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Characterizing and analyzing the ecological consequences of the plant - endophyte interactions of *Solanum nigrum* and *Nicotiana attenuata*

Endophytic bacteria are defined as those living in plant tissues without doing any substantive harm or gaining benefit other than securing residency. Endophytic bacteria can promote plant growth and health by different mechanisms. These include the production of phytohormones or enzymes involved in growth regulator metabolism such as ethylene, 1-aminocyclopropane-1-carboxylic acid deaminase, auxins, or cytokinins. Endophytic bacteria, thus, play important roles in modulating responses of plants to these regulators. *Solanum nigrum* and *Nicotiana attenuata* are two native *Solanaceous* species which have been used as model systems for studying plant-herbivore interactions. Signaling compounds such as jasmonic acid (JA), ethylene and salicylic acid (SA) involved in the responses of these plants to the herbivore and pathogen attacks have been well studied. Effects of plant growth promoting rhizobacteria (PGPR) including endophytic bacteria on ethylene signaling in some plant species such as canola (*Brassica campestris* cv. Reward), sugarcane (*Saccharum* sp.), and *Arabidopsis* sp. have been reported. However, effects caused by endophytic bacteria on the two native plants *S. nigrum* and *N. attenuata* have not been studied. Therefore, this study aims to investigate the specific responses of these plants to colonization of beneficial endophytic bacteria and to identify the key elements that control the dynamic interaction of plant and endophyte.

Publications

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