

Jones, R.L., Somerville, C.R., Walbot, V. (ed.): **Annual Review of Plant Physiology and Plant Molecular Biology. Vol. 47, 1996.** - Annual Reviews, Palo Alto 1996. ISBN 0-8243-0647-3. 786 pp., USD 52.00 (USA), 57.00 (elsewhere).

The fairly thick volume 47 contains 26 reviews in various fields of plant biology. The authors are traditionally mainly from the Americas (the U.S.A. 27, Canada 2, Mexico 2); in addition, European (the U.K. 7, Germany 5, France 2) and Asian (Japan 2) authors participated in writing the papers. Also traditionally, the first paper brings reminiscence of an excellent scientist. This time it is J. MacMillan, fellow of the Royal Society of London, who reports on 50 years spent in studying biologically active substances (including plant hormones) and fungi metabolites; he is well-known for his work on gibberellins.

The reviews deal mostly with metabolic topics, but the molecular biological aspect is always respected and sometimes prevails. Such mainly genetic topics are homology-dependent gene silencing, plant 14-3-3 proteins and signal transduction, DNA damage and repair, gene expression modulated by saccharides, and molecular genetics of amino acid formation.

Photosynthetic topics are phosphoenolpyruvate carboxylase (enzymology, genes, posttranslational regulation), the cytochrome *b₆f* complex, regulation of radiant energy harvesting and energy-dependent fluorescence quenching (includes also xanthophyll cycle), and the chlorophyll-carotenoid binding proteins of algae and higher plants. Plant water relations are represented by a review of molecular bases of dehydration tolerance. Other metabolic topics are protein phosphorylation and the respective phosphatases, glutathione S transferases (that act in detoxification of xenobiotic compounds such as herbicides), ion transport across the tonoplast, glycolytic pathway, dioxygenases (enzymes participating in biosynthesis of abscisic acid, gibberellins, ethylene, and secondary metabolites), wax production, biosynthesis of sucrose and the related enzymes.

Special reviews deal with light control of seedling development, its possible genetic basis and growth hormone control, with development and functions of xylem cells, compartmentation of proteins in endoplasmic reticulum and Golgi apparatus, chimeras in genetic, physiological and phylogenetic research, structure and biogenesis of cell walls of grasses, chilling sensitivity in plants and cyanobacteria (relation to membrane lipid unsaturation and to photoinhibition), membrane transport carriers and lipid-transfer proteins.

All plant types are included in the analyses of problems, and sometimes plant composition and reactions are compared with those of animals. Mutants and transgenic plants are often used as an important experimental material. The chapters are (as it is usual in this book series) well written and well edited, models and comparative tables often help in understanding the text. In the very useful index of authors of cited papers some part was unfortunately lost (the begin of names starting with G). A very detailed subject index will help in (certainly frequent) utilisation of the book.

Z. ŠESTÁK (*Praha*)