

Clean Resources

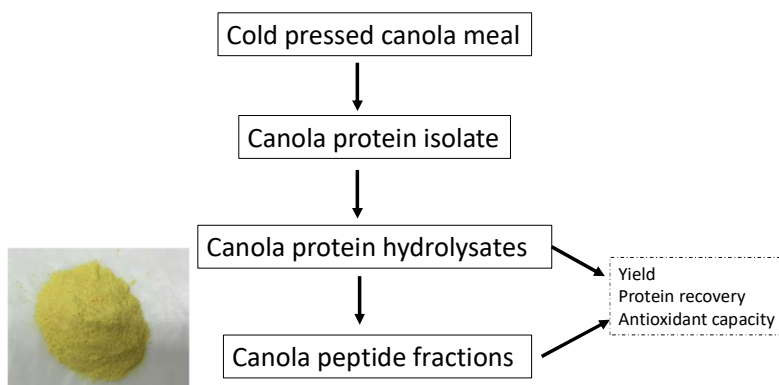
Smart Agriculture and Food Innovation

Food Innovation

FUNDING DETAILS

Development of Bioactive Peptides from Cold-Pressed Canola Meals

Antioxidant and anti-inflammatory peptides are attracting global interest as they are perceived as “natural,” lack serious side effects and can provide many health benefits. Currently, these peptides are developed mainly from animal products, such as whey protein and collagen. Recent preliminary research has reported antioxidant, anti-inflammatory and skin-repairing activities from rapeseed (a plant related to canola) peptides. Canola is a core crop in Alberta and its oils are healthy with low saturated fatty acids. The emerging cold-press technology in western Canada offers an opportunity to develop high quality protein ingredients from canola meals for food, cosmetic and NHP applications, as the protein native structures are better retained in this feedstock. This project aims to develop antioxidant and anti-inflammatory peptides from cold-pressed oilseed meals as safe and effective anti-aging ingredients in natural health products (NHPs), cosmetic and personal care products.



RECIPIENT:

**University of
Alberta**



PARTNERS:

**Pleasant Valley Oil
Mills**



TOTAL BUDGET:

\$100,000



AI FUNDING:

\$157,583



PROJECT DATES:

**March 2019 –
December 2020**



PROJECT TRL:

**Start: 2
End: 4**

APPLICATION

Bioactive peptides are widely used in various applications such as beverages, sports nutrition and cosmetics. The global peptides market is ever increasing. The global peptide therapeutics market is expected to reach US\$48.04 billion by 2025. The development of antioxidant and anti-inflammatory peptides will provide new ingredients for the NHPs and cosmetic sectors that are fast growing in Alberta to increase their competitiveness and to create job opportunities.



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PROJECT GOALS

- Develop cost-effective processing to directly generate antioxidant and anti-inflammatory peptides from cold-pressed canola meals.
- Study the peptide structures attributing the antioxidant and anti-inflammatory effects.
- Demonstrate the efficacy of the bioactive peptides in cell models.

BENEFITS TO ALBERTA

- The oilseed processing industry will economically benefit from the project's results. Currently in Alberta, cold-pressed canola oil takes a very small portion of the market and the industry players are small-sized enterprises. The commercialization of cold-press techniques within Alberta will increase the province's competitiveness in crop processing and sustainable product development.
- Development of value-added applications from meal proteins will create new market opportunities for oilseed crops, generate innovative uses for waste streams and reduce waste.
- Efforts to develop value-added applications for value components (e.g. protein, fibre) from canola meals will significantly increase economic returns on crop components and enhance profitability and sustainability of canola producers.



4 Publications



2 Students
Trained



1 Patent



2 Project Jobs



2 New
Products/Services



1 Spinoff
Company

CURRENT STATUS

June 2020

Cold-pressed canola meal has been provided by Pleasant Valley Oil Mills. Canola protein extraction was achieved at mild alkaline condition with improved color and functional properties. The obtained canola protein had high protein content of 75-80%. In general, canola protein demonstrated good antioxidant effects through in-vitro essays using different chemical models. The team will study further how the peptide structures attributing the antioxidant activities in the next step.