Special Issue

Saline Water Irrigation and the Impact of Salt Stresses on Plants

Message from the Guest Editor

Saline water irrigation presents a significant challenge to agriculture, particularly in arid and semi-arid regions with limited freshwater availability. The accumulation of salts in soil from saline irrigation disrupts plant processes, impairing germination and nutrient uptake and causing oxidative stress, which ultimately reduces crop yield and quality. To combat this, understanding plant salt tolerance mechanisms is crucial for developing salt-resistant crop varieties through genetic research, identifying key genes and signaling pathways.

In addition to genetic approaches, innovative irrigation techniques like drip and deficit irrigation, alternating saline and freshwater, help reduce soil salinity and improve water-use efficiency. Furthermore, halophytic plants and microbial inoculants contribute to soil resilience, offering potential solutions for degraded lands. Advanced technologies like remote sensing and hyperspectral imaging enable the real-time monitoring of soil salinity, crop health, and water stress, facilitating precision irrigation management. Computational models predict salinity trends, assisting in long-term agricultural planning.

Guest Editor

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In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

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