Cockell, C.S., Blaustein, A.R. (ed.): **Ecosystems, Evolution, and Ultraviolet Radiation.** – Springer-Verlag, New York – Berlin - Heidelberg 2001. ISBN 0-387-98878-5. 221 pp., DM 234.33, sFr 202.23, GBP 81.00, USD 99.80.

Ultraviolet radiation affects a wide range of physiological and ecological processes in various ways, which are incompletely understood. This book brings together 18 authors from Canada, Germany, UK, and USA with the aim of helping to consolidate a better understanding of this interesting area of photobiology.

The book contains eight chapters, the first two dealing with the development of the UV radiation climate of the Earth. The other chapters are devoted to more specialised problems relative to higher plants and algae ecosystems as well as amphibians, coral communities, bacterioplankton, *etc.*

Chapter 1 summarises stages of the photobiological history: First, UV radiation influenced chemistry on prebiotic Earth [> 3.9×10^9 years (*i.e.* Ga)]. Then, it has been a ubiquitous physical stressor since the origin of the first microbial ecosystems during the Archean era (3.9–2.5×10^9 years). During this era, the Earth lacked a significant ozone column, and was therefore exposed to higher fluxes of UV-B (280-320 nm) and UV-C (200-280 nm) radiation. Then, atmospheric oxygen partial pressure and thus ozone column rose. During Proterozoic and Phanerozoic (from 2.5×10^9 years to the present), life was protected by the ozone column but subjected to alterations in the UV-B radiation regime.

The second chapter deals with physical factors determining UV radiation flux into ecosystems (*e.g.*, transmission of UV through the atmosphere, stratospheric ozone layer, action spectra, absorption of UV by tropospheric pollutants and aerosols, transmission of solar UV through water, UV and global climate change, and acid rain).

The fourth chapter summarises the effects of UV on higher plants and plant ecosystems (*e.g.*, ozone depletion and enhanced UV-B, plant responsiveness to current and enhanced concentrations of UV-B, UV-B-absorbing compounds and mitigation of damage, oxidative damage, phenylpropanoids as antioxidants, DNA damage, photosynthesis reduction).

Chapters 6 and 7 examine the effect of UV on bacterioplankton, picoplankton, cyanobacteria, phytoplankton, Antarctic and Arctic coastal marine ecosystems, *etc.* Further chapters deal with the effect of UV radiation on amphibians (frogs, toads, salamanders), and with UV radiation and exobiology (extraterrestrial UV environments, Mars being of particular interest).

Besides useful data on the role of UV radiation on plant and ecosystem functioning, the readers of Photosynthetica can find paragraphs wholly devoted to photosynthesis and related processes, *e.g.* Photosynthesis in the Archean (chapter 1), Reductions in photosynthesis (chapter 4; PS2 sensitivity to UV, thylakoid membranes, photophosphorylation, Calvin cycle reactions, ribulose-1,5-bisphosphate carboxylase/oxygenase, stomatal conductance to CO_2 transfer), Carotenoids (chapter 5), UV and photosynthetically active radiation, and UV inhibition of phytoplankton primary production (chapter 7), *etc.* Several chapters present also devices and methods for relevant studies of UV radiation (actinometers, biological dosimeters, radiometers and spectroradiometers, *etc.*). Relevant literature on damage of photosynthesis due to UV-B is arranged in the Tables 4.1 and 4.2.

The book is well edited, and supplied with a short subject index. Individual chapters are accompanied with relevant literature (together almost 1 000 references). This unique book can be recommended mainly to photobiologists, but also to scientists, teachers, and students interested in plant and environmental sciences.

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