



## December 2023 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 June 2023.

Over the summer, Dr. Cristina Rosell moved her research laboratory to the RCFTR. Dr. Rosell is Professor and Head in the Department of Food and Human Nutritional Sciences. Her research program focusses on developing innovative cereal and grain-based food products with expertise in quality assessment, evaluating the physical properties of starch, enzymatic treatment in foods, doughs, and bakery products. Dr. Rosell's research program significantly expands the capacities of the Centre and increases opportunities to collaborate with researchers in academia and industry. Welcome to the RCFTR, Dr. Rosell!

The Centre's new pilot screw press equipped with steam mixer is now up and running! RCFTR has successfully pressed a number of oilseeds, including shelled sunflower and hemp seeds, at a feed rate of up to 60 kg/h. If required, the steam mixer can rapidly heat up the press to 90°C increasing oil extraction. The pilot oil press is a significant addition to the Centre and I look forward to future collaboration opportunities with oilseed researchers.

On November 1st, over 200 people attended the "RCFTR Food Technology and Research Day" with 16 food ingredient speakers from across academia, government, and industry. A successful student poster competition with 46 submitted posters was a highlight of the day. The event was also an excellent networking event bringing together researchers from across the food ecosystem. We look forward to future "RCFTR Food Technology and Research Day" events.

On a personal note, I was recently named Fellow of the Royal Society of Canada for my work investigating the value-added utilization of plant proteins and their role in human health. The award is a tremendous honour and a reflection of the immense research and development opportunities offered by the RCFTR. Thanks to all my past and current trainees, research collaborators, and the RCFTR staff for enabling this significant achievement in my professional career.

**Rotimi Aluko, PhD**  
Director

### ABOUT US

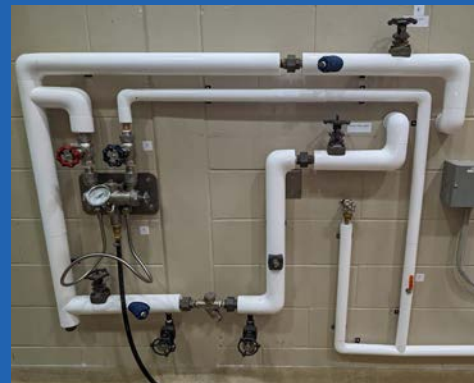
The Richardson Centre for Food Technology and Research (RCFTR) is a 55,000-ft<sup>2</sup> state-of-the-art research centre within the Faculty of Agricultural and Food Sciences, University of Manitoba, located on the Fort Garry campus. Our mission is to advance food quality and human nutrition through 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.

### CAPACITY HIGHLIGHT

The L-250 Laboratory Heavy Duty Laboratory Screw Press (French Oil Mill Machinery Company) equipped with steam mixer is now installed and operational at the Centre with a feed rate of up to 60 kg/h. If required, the screw press may be heated using a steam mixer where circulating water rapidly heats up the press from 50°C to 90°C, thereby increasing oil extraction efficiency. The pilot screw press is a unique capacity in Western Canada and we look forward to future collaborations with oilseed researchers.



Top: Screw Press  
Right: Steam Mixer



## STUDENT CORNER

**Nancydeep Kaur** is a Master's student in the Department of Food and Human Nutritional Sciences with a major in Food Science. She completed her undergraduate degree from Guru Nanak Dev University, India, with research work focused on modification of starch using acid-alcohol treatment. She started her Master's program in the fall term of 2022 under the supervision of Dr. Cristina Rosell. Her current research is investigating the impact of levels of alpha-amylase on wheat flour functionality and breadmaking. She believes that her research has the potential to reduce the pre-harvest sprouting losses of wheat, thus helping to maintain the sustainability of Canadian wheat.



Agriculture in Albany, California. Dr. Gasparre's current projects involve wheat, pulses and wild rice with the aim of contributing to the improvement of the Canadian agri-food system.

## RCFTR RESEARCH COMMUNITY

**Lovemore Nkhata Malunga, Ph.D.**, is a cereal chemistry and processing Research Scientist with Agriculture and Agri-Food Canada with the Morden Research Development Centre located in Winnipeg at the RCFTR. Lovemore's research program aims to promote the marketable attributes of Canadian cereal grains and pulses. Lovemore's research program focuses on maximizing the health potential of cereals and pulses, identifying components, bioactives, or milling fractions, and their physiochemical, functional, and nutritional properties. Our research program supports the agri-food industry by developing new agri-food processes and ingredients with healthy and functional attributes and investigating co-product utilization. Furthermore, our research program identifies the safety of cereal products by identifying threats formed during food processing. Lovemore is also an Adjunct Professor in the Department of Food and Human Nutritional Sciences at the University of Manitoba.



## POST-DOC CORNER

**Dr. Nicola Gasparre** is a Postdoctoral Fellow in Dr. Rosell's lab working on the design and development of innovative cereal and grain food products. Dr. Gasparre obtained his Bachelor's degree from University of Bari and a Master's degree in Human Nutrition and Food Science from University of Milan. After working in the R&D department of a gluten-free pasta company in Italy, he started a Ph.D. in Food Science at University of Valencia (Spain). The focus of his thesis work was to evaluate the functional properties of the different flours obtained from grains, pulses, and other vegetable sources when subjected to thermo-mechanical processes, collaborating with researchers from the Institute of Agrochemistry and Food Technology and the United States Department of



## STAFF UPDATE

Since our June 2023 newsletter, **Jasmine Arnold** returned from maternity leave. Jasmine is the Centre's Office Administrator and runs the office very efficiently. Welcome back Jasmine!



## TENANT HIGHLIGHT

Prairie Scientific Inc. provides clients with reliable environmental data for use in policy, regulation, and other decision making. They prioritize collecting both western scientific and local traditional knowledge providing a complete picture of environmental status, helping their clients prepare for challenges related to climate change, effluent regulations, and local contamination.



Prairie Scientific currently supports the Kivalliq Inuit Association in Nunavut by helping to answer questions such as, "Is the water safe to drink?" and "Are the fish safe to eat?" around these communities using both



Traditional Knowledge and other scientific data. Prairie Scientific collects samples of water, fish, and sediment, while conducting Elder interviews out on the land. This project has expanded over the past three years to cover four of the seven communities in the Kivalliq Region, and they hope to grow to the last three in the next year or two.

Prairie Scientific also provides environmental DNA, or eDNA, analysis providing information on a species occupying a habitat based on DNA found in the environment. They are one of a few groups across the country who can provide this service, and one of even fewer who can help design a study, collect, and analyze samples all in house.

# RCFTR FOOD TECHNOLOGY AND RESEARCH DAY

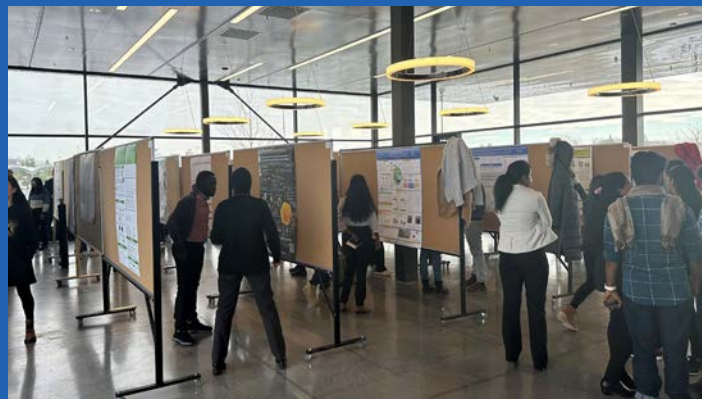
On November 1st, over 200 people attended the “RCFTR Food Technology and Research Day” with 16 speakers from across academia, government, and industry. The event was a great opportunity for industry to engage directly with RCFTR researchers and discuss collaboration opportunities. A student poster competition was held with 46 submitted posters. Congratulations to all participating students on their excellent poster presentations. Award recipients and poster titles are listed below.

**Jiayi Chen (1st place):** Impact of High-Hydrostatic Pressure on Anti-Nutritional Factors and In Vitro Protein Quality of Yellow Peas and Their Related Products

**Logesh Dhanapal (1st place):** Non-Destructive Testing and Chemical Mapping of Plant-Based Meat Quality Using Portable Hyperspectral Imaging

**Thilini Dissanayaka (2nd place):** Comparative Study of Chemical, Structural and Functional Properties of Hemp Protein as Affected by Extraction Method

**Olamide Fadairo (3rd place):** Air Frying-Ultrasound-Added Extraction: A Combination Approach for Improving the Extraction of Polyphenols and Antioxidant Potential of Canola Co-Products



## FOOD PRODUCT DEVELOPMENT AWARD

Dr. Filiz Koksel's research team participated in a food development competition at the recent Cereals and Grains 2023 conference in Schaumburg, IL. The team consisting of two PhD students, Ravinder Singh and Siwen Luo, and an MSc student, Amanjeet Singh, developed “SustainaBites”, a puffed snack product. This innovative snack uses a blend of underutilized and upcycled ingredients, including fava beans, spent brewery grain, and pea hulls. Competing against numerous teams from universities worldwide, Dr. Koksel's research group was selected as finalists and presented their product in-person at the meeting. Their inventive extruded snack earned second place in the Student Product Development Competition, bringing international recognition to the University of Manitoba and RCFTR. Congratulations to the team for their outstanding achievement!



(L to R): Filiz Koksel, Siwen Luo, Ravinder Singh and Amanjeet Singh.

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