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Metabolic flux analysis of nitrogen-fixing bacteria

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Symbiotic nitrogen fixation by legumes is an essential component of sustainable agricultural systems. Current research into nitrogen fixation includes attempts to improve existing symbioses and to extend the process to non-nitrogen fixing plants. The efficiency of nitrogen fixation is largely dependent on the metabolic integration of the nitrogen fixing bacteria called rhizobia inside the stem or root nodules of the host plant. The aim of this study is to characterize the metabolic phenotype of the rhizobia and provide a deeper understanding of the metabolic adjustments in rhizobia that supports the process of nitrogen fixation in legume plants. Author uses a biochemistry and systems biology approach called metabolic flux analysis to calculate fluxes through the metabolic network in rhizobia during nitrogen fixation. Identification of the metabolic adjustments that are required for nitrogen fixation will lead to an analysis of the metabolic cross talk between nitrogen-fixing bacteria and their host plant which is crucial for designing an engineered symbiosis.

Biography

Khushboo Borah is currently working at Department of Plant Science at University of Oxford, UK.

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