Molecular responses in root-associative rhizospheric bacteria to variations in plant exudates

Hamid Abdoun, Mary McMillan, and Lily Pereg
Molecular and Cellular Biology, School of Science and Technology, University of New England, NSW Australia
(lily.pereg@une.edu.au)

Plant exudates are a major factor in the interface of plant-soil-microbe interactions and it is well documented that the microbial community structure in the rhizosphere is largely influenced by the particular exudates excreted by various plants. Azospirillum brasilense is a plant growth promoting rhizobacterium that is known to interact with a large number of plants, including important food crops. The regulatory gene flcA has an important role in this interaction as it controls morphological differentiation of the bacterium that is essential for attachment to root surfaces. Being a response regulatory gene, flcA mediates the response of the bacterial cell to signals from the surrounding rhizosphere. This makes this regulatory gene a good candidate for analysis of the response of bacteria to rhizospheric alterations, in this case, variations in root exudates. We will report on our studies on the response of Azospirillum, an ecologically, scientifically and agriculturally important bacterial genus, to variations in the rhizosphere.