

Federation of European Societies of Plant Physiology organizes
II CONGRESS

to be held at the University of Santiago de Compostella (Spain) 27 July to 1 August 1980.

The congress will include invited lectures, poster papers contributed by members of FESPP, workshops and small group discussions. The main themes will be: ecophysiology, plant water relations, photosynthesis, plant productivity.

For information and entry forms please contact: DR. A. BALLESTER

Programme Secretary, II. Congress of FESPP
Department of Plant Physiology,
Faculty of Biology,
Santiago de Compostella
SPAIN

BOOK REVIEW

HOOK, D. E., CRAWFORD, R. M. M.: *PLANT LIFE IN ANAEROBIC ENVIRONMENTS*. — Ann Arbor Science Publishers, Inc. Collingwood, Michigan 1978. Distr.: John Wiley & Sons Ltd. 564 pp., £ 17.65.

A series of papers dealing with the effect of stress conditions on plants usually involving the water deficit and deficiency of various nutrients or excess of salts has so far been published; however, no monographs exist concerning the effect of oxygen deficit on plants, which is a frequent phenomenon in nature, especially in floods or on excessive irrigation of plants.

At the XII International Botanical Congress in Leningrad in 1975, a symposium was organized by the initiative of professor Vartapetyan, called "Anaerobiosis and Related Plant Adaptations", enabling the organizers to assemble the specialists in this field from all over the world. The contributions have been assembled in this book which gives fundamental data on the physiology and ecology of vascular plants under the conditions of hypoxia and anoxia and their adaptation responses enabling them to survive under these conditions.

The book is divided into two parts. The first begins with the introductory paper by B. B. Vartapetyan "The life without oxygen" and deals further with the effect of hypoxia and anoxia on the ultrastructure and metabolic activity of plant cell organelles, and on the energetic metabolism; special attention is paid to the metabolism of pyruvic acid, ethanol and organic acids. The regulatory mechanisms of plant adaptation are discussed in relation to a short-term water oversaturation of the environment, as well as the morphological and functional adaptation of roots to these conditions, and chemical and microbiological properties of the soil environment at anaerobiosis. The second part contains recent contributions on the effect of hypoxia on the metabolism of lipids, properties of lactate dehydrogenase, and structural and metabolic changes of mitochondria in isolated roots. The part concerning the regulatory interactions of the anaerobic catabolism and nitrogen assimilation at oxygen deficiency, is of considerable importance, as well as the finding that the rate of ethanol formation in maize roots is regulated epigenetically. The increase in alcoholdehydrogenase activity is associated with the formation of new alcoholdehydrogenase isoenzymes the number of which depends on the cultivar. The rate of the increase in enzyme activity is related to the morphological root structure, growth intensity, the intensity of reductive synthesis (*e.g.* of lipids), nitrate reduction and NH_4^+ assimilation. The latter two processes are considered to be the processes of the anaerobic metabolism alternative to the alcoholic fermentation and a regulatory pathway connected with alanine formation, more advantageous than that through which alcohol results. The genetic control of alcoholdehydrogenase and nitrate reductase activities provides, according to the authors, a starting point for the selection of suitable species or cultivars of crop plants capable of adapting to a short-term oxygen deficiency of the environment.

As is seen from this brief content, the information presented in this book may be useful to the specialists working in the fields of plant physiology, biochemistry, and agriculture.

VĚRA HADAČOVÁ (Praha)