



# Research Notes

Current projects and areas of interest



## Canadian Centre for Agri-Food Research in Health and Medicine (CCARM)

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**Identification of foods** containing compounds that prevent the onset or slow the progression of **vascular disease**

**Buckwheat** as an ingredient capable of reducing blood sugar levels in **type 1 diabetic** rats

**Conjugated linoleic acid** (CLA) in dairy foods and beef and reversal of adverse effects of **obesity**

Potential of **wheat bran** to decrease adipose tissue

Beneficial effects of **pulses and legumes** on **blood vessel health**

**Genetic changes** in animal models related to **specific nutrients** in the diet and their ability to **influence disease**

Effect of **conjugated linoleic acid** (CLA) on **cardiac hypertrophy**

**Safety and efficacy** of dietary interventions for slowing or preventing the transition from **cardiac injury to heart failure**

Therapeutic potential of **conjugated linoleic acid** (CLA) on established **heart disease** and related side effects including fluid retention

Effect of dietary **chromium** in the **hypertensive** rat

**Conjugated linoleic acid** (CLA) and the **Metabolic Syndrome**

**Folic acid**: A potential approach in the prevention and treatment of **cardiovascular disease**

The potential of the **antioxidant** resveratrol as an **antihypertrophic** agent

Vascular effects of **resveratrol** in **hypertension**

Potential role for **nutraceuticals** as agents in the treatment of **heart failure** arising due to different diseases

**Validating health claims** of folic acid, Reishi mushrooms (also known as *Ganoderma lucidum* or Lingzhi), polyunsaturated fatty acids (PUFA), *Ginkgo biloba* leave extract and various flavinoids

Efficacy of **phytosterols** on experimental models in cardiovascular disease

Efficacy of dietary agents on **heart transplant graft failure**

Cardiovascular benefits of diets supplemented with oils **low in n-6** and **high in n-3 fatty acids**

Role of **dietary agents** (flax oil or plant sterols) in reducing toxicity and increasing efficacy of drugs used in **animal model heart transplant** subjects

Specificity and delivery of **egg yolk-derived antibodies** against *Clostridium difficile* associated **diarrhea** (CDAD)

**Mechanisms** underlying the health effects of **natural health products** from Canadian agricultural products

Identification of bioactive compounds in agricultural and medicinal herb extracts using **ultra-low performance liquid chromatography (UPLC)**

Agricultural and herbal medicine therapies targeting **cell-signalling processes**

Development of **standardized** natural health product (NHP) product and therapeutic formulations with **cardiovascular** health benefits

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## **Food Development Centre (FDC)**

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Supercritical Fluid Extraction of **Seabuckthorn  
(*Hippophae rhamnoides* L.) Seed Oil**

Supercritical Fluid Extraction of **Camelina  
Seed Oil**

Extraction of **Essential Oils** Using Steam  
Distillation Technology

Development and Applications of Functional  
**Flours from Prairie Grains** Targeting  
Functional Properties, Nutritional and Health  
Benefits

Development of **Flax Bars, Muffins, rolls and  
biscuits** for Human Clinical Studies

Extraction of **Flax and Hemp Oils** using Cold  
Press Technology

Utilization of **Wheat-based Ethanol  
Processing Co-Products** for Human Food  
Development

Development of **Snack Foods** from Pulse  
Grains

Development of **Specialty Meat Products**  
including Game Meat

Utilization of **Pulse Flour and Fractions in  
Batters and Pre-Dust Coatings**

Development of **Food Products for Baby  
Boomers**

Fractionation of **Small Fruits for Total  
Utilization in Functional Foods and  
Nutraceuticals**

Development of **Energy Bars**

Extraction of **Vegetable Protein Isolates**  
Using Membrane Filtration Technology

Evaluation of **Co-Enzyme Q10** for Beverage  
Development

Development of Modified Atmosphere  
Packaging for **Egg Products**

Spray Drying of **Vegetable and Fruit Purees**

Development of **Vegetable and Fruit Juices  
Smoothies and Shots**

Evaluation of **Food Textures**

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Effects of a diet rich in **diacylglycerol (DAG)** oil on body weight, body composition, and blood lipid levels in women

Effect of **Heart & Stroke Portfolio diet** on lipid metabolism and weight loss in men

Effect of **pulses, pulse fractions and canola/flax blends, probiotics** on indices of lipid, carbohydrate, energy metabolism and oxidative status in overweight, hyperlipidemic individuals

Use of **conjugated linoleic acid (CLA)** as a nutraceutical for weight loss in humans

Effects of unique **algal based polysaccharides** on plasma lipid levels and energy metabolism in hamsters

Evaluation of **plant sterol and cholesterol absorption** in overweight, hypercholesterolemic men with and without coronary heart disease

Utilization of modern **dry fractionation** processing for production of commercially ready flours and fractions

**Dairy** products as functional foods & nutraceuticals

Metabolic health benefits of **dairy protein**

Palatability, acute glycemic index and satiety responses to **tortillas** containing blends of **pulses**, *Opuntia sp.*, and corn flour

Development of “Berry Wild Ricer” – Energy Bar using **boreal forest** products

Supercritical CO<sub>2</sub> and pressurized low polarity water **extraction** (PLPW) of oil and antioxidants from **oats** for use in cosmetics and natural health products

Optimization of **supercritical CO<sub>2</sub>** extraction of residual oil and phenolic compounds from cold-pressed **canola** press cake and hulls

Supercritical CO<sub>2</sub> and pressurized low polarity water **extraction** of lignans, phytosterols, policosanols and xylo-oligosaccharides from **flax** fiber and shive

Development of monograph pertaining to biopharmaceutical and health **benefits** and contraindications of **Chaga** sp. (*Inonotus obliquus*)

Optimization of **β-glucan extraction** from **oat bran** using air classification

**Traceability** of functional food and processing quality attributes in pulse crops

**Biopharmaceutical manufacturing** (capsules and tablets) extract blends for cardiovascular and bone health

Development of and manufacturing scale-up of **novel cosmetic** products utilizing plant essential oils and antioxidant enriched **extracts**

Effects of **dermal application** of Lym-CIn on cardiovascular risk in apo E-KO mice

## **Manitoba Functional Food Opportunities Program (MFFOP)**

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MMFOP is a \$1.5 million program cross-cluster program that focused on the identification, isolation and characterization of functional ingredients with near-term market potential.

### **Saskatoon Berry Functional Food Product Development**

Development of novel beverages, colourant and flavour concentrates and new uses for residual pulp from the Saskatoon berry (*Amelanchier alnifolia*).

### **Market Development for Flax-Based Products**

Establishment of a Qualified Health Claim (QHC) and Generally Regarded as Safe (GRAS) status for flax-based functional food and natural health products to support market expansion across North America and around the world.

### **Development of Buckwheat as a Functional Ingredient**

Develop buckwheat-based functional food ingredients that maintain an efficacious level of buckwheat's insulin-like bioactivity.

### **Functional Dairy Product Development Using Manitoba Sourced Plant Sterols**

Evaluation of different methods for the extraction, characterization and incorporation of plant sterols from canola oil and meal into dairy products.

### **Pulse Crop Fractionation and Formulation**

Development of a portfolio of formulations, bioactive compounds and product prototypes from the components of pulse crops, including protein, fibre and starch, to support commercialization opportunities.

### **Harnessing the Unique Potential of Northern Foods**

To analyze, characterize and evaluate the efficacy of functional ingredients from indigenous native plants including wild rice.

### **Human Health Benefits from Distillers Dried Grains (DDG)**

To classify and develop a rapid *in vitro* screening system of DDG bioactives with anti-inflammatory, chemoprotective and cardiovascular health benefits for incorporation into food product prototypes.

### **Human Health Benefits of Pulse Crops**

Fractionation, characterization and formulation of consumer appealing finished food products utilizing pulse flours, blends and fractions.

### **Forage Finished Beef**

Research and evaluate value chain models to sustain year-round production of consumer-ready beef products that consistently demonstrate the quality and health attributes desired by the market.

### **Functional Flours from Prairie Grains**

To develop functional flours from a combination of prairie grains suited for use in food products marketed to populations at-risk for the development of type-2 diabetes and obesity.

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