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Plant Responses to Internal Nitrogen Status

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Message from the Guest Editor

Nitrogen fertilization rapidly changes the expression of many genes in roots, suggesting that nitrogen compounds act as signaling molecules. Many efforts have been made in elucidating how plant roots sense and respond to external nitrogen sources, i.e., nitrate, ammonium, and organic nitrogen compounds. They have succeeded in identifying the molecular components including transceptors, transcription factors, kinases, phytohormones, and peptide signals. These components elaborately regulate nitrogen uptake and assimilation and thereby facilitate the accumulation of nitrogen sources and their assimilated nitrogen compounds in different parts of the plant body. The resultant changes in internal nitrogen status trigger further , albeit little understood, responses by some mechanisms. This Special Issue will focus on recent progress which addresses the questions of what nitrogen compounds function as nitrogen status signals, where/how they are monitored, how nitrogen status signaling interacts/integrates with the signaling arising from external nitrogen, and how the nitrogen status alters molecular and physiological responses to the other nutrients or environmental stresses.

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