



Biosaline Agriculture and Salinity Tolerance in Plants

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Foreword

Global demand for the precious resource of water has increased six-fold over the past century, with a three-fold increase in world population. The water crisis is one of the most critical challenges facing the world today.

Seawater is globally available in abundance, and hypersaline soils are widespread. Based on science, and with carefully established good practices, large areas of saline soils can be converted into high productivity man-made agro-ecosystems.

Substantial information has been provided by numerous scientists since the early 1960s, regarding the restoration, functioning, and development of saline ecosystems and halophytes, and international centres and societies have been established.

We have to be ready to respond when land becomes non-productive due to high salt concentrations. The availability of correct and adequate scientific knowledge is absolutely essential to develop good biosaline management practices.

UNESCO has supported a number of such activities, societies and centres, and this is well in tune with the organisation's focus on *water and associated ecosystems*.

It is now important to identify the next important milestones. A concerted international action is required in order to continue the process of advancing science-based biosaline practices, and to develop profitable models and products. It is also important to raise public awareness: some marketable products have already been developed, and provide valuable services to mankind, such as *Salicornia bigelovii*, *Salicornia europaea*, *Aster tripolium* (vegetable and salad), *Conocarpus erecta*, *Conocarpus lancifolius* (roadside trees), and *Sesuvium portulacastrum* (to replace freshwater dependant ground cover), to name only a few.

The Arab States in the Gulf suffer greatly from a lack of freshwater availability, whereas saline groundwater and seawater occur in abundance.

It is with this in mind, that the UNESCO Office in Doha, and in agreement with the UNESCO Office in Venice, decided to support Arab experts to participate in *The International Conference on Biosaline Agriculture and Salinity Tolerance in Plants*, Mugla University, Turkey, in January 2005, as well as with this important publication.

The book has three sections: the first section deals with physiological aspects of salt tolerance. It provides data and new information regarding a number of moderate to high salinity tolerant plants species, such as *Vicia faba*, a cash crop, several grass species, as well as *Crithmum maritimum*, *Suaeda salsa*, *Salsola* spp, *Atriplex centralasiatica*, *Cakile maritima*, as well as the seawater tolerant *Sesuvium portulacastrum*.

The second section provides new information on ecological aspects, such as biological diversity conservation, management of natural plant diversity, geographical inventories of halophyte communities, and vegetation zones.

The third section on agriculture provides valuable information on the utilisation of halophytes, soil irrigation and drainage management, bio-reclamation of saline soils, and effects of salinity on crop productivity.

UNESCO congratulates the editors and authors of this book, who produced an excellent scholarly work. Improving the knowledge of the multidisciplinary audience of readers will contribute towards improvement of scientific research, education, and environmental management.

Biosaline Agriculture and Salinity Tolerance in Plants is another important scientific contribution towards the management of salt-affected soils, saline irrigation water, and halophytes.

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