

Leshem, Y.Y.: **Nitric Oxide in Plants. Occurrence, Function and Use.** - Kluwer Academic Publishers, Dordrecht - Boston - London 2000. 154 pp. EUR 99.50. ISBN 0-7923-6088-5.

Nitric oxide is an enigmatic molecule that, with increasing intensity, attracts attention of scientists during the last decade. Since discovery that gaseous and free radical molecule may play such an important role in several processes there has been an explosion of searching for other effects in human organism and its use in medicine. Concomitantly, several laboratories headed by the laboratory of author of this book direct their attention to research of nitric oxide in plants. The synthesis of NO in plants was proved and its role in plant development as well as in plant defence was revealed.

The book is divided into two parts: 1. Endogenous regulatory processes and 2. Atmospheric nitric oxide and plant growth. As our knowledge of NO action stems substantially from clinical research, many examples from this area are given in the first part. The similar effects were searched in plant physiology. Both in a man and in plants, endogenous NO has both promotory and inhibitory, even harmful effects, depending on its concentration. Unlike human, in plants are two possible pathways synthesizing this molecule, even NOS was still not unequivocally proved. NO was found in many plant species and has definitely important role in developmental processes as ripening and senescence of fruits. It become evident that NO participates in so-called general adaptation syndrome (GAS). Action of NO is interconnected with other growth regulators but exact relations are still elusive. The participation of nitric oxide in hypersensitive response to pathogen attack is far more recognised. The important role of cGMP signalling

pathway was revealed in majority of these processes. Also a interesting historical background of several NO effects is briefly outlined. The second part deals with plant growth effected by exogenous NO together with other oxides of nitrogen. They often represent atmospheric pollutants and their major sources are discussed. It is surprising, that plants must be taken into account as a major source of NO. Inversely, plants are capable of atmospheric NO uptake through stomata and incorporate it. Nitrite reductase is probably involved in plant NO metabolism.

All chapters are introduced with a witty and metaphorical rhyme and also several pictures of this sense are involved to illustrate the issue. It still improves our interest and the readability of the book. Intriguing is idea that all plants on the Earth together are probably greater NO emitter than generally supposed anthropogenic sources in industrial areas.

Unfortunately, the colour pictures could not be included directly in the text but are enclosed in a special section. As there are really up to date data discussed the several minor mistakes can be easily forgiven. Important is comparison of animal and plant systems and searching for analogies already known from medical research. The book summarizes our contemporary knowledge of the topic both in human and plant physiology and author asks questions and outlines future prospects of investigation. It is an inspiring book for plant physiologists in many aspects.

N. WILHELMOVÁ (*Praha*)