Grill, D., Tausz, M., De Kok, L.J. (ed.): **Significance of Glutathione in Plant Adaptation to the Environment.** – Kluwer Academic Publishers, Dordrecht – Boston – London 2001. ISBN 1-4020-0178-9. 262 pp., USD 87.00, € 90.00, GBP 60.00.

This book belongs to the Series of Plant Ecophysiology edited by L.J. De Kok and L. Stulen. Glutathione has been recently recognised as a very important and versatile molecule in almost all living cells. Its role is manifold and it is involved in many cell processes.

The book is opened with a description of biological significance and distribution of glutathione in plants. Also chemistry, molecular biology, and metabolism of glutathione are dealt with in great detail, which is indispensable for profound comprehension of glutathione physiology. Next chapters consecutively concern individual glutathione functions starting with uptake and metabolism of sulphur and selenium. Very important is its part related to plant response and adaptation to natural stresses. Under adverse conditions, this molecule acts not only as a direct antioxidant but also as a redox sensor with implications in gene expression and as a regulator of enzyme activity. Important is also thiolation of proteins with glutathione, which can be regarded not only as a protection of proteins but also as a post-translational regulation of metabolism. Effects of particular stress factors are discussed step by step in separate chapters. Important role of this compound consists in neutralising toxicity of xenobiotics by conjugation with glutathione by glutathione S-transferases. Inevitably, this compound participates also in protection against a biotic stress, *e.g.* in plant pathogen resistance. Here glutathione plays a role in coping with oxidative stress as well as in defence through synthesis of antimicrobial compounds, phytoalexins. The last chapter describes direct interactions between plant glutathione and animals, especially parasites. Interestingly, plant glutathione increases pesticide resistance in pests and thus is detrimental for plants.

This book comprises ten chapters, each written by experts in the field. All contributions involved illuminate the broad area of glutathione as an important compound participating directly or indirectly in plant cell signalling and defence against biotic and abiotic stress. According to the editors, this book has been aimed at advanced students and junior researchers to provide them with basic information and to stimulate them to further research. However, not intended as detailed scientific reviews, the papers in this book present both essential acquirements and the recent progress in research of both the glutathione significance and functions.

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