

Bringing Research to LIFE

Upcoming Events

My Research Tools (MRT) demonstrations

A brief hands-on demonstration to assist researchers with updating their public profile data.

All attendees entered to WIN A PRIZE!

Fort Garry Campus dates:
(Rm 340 University Centre)

Tuesday, October 18, 2011
12:00 p.m. - 1:00 p.m.

Wednesday, October 26, 2011
12:00 p.m. - 1:00 p.m.

Bannatyne Campus dates:
(Rm 231, NJM Health Sciences Library)

Thursday, October 20, 2011
12:00 p.m. - 1:00 p.m.

Monday, November 7, 2011
12:30 p.m. - 1:30 p.m.

For info on MRT:
<http://umanitoba.ca/research/ors/mrt.html>

Manitoba-India Symposium

An academic and cultural symposium that will highlight collaborative research and education projects in India.

Saturday, October 29, 2011
8:30 a.m. to 4:30 p.m.

Room E3-270
Engineering & Information Technology Complex (EITC)
75 Chancellor's Circle
University of Manitoba

For more info visit: <http://www.umanitoba.ca/indiasymposium/>

Advance registration required:

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Food Flavouromics

Ensuring something so good, doesn't taste so bad

BY MELNI GHATTORA

He comes bearing muffins but don't be fooled by the tasty treats. Michel Aliani may create a variety of baked goods but he is not a baker by trade, nor is he sharing his recipes any time soon.

Why exactly is Aliani baking flax filled goods? His collaborators, which include colleagues at the University of Manitoba, have identified health benefits associated with a daily intake of 30 grams of flax seeds for patients previously diagnosed with peripheral arterial disease (PAD).

"These muffins made with flax seed, which is a functional food we think will provide a benefit to people with PAD," explains Aliani. "One day they may have a muffin or the next day a bagel, whichever they like, but they must consume at least one of these a day."

"If we add 30 grams of flax seed, will the taste be acceptable or will it pose a challenge? And the answer is yes. There is a challenge because flax does not taste that great and 30 grams is a lot," says Aliani. "The question then becomes, how can we find a way to make it more acceptable? That's where I come in."

Before signing on as an assistant professor in the Department of Human Nutritional Sciences, "I was working in collaboration with industry. They were making products rather quickly to run the clinical work because their focus was on the health benefits," says Aliani. "If their hypothesis was correct, which in most cases it was, we would see the benefits and then the commercial partner would say ok, let's go ahead, we want to commercialize the product so people can take advantage of it."

The issue with this process soon came to light, as consumers were not buying into these functional foods. According to Aliani, the products were not well received; while they were full of healthy benefits, they were lacking in taste.

"Collaborators were coming to someone like me, with a background in flavour formation and chemistry, and asking 'Can you make this more acceptable?' I would tell them yes, I can, but the problem with that is anything I add, to this muffin for example, might affect the functionality of what causes the benefits," he explains. "At that stage they would then have to gather another million dollars to run it again and see if the benefits are still there and that no harm was done because of what we added to enhance the flavour."

Aliani felt the logical approach would require his involvement at the outset of the nutritional intervention, another term for a clinical trial when food is used instead of drugs.

A good tasting and marketable product containing the minimum required amount of the health promoting/disease preventing ingredient has been created. This



Photo by Melni Ghattora

Dr. Michel Aliani, Faculty of Human Ecology, studies the flavour chemistry of food and food material to ensure functional foods are acceptable to the palette while preventing and combating disease.

brings us to his second area of research.

"My understanding and my discussion with partners is 'Fine, maybe we are rid of the bitterness or maybe it's reduced, but you have to prove the functionality is still the same'," says Aliani. "It's counterproductive to create a good tasting product while inadvertently removing the functionality of the health promoting ingredient. It's not bitter, great, but it's also not functional anymore."

Last month the Canada Foundation for Innovation (CFI) awarded Aliani \$159,974 to establish a functional foods research laboratory equipped with state-of-the-art mass spectrometry technology, which will allow the food scientist to take his research to the next stage.

"We have several hundred metabolites in our system, and there was no way to monitor them all at the same time," says Aliani. "But now we can, with this mass spectrometry instrument."

When a functional food is ingested the active ingredient is bioavailable (the quantity or fraction of the ingested dose that is absorbed into the body's systemic circulation).

"The active ingredient is going to be distributed into the body but not always as we eat it because the body changes or modifies it," says Aliani. "This new infrastructure is going to help me see what happens to the functional ingredient the same day, the next day, over a period of time, or just a few hours after ingestion."

By monitoring blood or urine samples taken from nutritional intervention participants, he is able to trace the nutrient to see what happens to it in the body over any extended period of time.

"Based on the analysis, I can come back and optimize the food that I am making. We might realize 30 grams is too much or that it might be enough to do what we are trying to achieve but is harmful to other things we are monitoring," says Aliani. "I use these results for the next trial and try to improve the formulation based on this information. It builds up knowledge and hopefully in the future I can develop a dictionary of how to prepare functional foods based on the outcomes."