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Journée des Doctorants

Lundi 14 Mars (9 h -14h)

Amphi Ampère – Bât. Gabriel

Au programme : 8 posters, 11 présentations orales dont 1 invité surprise + 1 buffet

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The role of sulfur nutrition in the pea response to water deficit

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Pea (*Pisum sativum* L.) produces seeds rich in proteins for human and animal nutrition and its cultivation enriches the soils in nitrogen, thus decreasing the need for nitrogen fertilization. Increasing pea cultivation and productivity is an agroecological challenge which requires to improve its tolerance to environmental stresses. Water deficit and the lack of sulfur in soils are two abiotic stresses that interact in the current context of climate change and low-input practices. Sulfur metabolites are known to play a protective role against many stresses but their interaction with the plant response to drought remains to be studied. A system biology approach will be used to study the influence of sulfur nutrition on gene and protein networks associated with the response of pea leaves to water stress during the reproductive phase. This approach will provide metabolic regulation models connecting sulfur nutrition to the water stress response. The integration of other data (e.g., physiological, yield components) will reveal regulatory factors potentially responsible for the physiological variations observed and/or for the modifications of agronomic traits under these environmental constraints. In addition to provide a better understanding of the role of sulfur in the plant's response to drought, the project will lead to the identification of gene and protein candidates for improving the tolerance of pea to climate change and low-input practices.

Key words: Pea, system biology, water stress, sulfur nutrition, gene network, protein network, remobilization, seed filling