Special Issue

Halophytes, Neglected and Underutilized Crop Species That Can Withstand Soil and Environmental Changes: Current Understanding and Recent Advances

Message from the Guest Editors

Food systems face significant challenges due to climate change, necessitating the development of stable crops that can adapt to changing soil and environmental conditions. Research into the carbon concentration mechanism (CCM) in intermediate C3-C4 species, which thrive in warm climates, is particularly relevant. The evolution from C3 to C4 photosynthesis includes 4 types, with C2 metabolism offering advantages such as improved net carbon assimilation and stress resistance, potentially enhancing food security in extreme climates. Elevated CO2 levels (eCO2) can mitigate the adverse effects of salinity on photosynthesis and water metabolism in C3 and C4 plants. Halophytes and neglected and underutilized crops (NUCs) play a crucial role in salinity tolerance, with mechanisms like osmolyte biosynthesis and ion homeostasis helping plants resist salt stress. Research areas for halophytes and NUCs include plant stress responses, nutritious ingredient analysis, and soil science. Circular halophytic mixed farming (CHMF) is a promising solution for restoring agrolandscapes affected by salinization and drought.

Guest Editors

Prof. Dr. Kristina Toderich

Dr. Imrul Mosaddek Ahmed

Dr. Hamid El Bilali

Prof. Dr. Oscar Vicente

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Plants
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
plants@mdpi.com

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Plants is an open access journal which provides an advanced forum for research findings in areas related to plant function, its physiology, biology, taxonomy, stresses, and its interactions with other organisms. It publishes original research articles, reviews, reports, conference proceedings (peer reviewed full articles) and communications. In original research papers, it is important that full experimental details are provided. We also encourage timely reviews and commentaries on topics of interest to the plant research community.

Editor-in-Chief

Prof. Dr. Dilantha Fernando
Department of Plant Science, University of Manitoba, Winnipeg, MB R3T 2N2, Canada

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