

*Chemistry and Biochemistry of Plant Pigments (2nd edition)*

Edited by T. W. Goodwin

Academic Press; London, 1976

Volume 1: xvi + 870 pages. £ 26.50, \$ 65.75

Volume 2: xiii + 373 pages. £ 12.00, \$ 29.75

The first edition of this book was published in 1965, having arisen out of a colloquium held at Aberystwyth in August 1962. It has been invaluable as a source of information and references for organic chemists, biochemists and food chemists and has now been brought up to date. Inevitably it has grown bigger and is now twice as large and divided into two volumes, the first concerned with the nature, distribution, biosynthesis and function of the pigments and the second with analytical methods.

Those familiar with the first edition will be gratified that the revision has been carried out on the same plan with many topics reviewed by the same authors. The coverage is shown by the Contents. Volume 1 contains chapters on Structure, Properties and Distribution of Chlorophylls (Jackson), Chlorophyll Biosynthesis (Bogorad), the Chemistry (Moss and Weedon), Distribution (Goodwin) and Biosynthesis (Britton) of Carotenoids, Algal Biliproteins and Phycobilins (Carra and Ó hEocha), the Structure and Properties of Phytochrome (Smith and Kendrick), the Nature and Properties (Swain) and Biosynthesis (Wong) of Flavonoids, the Nature, Distribution and Biosynthesis of Quinones (Thompson), Betalains (Piatelli) and Miscellaneous Pigments (Thomson), Pigment Function in Photosynthesis (Whittingham), the Functions of Carotenoids (Burnett), Phytochrome (Satter and Galston) and Flavonoids (Harborne) and Pigment Metabolism in Senescent and Stored Tissue (Simpson, Lee, Rodriguez and Chichester). Most of the chapters have been completely rewritten and provide full up-to-date accounts. In many cases over two-thirds of the references have been published since the last edition and bring the subject up to 1974 or 1975. The chapters by Whittingham and Burnett, on these criteria, suggest much slower progress, although modern work on pigment organisation and function in chloroplasts could have received less cursory treatment.

The second volume contains very useful, detailed treatments of the methods available for the extraction, identification and quantitative determination of chlorophylls (Holden), carotenoids (Davies), flavonoids (Swain) and quinones (Thomson) and the assay and isolation of phytochrome (Kendrick and Smith). These chapters, in their length, fairly reflect the diversity of the structures of compounds comprising each group and include visible, ultraviolet and infrared absorption, magnetic resonance and mass spectral data. The volume includes a 100-page essay on flash kinetic spectrophotometry (Junge) dealing with its theoretical basis, instrumentation and application to pigment activity in photosyntheses, not available in this assimilable form elsewhere in English.

This has now become a monumental and authoritative work, dealing with every aspect of research in plant pigments. Chemists, biochemists and biologists will all find some part of the book invaluable for information, references or technical guidance. The breadth of treatment is not least an attraction, albeit an expensive indulgence, for one wonders where the line between pigments and non-pigments, plants and other organisms should be drawn. If pigments should lend visible colour to plants, should the phytochromes be included? And if the phytochromes, because they absorb in the visible range, why no cytochromes and flavins? Many carotenoids, quinones and other miscellaneous pigments are found in fungi and bacteria or appear, from dietary sources, in animals. Are they plant pigments? The chemical and biological divisions are sufficiently blurred that only those concerned with the price — or weight — of these two volumes will give them serious thought and so should not detract from the academic value of the work.

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