UM | Richardson Centre for Food Technology and Research

July 2025 Newsletter

DIRECTOR'S MESSAGE

Hello researchers, students and industry stakeholders. I am pleased to share a number of positive developments since the last newsletter published in December 2024.

On June 3, CFIA inspected the RCFTR Dry Fractionation Facility with respect to 1) sanitation, biosecurity and biocontainment and 2) equipment design and maintenance. In both cases, CFIA found the RCFTR "to be compliant" highlighting the safe and quality work performed at the Centre on behalf of the food industry. This is a big achievement - well done RCFTR team!

Infrastructure renewal continues at the Centre. A new Rheology Lab is up and running at the Centre under the direction of Dr. Cristina Rosell. The new lab allows for a comprehensive analysis of the functional and rheological properties of wheat and other grains, supporting grain quality research and bakery applications.

I am very pleased on the continued growth of the RCFTR ICP-MS Facility for metal and mineral testing. Samples from across campus are now routinely submitted to the Facility in addition to external clients. To better process the increasing number of samples, a 45L box furnace was recently purchased and should be installed soon.

RCFTR hosted three industry-led workshops over the past few months. These workshops are excellent opportunities for local researchers from both academia and industry to engage with industry technical experts on cutting edge technologies. A special thank you to KPM Analytics (Aligning Milling and Baking Quality Control Methods for Modern Processes, March 6-7); Food and Beverage Manitoba (Food Industry Sanitation Training, April 22) and ATS Scientific (Characterizing and Improving Product Performance and Shelf Life in Food, May 7). We look forward to hosting additional industry-led workshops in the future.

The NRC-IRAP Contribution to Organization (CtO) program continues to bring significant value to Canadian SMEs. Since January 1, 2025, RCFTR has completed or is currently working on 12 different CtO projects. If you are a Canadian SME and looking for financial support to advance your food ingredient research program, please contact the Centre.

ABOUT US

The Richardson Centre for Food Technology and Research (RCFTR) is a 55,000-ft^2 state-of-the-art research centre within the Faculty of Agricultural and Food Sciences, University of Manitoba, located on the Fort Garry campus. Our mission is to advance food quality and human nutrition through traditional and innovative food processing techniques. Our mandate is to support the food and agriculture value chain by engaging in collaborative research and development activities with the food industry.

It was a pleasure attending the Manitoba Sustainable Protein Research Symposium on July 7. The plant- and animal-based protein research ecosystem in Manitoba is indeed healthy and growing. In addition, for the third consecutive year, RCFTR had a booth at the Institute for Food Technologists trade show in Chicago July 14-16. Regular attendance at the trade show has helped increase the profile of the Centre among international companies.

Lastly, a big congratulations to Dr. Filiz Koksel on her recent appointment as the new Manitoba Strategic Research Chair in Sustainable Protein. We are very pleased that Dr. Koksel's active research program is based at the Centre and the RCFTR looks forward to continued research collaboration towards realizing the objectives of the Chair position.

Additional news items on the Centre are described inside. We look forward to continued growth at the Centre aligned with our mission of "Advancing food quality and human nutrition through traditional and innovative food processing techniques."

Rotimi Aluko, PhD
Director

SAVE the DATE

RCFTR Food Technology and Research Day

Thursday, November 13

SmartPark Innovation Hub, 100 Innovation Drive

Stay tuned for more details!

STUDENT CORNER

Harshani Vidana Hewage is a third-year Ph.D. candidate at the Food Proteins and Bioproducts Lab, University of Manitoba, under the supervision of Dr. Nandika Bandara. She received her B.Sc. and M.Phil. degrees in Food Science from the University of Peradeniya, Sri Lanka. Her Ph.D. research focuses on sustainable food processing technologies such as deep eutectic protein extraction and high-voltage cold plasma to develop protein ingredients with improved functionality from emerging crops. Harshani's recent accomplishments include receiving the Thomas H. Smouse Memorial Fellowship from the American Oil Chemists' Society (AOCS) and winning the Outstanding Poster Presentation award, Ph.D./Postdoctoral Fellow category at the 2025 Annual Manitoba Sustainable Protein Research Symposium. In 2024, she won the Outstanding Oral Presentation award at the same conference. She serves in different leadership roles as Co-Chair of the Student Committee at the Canadian Institute of Food Science and Technology (CIFST), Co-Chair of the Student Common Interest Group, AOCS, Secretary of the CIFST Manitoba Section Management Committee, etc.

GRADUATE STUDENT COMPLETIONS

Siwen Luo, PhD - Advisor Dr. Filiz Koksel
Helen Agunbiabe, MSc - Advisor Dr. Rotimi Aluko
Abisoye Olukitibi, MSc - Advisor Dr. Rotimi Aluko
Anuruddika Hetti Hewage, PhD - Advisor Dr. Nandika Bandara
Kemashali Kirusnaruban, MSc -Advisor Dr. Cristina Rosell

POST-DOC CORNER

Dr. Maryam Samsamikor is a Postdoctoral Fellow working with Drs. Dylan Mackay and Rebecca Molard at the Seven Oaks Hospital Chronic Disease Innovation Centre (CDIC), affiliated with the Department of Food and Human Nutritional Sciences at the University of Manitoba. Dr. Samsamikor earned her PhD in Human Nutritional Sciences from the University of Manitoba under the supervision of Dr. Rotimi Aluko in 2023. Her doctoral research focused on the antihypertensive effects of hemp seed protein and its bioactive peptides in individuals with high blood pressure. In her PhD work, she generated bioactive peptides in the lab using human gastrointestinal enzymes and secured a Health Canada product number for the resulting product for human consumption. Since starting her postdoctoral fellowship, she has contributed to several research projects, including the ReSPECKD study, which investigated the effects of resistant starch prebiotics on serum toxin levels in patients with end-stage chronic kidney disease at Seven Oaks General Hospital. Her current research, under the supervision of Dr. Semone Myrie, explores the antihypertensive effects of Canadian haskap berry powder in women, as well as its potential impacts on memory, cognition, alertness, and mood. Through this work, Dr. Samsamikor aims to advance the development of evidence-based, natural interventions that support cardiovascular and cognitive health, ultimately promoting healthier aging and improved quality of life for Canadians.

CAPACITY HIGHLIGHT - RHEOLOGY LABORATORY

The rheology laboratory led by Dr. Cristina Rosell was established with funding support from the Canada Foundation for Innovation, Research Manitoba, and UM. The lab is equipped with advanced instruments including a Falling Number, Rapid Visco Analyzer (RVA), Mixolab, GlutoPeak and Extensograph, which complement the current milling and analytical infrastructure at the RCFTR. This state-of-the-art equipment enables a comprehensive analysis of the functional and rheological properties of wheat and other grains, supporting research focused on evaluating grain quality as an indicator for their performance in bakery applications. Current research questions explore the relationship between grain composition and dough behavior, the impact of processing conditions on functionality, and the prediction of end-use quality based on rheological profiles.

TENANT HIGHLIGHT

Genebright Biosolutions (GBB), located at the RCFTR, is a Manitoba-based biotech company dedicated to plant health diagnostics and agricultural research. Founded by Drs. Fouad Daayf and Mohammad Sayari, GBB offers rapid, accurate, and cost-effective diagnostic services tailored to the needs of producers, processors, and agri-businesses across the province.

GBB's core services include molecular diagnostics for a wide range of fungal, bacterial, and viral plant pathogens, soil microbiome testing, and custom bioinformatics analysis. By leveraging cutting-edge technologies and in-house expertise in genomics, plant pathology, and data science, we empower stakeholders to make informed decisions that enhance crop productivity and sustainability.

In addition to diagnostics, GBB is actively expanding its R&D portfolio, aiming to establish in-house sequencing capabilities and develop next-generation pest and pathogen control strategies using RNAi and CRISPR technologies. Through our work, we strive to support local agriculture, reduce diagnostic turnaround times, and contribute to Manitoba's position as a leader in agricultural innovation.

We are proud to be part of the RCFTR community and welcome collaborations with academic, industry, and government partners. For more information, please visit www.genebrightbiosolutions.com

PROTEIN CHAIR ANNOUNCED

The University of Manitoba is pleased to welcome Dr. Filiz Koksel as the new Manitoba Strategic Research Chair in Sustainable Protein, a role that continues to advance sustainable agri-food innovation and leadership in plant and animal protein research and innovation.

Dr. Koksel, an associate professor in the Department of Food and Human Nutritional Sciences, leads an interdisciplinary research program that aligns closely with Manitoba's Protein Advantage Strategy. She holds BSc and MSc degrees in Food Engineering and earned her PhD in Food Science from the University of Manitoba.

"My vision for this Chair is to position Manitoba as a global leader in sustainable protein innovation by uniting scientific discovery with industry partnerships," said Dr. Koksel. "Together, we will create solutions that advance food security and climate resilience for generations to come."

Dr Koksel's current work focuses on developing novel, environmentally friendly protein ingredients from crops such as peas, soybeans, faba beans, and hemp. Using advanced processing techniques like extrusion cooking, Dr. Koksel enhances the texture, nutrition, and sensory quality of plant-based foods, supporting the growing demand for sustainable protein options.

Her research also explores adding value to food industry co- and by-products, transforming waste from sectors such as brewing, oilseed processing, and meat processing into high-value ingredients for both human and pet food. She integrates cutting-edge, non-invasive technologies—such as ultrasonic and thermal imaging—for real-time quality control in food processing environments.

Looking ahead, Dr. Koksel will expand her research into hybrid protein products that combine plant and animal proteins, as well as innovative uses for dairy proteins. These efforts will contribute to Manitoba's circular economy and reinforce the province's role as a hub for sustainable agri-food innovation.

"Dr. Koksel's appointment reflects the University of Manitoba's commitment to research excellence and innovation in the development of the province's protein resources," said Dr. Martin Scanlon, Dean, Faculty of Agricultural and Food Sciences. "Her interdisciplinary approach and strong industry collaborations make her ideally suited to lead this important initiative. We are excited to see how her work will contribute to Manitoba's Protein Advantage Strategy and help shape the future of protein production and transformation in the province and beyond."

The Manitoba Strategic Research Chair in Sustainable Protein is supported by the Government of Manitoba and industry partners, and is housed within the Faculty of Agricultural and of Sciences at the University of Manitoba. Dr. Koksel's appointment bolsters the province's research leadership in advancing sustainable protein innovation on the global stage.

RESEARCH AWARDS

Extrusion cooking of yellow pea starch- and fibre-based puffed snacks: Linking variability in raw materials to extrusion performance
Project team: Filiz Koksel (PI), Cristina Rosell (Co-PI)
Funding source: MITACS Accelerate Program
Total funding received: $51,500

Rheometer accessories for characterizing the mechanical properties of food materials
Project team: Filiz Koksel (PI), Cristina Rosell (Co-PI)
Funding source: NSERC - Research Tools and Instruments (RTI)
Total funding received: $138,102

Sustainable dry-fractionation techniques for expanding maize and oat application in food and beverage products
Project team: Cristina Rosell (PI), Rotimi Aluko (Co-PI)
Funding source: NSERC Allliance
Total funding received: $25,000

The Future is Gree(ai)n. NSERC - Collaborative Research and Training Experience (CREATE)
Project team: Filiz Koksel, Nandika Bandara, Cristina Rosell
Funding source: NSERC - Collaborative Research and Training Experience (CREATE)
Total funding received: $1,650,000

Upcycling sunflower meal to enhance value-added applications: Improving functionality in sunflower protein through novel processing technologies
Project team: Nandika Bandara (PI), Rotimi Aluko (Co-PI)
Funding source: Sustainable CAP – Research and Innovation grant
Total funding received: $272,899

Ultra Performance Liquid Chromatography Equipment for (UPLC) high-throughput analysis of amino acids, allergens, bioactive molecules, & fermentation metabolites
Project team: Nandika Pandara (PI)
Funding source: NSERC - Research Tools and Instruments (RTI)
Total funding received: $150,000

Cellular Agriculture Prairies Ecosystem (CAPE) Project
Project team: Nandika Bandara (Co-PI)
Funding source: Prairies Canada, Alberta Innovates, and Government of Canada
Total funding received: $1,000,000

Effects of radio frequency treatment on the milling, nutritional quality and food formulation properties of yellow field pea and fava bean seeds
Project team: Rotimi Aluko (PI), Cristina Rosell (Co-PI):
Funding source: Sustainable CAP – Research and Innovation grant
Total funding received: $122,332

Pea protein hydrolysates as a source of peptide-based natural bitter taste modifiers
Project team: Chelikani P (PI), Rotimi Aluko (Co-PI)
Funding source:Research Manitoba Proof-of-Concept Grant
Total funding received: $100,000

AOCS 2025

The University of Manitoba delegation at the 2025 AOCS conference in Portland, Orego, USA which was held April 27-30, 2025.

RCFTR SHOWCASED AT IFT 2025

The University of Manitoba was once again well represented at Institute of Food Technologists FIRST Annual Event and Expo 2025 in Chicago, IL on July 13-16. This is the third year that RCFTR had a booth at the largest global food science and innovation expo.

NUTRITION STUDY VOLUNTEERS NEEDED!

Dr. Semone Myrie is Principal Investigator of a new study based at the RCFTR.

Do you have high blood pressure?

Are you a woman who is at least 35 years old?

If so, you may be eligible to participate in a short nutrition study at the RCFTR investigating the effects of haskap berry powder on blood pressure.

If interested please email **haskapberrystudy@umanitoba.ca**

FUNDING OPPORTUNITY FOR CANADIAN SMEs

Are you a Canadian small-to-medium size enterprise looking for financial support to assist your food ingredient R&D program?

If so, you may be eligible for up to $5,000 in funding via a National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP) supported program for work performed at the Univeristy of Manitoba's Faculty of Agricultural and Food Sciences and Richardson Centre for Food Technology and Research.

The Contribution to Organization (CtO) program helps build and integrate innovation capacity in Canada and encourages investment in research and development activities that have clear commercialization goals.

Application is two pages in length and review time is one week.

Since April 2022, RCFTR completed more than 20 NRC-IRAP funded projects from food companies across Canada.

Core areas of expertise at the RCFTR include the following:

1. Pilot scale milling, air classifying, dehulling in a SFCA licensed facility
2. Lab- and pilot-scale oilseed screw pressing in a SFCA licensed facility
3. Protein quality testing
4. Food functionality testing
5. Sustainable packaging
6. Cooking extrusion
7. Flour quality and bakery applications
8. Human nutrition testing
9. Phytochemical testing
10. Lab-scale supercritical fluid extraction with CO_2 and/or ethanol
11. Metal and mineral testing using ICP-MS techniques
12. Particle size distribution testing

The CtO program is a great way to connect with world class faculty and staff in food ingredient testing, processing and applications. For more information, contact Dr. Nazim Cicek at agresearch@umanitoba.ca.

FACULTY AND TRAINEE AWARDS

Dr. Nandika Bandara
- American Oil Chemists' Society (AOCS) Young Scientist research award

Thilini Dissanayake
- AOCS Honoured Student award
- First place winner in the student oral presentation competition of the IFT Protein Division
- Research Manitoba PhD Studentship
- Outstanding Volunteer Award, IFT Protein Division

Harshani Vidana Hewage
- AOCS Thomas Smouse Memorial fellowship

Zainab Husain
- Second Place student poster award winner (AOCS Protein and Co-Products Division)
- Research Manitoba MSc Studentship

Chamali Kodikara
- Outstanding Volunteer Award, IFT International Division
- NSERC Vanier Award

Ravinder Singh
- NSERC Doctoral Award

Zainab Husain, Vidheesha Abeysinghe, Chamali Kodikara, Victoria Chavez, and Thilini Dissanayake
- Second place in the IFT Proteins of the Future Challenge organized by IFT Protein Division

2025 Manitoba Sustainable Protein Symposium
- Outstanding Oral Presentation (MSc): **Zainab Husain**
- Outstanding Oral Presentation (PhD/PDF): **Thilini Dissanayake**
- Outstanding Poster Presentation (MSc): **Shimani Attygalle**
- Outstanding Poster Presentation (PhD/PDF): **Harshani Nadeeshani Vidana Hewage**
- Excellence in Poster Presentation (MSc): **Victoria Margarita Mizrachi-Chavez**
- Excellence in Poster Presentation (PhD/PDF): **Nazanin Vafaei**
- People's Choice Award – Best Oral Presentation (MSc): **Kofi Oduro**
- People's Choice Award – Best Oral Presentation (PhD/PDF): **Angela Pamela Pezuk**
- People's Choice Award – Poster Presentation: **Kemi S. Kanani**

INDUSTRY-LED WORKSHOPS @ RCFTR

RCFTR was thrilled to host three (3) industry-led workshops this past spring. Industry sponsors included KPM Analytics, Food and Beverage Manitoba and ATS Scientific. These workshops offered excellent opportunities for both academic and industry researchers to engage with industry technical experts. We were pleased to see very good attendance from local industry members.

KPM Analytics: Aligning Milling and Baking Quality Control Methods for Modern Processes

March 6-7

Food and Beverage Manitoba: Food Industry Sanitation Training

April 22

ATS Scientific: Characterizing and Improving Product Performance and Shelf Life in Food

May 7