

De Kok, L.J., Stulen, I. (ed.): **Responses of Plant Metabolism to Air Pollution and Global Change.** - Backhuys Publishers, Leiden - New York 1998. 519 pp. NLG 240.00. ISBN 90-73348-95-1.

This book contains contributions dealing with quite widely investigated and discussed field that concerns the whole planet and its future environments. The articles were presented at the International Symposium on Responses of Plant Metabolism to Air Pollution and Global Change held in Egmont aan Zee in 1997. Such symposia are being held already since 1982.

The increasing air pollution has a cause in still growing human production and concomitantly growing consumption. Plants have a great capacity of adaptation and acclimation to environmental conditions. This strategy was developed in order to survive. On the other hand, plants are relatively sensitive to air pollution maybe because plant can absorb chemicals by different ways into various parts.

There are several gaseous compounds in air as H₂S, nitrogen oxides, ozone, halogenated chemicals, whose concentration increased during past years several times. Their impact on plant metabolism and in consequence for agriculture production is discussed. Photochemical oxidants are especially dangerous compounds due to their high toxicity. Apart from ozone, a major oxidant, there are many other oxidant chemicals present in atmosphere due to various human activities. Plants possess defence strategy both enzymatic and low-molecular, and there is a detailed explanation how this system copes with oxidative stress.

Special attention is paid to elevated CO₂ which is

supposed to induce further global climate changes and imposes such additional stress influencing plants. Already solely change in CO₂ leads to pronounced changes in plant metabolism and physiology. However, this factor will be combined with consecutive effects of drought and elevating temperature.

The consequence of a depletion of stratospheric ozone layer is an increased amount of ultraviolet irradiation A and B approaching the Earth. This may influence and even threaten all living organisms. Therefore several chapters are devoted to the influences of elevated UV-B irradiation on crops. There is important to consider the action of individual pollutants as combined or interactive, not isolated.

After introductory invited papers describing the above mentioned topics, the original articles, that studied individual cases, follow. Some of these stresses induce active oxygen species. Important is their role in regulation of gene expression. Many articles studied combined effects of several factors on metabolism and photosynthesis. The transgenic plants play an important role in solution of problems rising from air pollution. Whatever there are many studies on pollutant impacts on plants and crop yield more research in this field is still necessary. The book is really important contribution to our understanding and predictions of the hot topic of changes in global climate with its implications. It can be recommended to all experts in the field.

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