Unlocking the bioavailability of phosphorus and micronutrients through development of low phytate-phosphorus pea

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SPG Contributions	Project Status	Duration/Timeline of Project (Year to Year)	Co-funders	Total Project Cost
$249,650.00	Completed	July 2008 – June 2013	Natural Sciences and Engineering Research Council of Canada	$477,925.00

Project Description

To characterize two low phytate pea mutants at the physiological, genetic, and molecular levels, determine their effects on bioavailability of phosphorus and micronutrients in an animal model, and set the stage for the production of low phytate pea cultivars.

Outcome

This project determined that the low phytate trait is stable in pea, and that low phytate pea lines have less than half the total phytate-phosphorus content of normal pea varieties. Instead, these lines have a greater proportion of phosphorus in the inorganic form which is available to humans and mongastric animals. Further, the low phytate pea lines have only minimal agronomic deficiencies which can be overcome by regular plant breeding. The low phytate pea lines provide greater bioavailable iron as measured in a human cell culture assay.

Research Objective

OBJECTIVE 1

To characterize two low phytate pea mutants at the physiological, genetic, and molecular levels, determine their effects on bioavailability of phosphorus and micronutrients in an animal model, and set the stage for the production of low phytate pea cultivars.