



## July 2024 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 2023.

On January 25-26, 2024, the RCFTR hosted the 2nd International Trainee Symposium in Agri-Food, Nutrition and Health. The hybrid event was chaired by Dr. Cristina Rosell, FHNS Professor and Head, with >70 presentations by graduate students and postdoctoral fellows from Canada, Ecuador, Italy, Mexico, Nigeria, Portugal, Russia, Tunisia, Spain and Sri Lanka. The symposium strengthened research collaborations from around the world helping to advance food quality and nutrition.

The Bioscience Association of Manitoba awarded Dr. James House, FHNS Professor, with the "Outstanding Leadership in Bioscience of the Year" award on March 6, 2024. This is a well-deserved honour recognizing his many professional achievements. Congratulations Jim!

The Manitoba Sustainable Protein Research Symposium was held June 19, 2024 and RCFTR presented two posters entitled, "Production of Pulse Protein Concentrates by Dry Fractionation" and "Determination of Metal and Mineral Content in Plant-Based Protein Supplements using Inductively Coupled Plasma Mass Spectroscopy Techniques". The dry fractionation project generated various food ingredient fractions which were further processed and assessed for bakery applications at FDC and RRC Polytechnic. Congratulations to the many RCFTR graduate students and post-docs who presented both poster and oral abstracts at the symposium.

The RCFTR hosted the INFOGEST 2.0 training workshop July 9-12, 2024. The event was organized by Dr. James House and his team with support from The Manitoba Strategic Research Chair in Sustainable Protein, Agroscope Switzerland, CSIC Spain, Teagasc Ireland and INRAE. The focus of the workshop was the INFOGEST 2.0 digestion protocol, a globally recognized method for simulating the human gastrointestinal process and evaluating food digestion. The workshop was led by top trainers from the European Union attracting 25 trainees from across Canada, USA and Mexico. We thank Protein Industries Canada and Human Society International (Canada) for funding.

### ABOUT US

The Richardson Centre for Food Technology and Research (RCFTR) is a 55,000-ft<sup>2</sup> 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.

For the second year in a row, RCFTR had a booth at the Institute of Food Technologists tradeshow in Chicago for the purpose of raising the Centre's profile among international researchers. I was pleased to see the high level of interest at our booth in the R&D services we offer. Two research contracts with international companies were secured from last year's IFT booth and we hope to build upon this initial success.

The second annual "RCFTR Food Technology and Research Day" is scheduled for November 14, 2024 at the UM SmartPark Innovation Hub, 100 Innovation Drive. We are thrilled Mike Fata, co-founder of Manitoba Harvest Hemp Foods, is the keynote speaker. The agenda includes speakers from across industry and academia in food ingredient testing, processing and applications, a student poster session, network opportunities plus lunch and light refreshments.

Additional news items on the Centre are described below. 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

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DATE

**RCFTR Food Technology and Research Day**

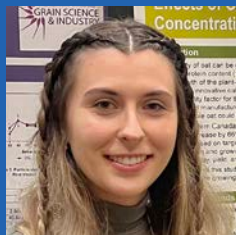
Thursday, November 14

UM SmartPark, 100 Innovation Drive

*Stay tuned for more details!*

## STUDENT CORNER

**Vanessa Alexander** commenced her M.Sc. program at the UM Department of Food and Human Nutritional Sciences in 2022 under the supervision of Dr. Trust Beta and Dr. Lovemore Malunga, Research Scientist at Agriculture and Agri-Food Canada. Vanessa's most recent accomplishments include successfully defending her Master's thesis titled, "Unlocking the Value of Canadian Oats: Evaluating Oat Starch By-Product Through Starch Noodle Production." Her research delved into the properties of oat starch, specifically exploring its potential application in noodle production. Vanessa's work has opened new doors for utilizing oat starch in ways not previously explored. Her work was featured in The Western Producer magazine, highlighting the impact of her research. With her Master's program now behind her, Vanessa looks forward to continuing her journey in food science research and she is eager to contribute further to the field.



## POST-DOC CORNER

**Dr. Deepak Kadam** is a Postdoctoral Fellow in Dr. Rotimi Aluko's research group investigating structural and functional properties of bioactive peptides and polyphenols. He received his Ph.D. in food biotechnology from the Institute of Chemical Technology, India, bringing extensive experience in research, teaching, and industry to the UM. He previously worked as an application



specialist at JASCO, India, for three years specializing in HPLC/UHPLC, mass spectrometry and circular dichroism. His current research focus is in the extraction and purification of novel bioactive peptides from pea protein, and investigating their antioxidant profile and ability to block bitter tastes (T2Rs) in stable mammalian cell lines. He envisions his research yielding solutions to bitterness issues in food, nutraceutical and pharmaceutical products thereby enhancing consumer satisfaction and market acceptance.

## STAFF UPDATE

**Meenakshi Raina** took on the role of Business Manager with RCFTR in January 2019. She joined the University of Manitoba's Financial Services in January 2015 as Research Compliance Accountant and in 2017 as a Senior Research Accountant.



In her current role, Meena is accountable for the planning and directing of the operation, administration, human resources and financial performance of the unit. In 2022, she received a Faculty of Agricultural and Food Sciences Support Staff Award for her exceptional administrative leadership.

She obtained her B. Comm and MBA in Finance from India. She completed her Certified Management Accountant CPA Canada degree in 2015. She holds 10 years of retail banking experience in India as a Senior Manager. She moved to Canada in 2011 and worked with Duffy's Taxi as Intermediate Accountant until 2014.

She loves painting, travelling and listening to music.

## FACULTY RESEARCH NEWS

**Dr. Trust Beta** awarded a NSERC Discovery Grant (\$235,000) for the project entitled "Phytochemicals released from grain digesta: Molecular mechanisms of protection against oxidative stress, inflammation, and intestinal barrier dysfunction".

**Dr. Rotimi Aluko** awarded the Sustainable Canadian Agricultural Partnership Grant (\$89,925) for the project "Quantitative and qualitative evaluation of the relationships between yellow field pea seed vicilin/legumin ratios and protein functionality".

**Drs. Filiz Koksel, Maneka Malalgoda, Cristina Rosell and Martin Scanlon** all delivered talks at the 17th International Cereal and Bread Congress held April 22-25, 2024, in Nantes, France. The theme of the Congress was "Healthy Cereal Diets from Sustainable Food Systems".

**Dr. James House** was recently appointed to an Expert Panel for the National Academies of Sciences, Engineering and Medicine (NASEM) to review current methods used by the US Food and Drug administration to evaluate protein quality in infant formulas. [See further details here.](#)

**Dr. House**, along with his co-authors **Drs. Amanda Sa, Erin Goldberg and Elaine Krul**, recently published a manuscript that positions alternatives to the use of animal testing for the substantiation of protein content claims on foods.

Krul ES, Sá AGA, Goldberg EM, House JD. In vitro protein digestibility to replace in vivo digestibility for purposes of nutrient content claim substantiation in North America's context. *Front Nutr.* 2024 May 24;11:1390146.

[See full manuscript here.](#)

# INFOGEST 2.0 WORKSHOP

The INFOGEST 2.0 workshop was hosted by RCFTR on July 9-12. This inaugural North American training workshop was a collaborative effort between UM, the Manitoba Strategic Research Chair in Sustainable Protein, and Agroscope Switzerland, CSIC Spain, Teagasc Ireland, and INRAE. The workshop centered on the INFOGEST 2.0 digestion protocol, a globally recognized method

for simulating the human gastrointestinal process and evaluating food digestion. While the focus of the workshop was on digestion and measurement protocols for protein and amino acids, attendees also gained knowledge on the foundations of the digestion protocol. Five trainers from Europe and 25 trainees from North and South America from both academia and industry.



## CAPACITY HIGHLIGHT

The **RCFTR ICP-MS Facility** opened on July 1, 2023. Since that time, the Facility has tested thousands of samples ranging from animal feed, soil, sediment and water samples. The Facility is equipped with an Agilent 7850 ICP-MS, microwave digester, type 1 water system, analytical balance, ashing oven and fume hood. The Facility is operated by Mr. Atanas Karamanov, with over 10 years ICP experience. [See a recent research poster highlighting the Facility's capacities here.](#)

The **RCFTR Dry Fractionation Facility** (pictured to the right) is Safe Food for Canadians Act (SFCA) licensed with capacity to mill, air classify and dehull at the pilot-scale (~100 kg/h). In the past two years, over 20 industry research contracts have flowed through the Dry Fractionation facility. These equipment are operated by Mr. John Bachu and Mr. Finley Makila. Last year, the Centre

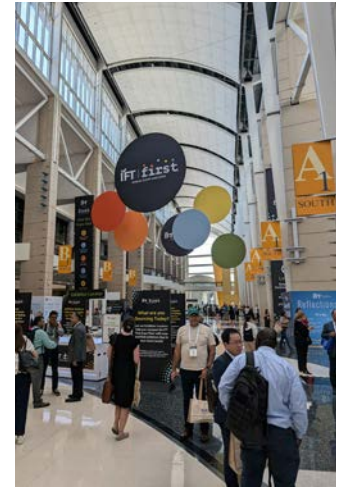
installed a pilot-scale oilseed screw press equipped with a steam mixer with pressing capacity of 20-40 kg/h. To date we have successfully defatted hemp, flax and shelled sunflower seeds. [See the most recent research poster highlighting the Facility's capacities here.](#)



## RCFTR ATTENDS IFT 2024

The University of Manitoba was well represented at IFT 2024 in Chicago, IL on July 15-17, including four graduate students all presenting research data. For the second consecutive year, RCFTR had a booth at the IFT FIRST expo promoting its services to companies from around the world.

Below, from left to right: Michael Janzen, Tomer Hatzir, Nicola Gasparre, Chamali Tharangani Kodikara, Cristina Rosell, Thilini Dissanayake, Anuruddika Hetti Hewage and Nandika Bandara



## 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 University 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<sub>2</sub> 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](mailto:agresearch@umanitoba.ca).