

Smallwood, M.F., Calvert, C.M., Bowles, D.J. (ed.): **Plant Responses to Environmental Stress**. - Bios Scientific Publishers, Oxford 1999. 224 pp. GBP 69.95. ISBN 1-85996-192-4.

Plants respond and adapt to a variety of environmental stresses in order to survive. The molecular basis of survival mechanisms is not only interesting from theoretical point of view, but its knowledge can help to enhance plant productivity in areas suffering from drought, salinity, low or high temperatures, *etc.* This book arises from the Plant Protein Club's symposium "Plant Proteins in Abiotic Stress Responses: Function, Gene Regulation and Industrial Applications" held at the University of York in 1998. The leading specialists in the respective fields contributed to this volume. Twenty-seven chapters are arranged into seven sections.

The book starts with a section describing the role of calcium as a second messenger in plants responding to diverse abiotic stresses. The following section is devoted to the responses of plants to UV-B radiation. The generation of reactive oxygen species induced by different stresses and defence of plants against them are the main topics of the third section. The fourth section deals with temperature stress: only one chapter is focused on heat stress, and seven chapters on different aspects of

cold stress. The following two sections are devoted to drought stress and to salinity. The chapters are mainly focused on water stress- or salt stress-inducible genes, regulation of their expression, and on functions of induced proteins. Special proteins correlated with desiccation tolerance in resurrection plants *Craterostigma plantagineum* and *Sporobolus staphianus* are also discussed. One chapter describes desiccation- and dormancy-related seed proteins (peroxiredoxins), another one the role of phospholipid hydroperoxide glutathion peroxidase in the relationship between salt and oxidative stress. The chapters of the last section mostly solve some practical questions: post-harvest physiological deterioration, fruits or leaves as a sources for stress-related proteins, *etc.*

The book describes recent progress in our understanding of regulation of gene expression by individual stresses as well as the biochemical functions of different proteins in the stress tolerance. Therefore it is an essential reference source for all those working on stress responses in plants.

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