

Special Issue

Roles of Glycine Betaine in Improving Plant Abiotic Stress Resistance

Message from the Guest Editors

Dear colleagues, Glycine betaine (GB) is an important osmolyte that accumulates in some plant species in response to environmental stresses such as drought, salinity, cold and heavy metals. While many studies have indicated a positive relationship between accumulation of GB and plant stress tolerance, some have argued on the role of GB as an adaptive response to stress. As many plant species are betaine non-accumulator, attempt to increase GB levels in betaine-non-accumulating plants are interesting subjects. Genetically-engineered plants so far have faced with the limitation of being unable to produce sufficient amounts of GB. By contrast, exogenous application of GB to plants under stress conditions, improved stress tolerance and gained some attention. Recent studies showed the importance of choline precursor supply for the accumulation of GB. The transporters and localization of GB are poorly understood. The regulation of GB synthesis remains to be clarified. Application of new technique such as CRISPR/Cas9 based genome editing tools would be expected. This Special Issue aims to include key breakthrough in any of these areas either in laboratory or field environments.

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