



UM | Richardson Centre for Food Technology and Research

December 2022 Newsletter

DIRECTOR'S MESSAGE

Hello researchers, students and industry stakeholders. I am happy to share a number of positive developments since the last newsletter published in July 2022.

On August 23, the RCFTR celebrated its new name and mission by inviting industry, government and academic stakeholders to the Centre. RCFTR Director Dr. Rotimi Aluko served as program emcee and Dr. Digvir Jayas, UM Vice-President (Research and International) and Ms. Shannon Fijal, Richardson Foundation Executive Director, shared a few words. Over 120 people attended the event. After the short program, attendees were provided the opportunity to meet researchers and students, visit laboratories, and learn more about research in food and human nutritional sciences at the Centre.



August 23, 2022 RCFTR Event (l to r): Digvir Jayas (UM), Shannon Fijal (Richardson Foundation), Jean-Marc Ruest (Richardson International), Rotimi Aluko (UM)

Intensifying research at the RCFTR continues. In August, Dr. Filiz Koksel, Assistant Professor in the Department of Food and Human Nutritional Sciences, moved her research laboratory to the RCFTR. Dr. Koksel's research interests are in food processing and non-destructive assessments of food quality, significantly enhancing the Centre's food processing and testing capacities. Dr. Koksel is looking forward to collaborating with food science researchers within the Centre. Dr. Koksel, welcome to the RCFTR!

We are pleased the Centre continues to upgrade and renew its infrastructure. First, the Centre has a brand new analytical chemistry laboratory. Drs. Annemieke Farenhorst and Francis Zvomuya, Faculty from the Department of Soil Sciences, were awarded funds from Prairies Canada to purchase state-of-the-art analytical equipment. The laboratory is up and running and housed in a secure 520 ft² room dedicated to these state-of-the-art instruments. Applying these instruments to food science research questions is actively underway. Second, the Centre recently installed a new Malvern Mastersizer 3000

ABOUT US

The Richardson Centre for Food Technology and Research (RCFTR) is a 55,000-ft² 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.

NEW ANALYTICAL CHEMISTRY LAB!

The University of Manitoba's newest state-of-the-art analytical laboratory is housed at the RCFTR. This lab is capable of providing qualitative and quantitative solutions to a wide spectrum



of analytical challenges. The lab is equipped with the latest analytical instruments including Agilent ultra-high performance liquid chromatography-tandem mass spectrometry, Agilent gas chromatography-tandem mass spectrometry, Agilent gas chromatography-mass selective detection, and Bruker Fourier-transformed near infrared spectrometric analysis. All mass spectrometry units have very low detection and quantification limits (femtogram to microgram), wide dynamic working ranges, excellent selectivity, specificity, accuracy, and precision. More information on the lab may be found at <https://www.masslaboratories.com/>

instrument used to accurately measure particle size distribution profiles of a range of food ingredients and products. This is an upgrade from the Centre's previous Mastersizer 2000 model.

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."

Semone Myrie, PhD
Acting Director

RCFTR TENANT HIGHLIGHTS

The Canadian Grain Commission (CGC) regulates grain handling in Canada and establishes and maintains science-based standards for grain quality and safety. Our research, programs and services help support Canada's reputation as a consistent and reliable source of high-quality grain. The Microbiology and Grain Genomics program performs molecular research and develops tests to distinguish crop varieties, which differ in their quality. These tests are used by the CGC and its partners to perform critical monitoring within the grain handling system for variety/class purity, which impacts grain quality and clients/end-users. The program also develops and performs tests for bacteria and fungi that threaten grain production or make grain unsafe for consumption by humans or livestock. The program is equipped with world-class DNA sequencing and high-throughput genotyping systems, allowing it to be a leader in DNA-based research of microbes and grain crops.



Canadian Grain Commission
Commission canadienne
des grains

RCFTR RESEARCH COMMUNITY

Dr. Filiz Koksel is a food scientist with expertise in food processing and non-destructive assessments of food quality. Her research program tackles issues related to an ever-increasing demand for sustainable high quality plant-based foods at the interface between food processing and materials science. To bring Canadian crops from the field to our tables, Dr. Koksel looks at several unit process operations involved - such as milling, mixing, baking, texturization and extrusion - in transforming these crops into foods with superb palatability and nutritional value. She has received several awards, including the Young Scientist Research Award from the Cereals and Grains Association (2019), the Terry G. Falconer Memorial Rh Institute Foundation Emerging Researcher Award (2021) and the CBC Manitoba Future 40 (2022).



Dr. Sean Walkowiak is the Program Manager for Microbiology and Grain Genomics at the Canadian Grain Commission. He is also an Adjunct Professor at the University of Manitoba in the Department of Plant Sciences and is a regular host to undergraduate and graduate students. Sean is known for his research on grain microbiology and plant-pathogen interactions, particularly the Fusarium Head Blight disease of wheat. He also researches grain crop genomics and contributed to the first chromosome-scale genome assemblies for bread wheat, durum wheat, and rye. In 2022, he was awarded the Outstanding Young Scientist Award from the Canadian Phytopathological Society for his contributions to our understanding of grain crops and their microbial diseases.



STUDENT CORNER

Thilini Dissanayake is a first-year PhD student in food science from Food Proteins and Bioproducts Lab under the supervision of Dr. Nandika Bandara. She finished her MSc in March 2022 in the same group where her thesis focused on developing biodegradable food packaging materials using canola protein and nanocrystalline cellulose. In her PhD research, nanotechnology, material science, and chemistry principles will be used to develop novel nanodelivery systems using sustainable protein and lipid sources to increase the bioavailability of bioactive compounds. Thilini is Chair of the American Oil Chemist's Society's Student Common Interest Group and President of the Food and Human Nutritional Sciences Graduate Students Association.



RESEARCH ASSISTANT CORNER

Ravinder Singh is a Research Assistant in Dr. Filiz Koksel's lab. Before this, he completed an MSc under the supervision of Dr. Koksel on a research project that investigated the impact of extrusion processing on the techno-functionality of soybean meal. Currently, his research focuses on producing meat alternatives from pulses, cereals and oilseed by-products using low and high moisture extrusion processing. Besides this, he is also working on to produce nutritious extruded snack foods and breakfast cereals using high protein ingredients. The aim is to provide significant contributions to the Canadian agri-food sector by providing sustainable protein products, novel food ingredients and valorizing the food industry side streams.



RCFTR STAFF

John Bachu is Technician at the Richardson Centre for Food Technology and Research. John joined the Centre in 2010 and is actively involved in all Centre operations. John is experienced operating many of the key instruments and equipment at the Centre including the laboratory mills, pilot mills, pilot air classifier, oil press, Mastersizer 3000, supercritical fluid extraction apparatus, freeze dryer, tablet press and capsule filler. In 2021, John played a central role in licensing the RCFTR Milling Facility under the Safe Food for Canadians Regulations. John is the lead author in the Centre's Safety and Operations Policy Manual. John is excited about the Centre's current and future activities and is looking forward to collaborating with new researchers from both academia and industry.

