 1-4051-1737-0, p. 368

This book is the 14th volume of the *Annual Plant Reviews* series. It gives a comprehensive overview of the state of the art in pigmentation research. It is difficult to overstate the importance of plant pigments in biology: they are essential for life on earth as they are required for photosynthesis, they give flowers and fruits their appealing colours to attract pollinators and seed dispersers and are increasingly recognised for their role in human nutrition. No doubt, plant pigments are a very exciting topic!

The book consists of 10 chapters. Chapter 1 gives a general introduction on plant pigments, describing their structural variation, their functions in plants, their economic importance and the possibilities for engineering pigment production.

Chapters 2–6 cover the main pigment groups in plants: chlorophylls, carotenoids, flavonoids, condensed tannins and betalains, respectively. These chapters give a detailed overview of the recent advances with respect to the structure, function, biosynthesis, degradation, regulation and genetic modification of these groups of secondary metabolites.

Chapter 7 covers a number of rare pigments, which are less widespread in the plant kingdom or of less importance for plant pigmentation, but are of commercial significance for their use as textile dyes (e.g., indigo), cosmetics (e.g., henna), tattooing agents and food colorants (e.g., curcumin).

There is an increasing body of evidence suggesting that natural plant pigments have biologically active properties and are beneficial for human health. Chapter 8 gives an overview of the biological activities and health effects ascribed to the various pigment groups.

An important role of plant pigments is to protect essential cellular processes from the damaging effects of UV radiation. Since plants are sessile, they are unable to hide from UV radiation, which is increasing due to the recent deterioration of the ozone layer. Plants have evolved protective mechanisms to cope with UV radiation. Chapter 9 concentrates on the role of plant pigments in UV-B defence in the context of the other defense mechanisms and the general metabolism of the cell. Furthermore, it highlights the signal transduction cascades involved in the biosynthesis of protective pigments.

Chapter 10 gives an overview of the currently used techniques for the extraction, separation, identification and quantification of the major pigment classes in plants. For each major group of pigments, the principles and strategies from extraction to identification and purification are described in a concise way.

In general, I very much enjoyed reading this book. It is easy to read, well-structured and gives a good overview of the field of plant pigments. It contains a good fusion of (bio)chemistry and molecular biology, presented in the context of biological function and commercial application. My only criticism is the lack of any colour picture of a beautiful, pigmented flower or fruit in the whole book! I can recommend this book to all researchers and students interested in secondary metabolism, in particular those fascinated by the colourful world of plant pigments.

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Lixin Zhang, Arnold L. Demain (Eds.), *Natural Products: Drug Discovery and Therapeutic Medicine*, Humana Press, 2005, ISBN 1-58829-383-1, p. xiv+382, Cost: \$135

Drug discovery in the pharmaceutical industry is facing a number of critical strategic decisions now and in the very near future. The number of new drugs entering

the market in the United States has continued to decline. The proportion of compounds going from Phase I clinical trials to a marketable entity is declining. Combinatorial chemistry has failed to yield an accelerated pipeline of drug candidates, in spite of billions of dollars spent and ten years of hype. At the same time, estimates for the cost of bringing a drug to market range between