

Carpentier, R. (ed.): **Photosynthesis Research Protocols**. – Humana Press, Totowa 2004. ISBN 1-58829-232-0. 344 pp., USD 99.50.

Books on methods are always welcome. This holds especially for photosynthesis, the field in which the last methodical book was launched many years ago. The reviewed book is volume 274 of the series “Methods in Molecular Biology” the editor of which is J.M. Walker. Editor of this particular volume chose for its 29 chapters a broad team of 57 authors. They work in 13 countries, including Japan and the U.S.A. (10 each), Canada and Spain (8 each), Australia (6), Hungary (4), Finland, France, Germany, and Poland (2 each), and India, New Zealand, and Sweden (1 each).

Unfortunately, not all of them produced a trustworthy chapter. Thus the authors of Chapter 15 on photosynthetic pigments seem not to know the older literature on the topic and the warnings and restrictions it contains. *E.g.* the use of silica gel may induce pigment degradation, equations based on Mackinney measurements of 1941 are certainly not the most exact ones (even if the Arnon equations are still used very often), one cannot keep the TLC plates in the oven at 110 °C “until ready to use”, calculation of chlorophyll *b* according to the equation given in 3.3.3. would certainly lead to negative values, *etc.* As the chlorophyll amount is the relation basis of many methods described in other chapters, errors in pigment determination might devaluate also other results.

The chapters describe methods often used in recent photosynthesis research. They are fractionation of thylakoid membranes, isolation and purification of photosystem 1 and 2 particles and their reaction centres, chlorophyll complexes (light-harvesting, core), active sub-

stances (plastocyanin, cytochromes), and subunit proteins, lipids, phosphoproteins, proteoliposomes, DNA adducts, functional Mn and Ca, important enzymes (proteases), *etc.*

The material used for analyses includes higher plants, algae, and cyanobacteria, their mutants and transformants. Included are structure-function characterisations, model systems, complex reconstitutions and crystallizations, photoinhibition, free radicals, reactive oxygen species, and special procedures such as immobilization and stabilization. Full scale of methods is used including detergent fragmentation, ultracentrifugation, polyacrylamide gel and thin layer separations, spectrophotometric methods, absorption and circular dichroism spectra characterizations, thermoluminescence, and many others.

All chapters are clearly arranged, with separately dealt materials (including preparation of solutions, buffers, detergents, and apparatuses), methods, and practical notes (restrictions, warnings). The texts are based on different amounts of references (from 3 to 74 per chapter). Unfortunately, the reader easily finds some deficiency in editorial work (not unified abbreviations, typing errors, errors in references). Subject index is brief, but clear and useful.

Summing up, the book will certainly help many students and researchers in their work. The techniques are reproducible and the step-by-step descriptions are practical. I regret only that more care was not paid to editorial work. For this kind of books I would prefer ring binding to the classical hard cover.

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