

Special Issue

Melatonin Functions and Stress Adaptation in Plants

Message from the Guest Editor

In plants, melatonin biosynthesis is triggered by tryptophan, an aromatic amino acid synthesized through the shikimate pathway in chloroplasts. Melatonin, an amphipathic molecule, is present in all cellular organelles and functions not only as an antioxidant but also as a crucial signaling molecule for optimal functioning of chloroplasts and the endoplasmic reticulum. Like melatonin, melatonin metabolites also play a crucial role in plant growth and development. The multifaceted roles of melatonin and its metabolites are believed to involve receptors and various downstream signaling pathways, altering the expression levels of multiple genes. These genes play a crucial role in enhancing resistance to various biotic and abiotic stresses. To fulfill these beneficial roles, melatonin's steady-state levels are precisely regulated by melatonin biosynthetic and degradation genes in response to the aforementioned stresses. This Special Issue welcomes all areas of melatonin research related to melatonin synthesis, degradation, related genes, quantification of melatonin and its metabolites, possible signaling pathway components, and functions of melatonin and its metabolites in plants.

Guest Editor

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