

**Carotenoids: Handbook**; edited by G. Britton, S. Liaaen-Jensen, H. Pfander; Birkhäuser: Boston, 2004, 562 pages; ISBN 3764361808

The 'Carotenoids Handbook' is a companion volume to the Carotenoids book series published by Birkhäuser and edited by the same team of highly respected editors – namely George Britton, Synøve Liaaen-Jensen and Hanspeter Pfander. Whilst this volume may initially be seen by some as a simple replacement for the 'Key to Carotenoids' (also published by Birkhäuser and now out-of-print), it is actually much more than this. First, it provides a much needed update of the information contained in the original 'Key', and whilst the golden age of discovery of new compounds has long since passed, it is clear that a number of the carotenoids originally listed were artefacts of isolation or their structures were simply incorrect. The editors have now reviewed the data available on each compound against a strict set of criteria with the result that the new book contains both a main list (containing compounds for which there is now sufficient evidence to assign a structure), and a supplementary list (compounds where some doubt may exist concerning its identification). Second, and unlike the 'Key', this book provides a considerable amount of invaluable identification data for each carotenoid listed.

This is a book clearly intended for use at the bench, so how is it organised? Compounds (there are >560 in the main list) are organised into groupings based on their structure (as in the original 'Key'; hydrocarbons, hydroxycarotenoids, etc.) with each entry on an individual carotenoid being given a full page. The layout of each page is very pleasing to the eye and the data is presented in a user-friendly manner. Both common and semi-systematic names of each are given as well as the molecular formula and structure. In addition, key spectroscopic data is also provided, namely UV/Vis (con-

sisting of a spectrum - typically in petroleum ether - and maxima in a range of solvents), MS (molecular ion and main fragment ions), CD (where appropriate) and NMR. Without doubt the single most useful feature is the ability to examine the shape (fine structure) of an absorption spectrum alongside the  $\lambda_{\text{max}}$ . This type of information is rarely published and yet it can be so powerful as an aid to provisional identification (so long as it is used in conjunction with other key identification criteria). In addition, one of the more useful features is the section simply titled 'additional information'. This contains information on the compound's synthesis (partial or total with references to the literature), isolation, and a set of general remarks (e.g., comments on reactions such as acetylation, chromatographic separation, etc.). Finally, a number of important references are provided, although readers should probably refer to the original 'Key' for a more extensive list.

In their preface, the authors state that compilation of this book 'was a mammoth project' and anyone who sees this book would have to agree. I have made use of this book on several occasions already – it is invaluable as an aid to the researcher. Overall, the format is very user friendly and the information well organised. In conclusion, any researcher working on carotenoids should acquire a copy of this book. The information contained will serve the field well for many, many years to come. It should not reside in an office, but rather at the bench where it will see daily use as a laboratory manual. Highly recommended.

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