Special Issue

Nutrient Transport and Aquaporins in Physiological Processes Mitigating Abiotic Stress of Crops

Message from the Guest Editor

In plants, mineral nutrition and water uptake play a fundamental role in their growth, development, and overall health. These nutrients are involved in photosynthesis, cell division, enzyme activation, and the synthesis of proteins and other vital compounds. A balanced and adequate supply of nutrients is necessary for plants to achieve optimal growth, withstand environmental stressors, and produce high-quality yields. In stressful conditions, such as drought, salinity, or extreme temperatures, nutrient transporters and aquaporins become even more critical. On the other hand, aquaporins help plants cope with water scarcity by regulating water fluxes to maintain cellular hydration levels. Furthermore, aquaporins can also transport other small molecules like hydrogen peroxide and carbon dioxide, contributing to stress signaling and antioxidant defence mechanisms, coordinating adaptive responses to stress by regulating gene expression and metabolic pathways. Overall, nutrient transporters and aquaporins are integral components of plant resilience mechanisms, enabling them to survive and thrive in challenging environmental conditions.

Guest Editor

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Deadline for manuscript submissions

closed (25 April 2025)

Agriculture

an Open Access Journal by MDPI

Impact Factor 3.6
CiteScore 6.3

mdpi.com/si/203928

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Message from the Editor-in-Chief

Agriculture (ISSN 2077-0472) is an international, scholarly and scientific open access journal publishing peer-reviewed research papers, review articles, communications and short notes that reflect the breadth and interdisciplinarity of agriculture.

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