



Celebrating 150 years of agriculture

Celebrating 150th Birthday: A Novel Bacterial Species Named After Canada

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Abstract:

Canada's bacterial biodiversity plays a significant role in agricultural and environmental sustainability. Understanding, documenting and conserving Canadian bacterial biodiversity are scientific as well as public good initiatives to collect data and monitor population shifts that might affect agricultural sustainability. Shifts in soil bacterial populations can affect agricultural productivity with potential impact on farmers' incomes. In a prospective study, a group of cultivable bacteria (*Pseudomonas*) ubiquitous in the soil ecosystem were analyzed. This group of bacteria fluoresces under ultra-violet light making them easy to be identified. The isolated bacteria were evaluated in the laboratory to see if they can control fungal plant pathogens. One bacterial strain that potently inhibited fungal growth in the laboratory was not a known species of this group. This novel species is named *Pseudomonas canadensis* after Canada, the country from which it was isolated for the first time. Given that this novel bacterial species controls fungal pathogens, it can be used as an alternative to chemical fungicides to improve soil health and increase crop yields. Further work is being planned to test if this new species can effectively control fungal pathogens in soil planted with corn in the greenhouse.

Biography:

Dr. Tambong's expertise in genomics and biosystematics of phytobacterial pathogens and the development of reliable diagnostics tools for their accurate identification/detection aligns with strategic objective 4. His work addresses emerging biological threats to the agriculture and agri-food chain within the Cereal and Pulses sector. Within the Biodiversity and Bioresources sector, knowledge is being generated for a better understanding, documentation and conservation of Canadian bacterial biodiversity, and discovery of novel species. The most recent novel species is named after Canada as we celebrate 150th anniversary. Work is also being done to enhance environmental performance by isolating and characterizing new potential biopesticides, in alignment with strategic objective 2. Unique expertise and strengths include genomics and using bioinformatics tools to collect informed data. Tambong interacts actively with federal, provincial, industry and university plant breeders, mycologists, pathologists, biochemists, entomologists as well as bioinformaticians.



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