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Isolation of non-symbiotic phosphate-solubilizing plant growth-promoting *Paraburkholderia strydomiana*

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Phosphorus is a key nutrient needed for plant growth and is often found in soils in an insoluble form. While phosphate fertilizers promote quick plant growth, they can be easily converted to insoluble forms through soil processes or lost via runoff. This results in poor phosphate use efficiency, which is economically and environmentally costly. A possible way to remediate these problems is to introduce phosphate-solubilizing bacteria as a biological fertilizer. In this work, we report the isolation of eight phosphate-solubilizing bacteria from agricultural soils in Manitoba. Their ability to solubilize $Ca_3(PO_4)_2$ ranged from 95 to 144 mg/dL. Based on whole-genome sequencing, the isolates consisted of six *Paraburkholderia strydomiana* isolates, comprising at least three distinct strains, a *Paraburkholderia graminis*, and a *Burkholderia ambifaria* isolate. In addition to solubilizing phosphate, the *P. strydomiana* strains visibly influenced soybean seedling growth. Utilizing the closed genomes from the isolates in this study, we were able to scaffold the type strain and show that *P. strydomiana* genomes appear to consist of two large replicons as well as a larger plasmid. Further genomic analysis also demonstrated that *P. strydomiana* appears to contain RuBisCO and a complete Calvin-Benson-Bassham pathway. Unlike the type strain, the isolates in this study did not carry genes associated with nitrogen fixation or the ability to form symbiotic associations.