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BOOK REVIEW

WOOLHOUSE, H. W. (ed.): ADVANCES IN BOTANICAL RESEARCH. VOLUME 8. — Academic Press, London—New York—Toronto—Sydney—San Francisco 1980. 285 pp., £ 26.60, US $ 59.50.

The eighth volume of this series contains five articles dealing with very different topics. Fast biochemical and chemical events require special techniques for their monitoring. Very promising is picosecond spectroscopy, the biological applications of which are described here by A. H. Reynholds and P. M. Rentzepis. The reader finds here explanation of principles, description of apparatus and methods of data evaluation.Practical application of the picosecond spectroscopy is demonstrated by the investigation of the first triggering step in the oxygen affinity to hemoglobin, of the role of structure of some other heme proteins in energy dissipation, energy relaxation mechanisms of porphyrins, fast events of vision and redox reaction of bacteriochlorophyll. The main value of the presented information is in attracting attention of plant scientists to the technique which can be used for investigation of fast events in plants.

The biochemistry of lignification, which is written by G. G. Gross, is another topic of the volume. The paper contains description of principal steps in lignin biosynthesis and of individual enzymes involved in this process. Special attention is paid to polymerization of cinnamyl alcohols to lignin and to the tissue specificity of enzymes involved in lignification. It is evident that biochemistry of lignification is better understood than are physiological aspects of this process.

Measurement of protein turnover in plants is reviewed by D. D. Davis. There is probably no other field in plant biochemistry where techniques of turnover measurements have met so many difficulties. Discoveries of new factors which affect protein synthesis and degradation, as *e.g.* the existence of separate metabolic pools, compartmentation and recycling of amino acids, have been the main reasons for gradual development and improvement of these techniques. Davis' article can help to understand what are the strong and weak points of the individual methods and which factors can affect results of measurements.

Phosphorus Uptake, Storage and Utilization by Fungi is the title of the next chapter of R. E. Beever and D. J. W. Burns. It collects scattered data in the literature concerning fungal phosphorus physiology and uptake. The review deals with phosphorus economy of the cell, its uptake and utilization, with relation of phosphorus to fungal growth and development, and its translocation. The discussion of this topic reflects the current interest in phosphorus physiology of fungi provoked by recent findings that mycorrhizal fungi may improve nutrition of their host plant and that fungi are a part of chain in the cycling of mineral phosphorus in ecosystems.

The last contribution Plants in Relation to Salinity is written by S. J. Wainwright. Understanding of mechanisms of tolerance of plants to salinity may help to exploit some saline soils in agriculture. This is probably the reason why this problem is so extensively studied and often reviewed. Wainwright focussed his attention on recent advances in the study of salt tolerance, water relations in saline habitats, localization of salt and the role of soluble metabolites and ion toxicity.

As is usual in this series, the book is carefuly edited; it contains high-quality illustrations and extensive author and subject indexes. Individual articles can be recommended to research workers, teaching staff and advanced students in plant biochemistry and physiology.

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