

# FOOD TECHNOLOGY CENTRE

## Innovation for the Food & Bioresource Industries

Prince Edward Island, CANADA

### NEWSLETTER

April 2009

#### Featured in this issue:

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#### Success Stories

We love to help our clients succeed! A few of their success stories are available on a new feature on FTC's website. See [Success Stories](#).

#### Free Preliminary Consultation

FTC provides free preliminary consultation services and FTC will help you source appropriate funding for your food development projects.

#### Microbiology Laboratory Services

- [Sample Submission forms](#)
- [Requirements for the collection and shipping of samples](#)
- [Specific instructions for the collection and shipping of shellfish samples](#)

To obtain swabbing supplies and sterile bottles, or for further information about our laboratory services, please call our microbiology laboratory at (902) 368-5937.

The **Prince Edward Island Food Products Development Fund** will assist Island businesses with projects conducted at the Food Technology Centre. Companies from neighbouring provinces, NB and NS, also have funding support available from their provincial governments for product development activities conducted at FTC. Contact Yaw Dako, Food Technologist (902) 569-7699.

#### Fermentation at the Food Technology Centre

By Geoff Ralling, Ph.D., Natural Product Process Scientist



The Food Technology Centre has made a significant addition to our fermentation capacity by obtaining a 30 litre sterilizable-in-place fermenter. This new piece of equipment, designed and fabricated by Diversified Metal Engineering (DME) is intended to complement our existing R&D fermenters by allowing us to scale-up a fermentation process in a vessel that more closely represents a commercial scale fermenter.

R&D fermenters are glass vessels that must be disconnected and put into an autoclave for sterilization. They are designed for process development and can control and monitor a large number of culture parameters. But as small, complicated instruments, they do not really simulate — or necessarily predict — how a culture will behave in a much larger vessel with very different mixing, heating and gas exchange properties. The new 30 litre vessel from DME will allow us to develop a fermentation process that has a much greater chance of being scaled up successfully. In addition, the larger volume will allow the production of enough material for us to pilot downstream processes. FTC's microfluidizer, for instance, equipment designed to rupture microbial cells, requires several litres of cell paste to assess the disruption process. FTC can now produce the necessary volumes of microbial cells.

If you would like to develop or assess a microbial fermentation, please contact Dr. Ed Charter, Manager of Natural Products Extraction, tel: (902) 368-5912; email: [eacharter@gov.pe.ca](mailto:eacharter@gov.pe.ca).

#### What Is Pharmacognosy?

By Muhammad Yousaf, PhD, Organic/Purification Chemist



Microbial cultures in fermentation flasks to produce new products/drugs have been used at FTC.

Pharmacognosy (chemistry and biology of natural products) is the study of bioactive natural substances found in terrestrial and marine organisms (plants, animals, or microbes). It is the study of drugs of natural origin.

The word "pharmacognosy" derives from the Greek words *pharmakon* (drug), and *gnosis* (knowledge). The American Society of Pharmacognosy ([www.phcog.org](http://www.phcog.org)) defines pharmacognosy as "the study of the physical, chemical, biochemical and biological properties of drugs, drug substances or potential drugs or drug substances of natural origin as well as the search for new drugs from natural sources".

Plant preparations are said to be medicinal or herbal when they are used to promote health beyond basic nutrition. The study of drugs from natural origin includes the subjects of biology, chemistry and pharmacology. Biology includes the identification (taxonomy) of organisms. Chemical characterization includes the isolation, identification and quantification of

## Food Safety Workshops

Course outlines of all our Food Safety Workshops are available on the [Training page](#) of our FTC website.

For further information on these, or if you would like a course held in your area, please contact Jim Landrigan at (902) 368-5772 or by email at [jklandri@gov.pe.ca](mailto:jklandri@gov.pe.ca)

## Funding Programs

Links to information about programs available from our funding partners are available on FTC's website. See [Funding Programs](#).

### Prince Edward Island Food Technology Centre

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constituents in animal, plant or microbes materials. Pharmacology is the study of the biological effects that the chemicals in medicinal organism have on cell cultures, animals and humans.

Many natural products are useful drugs, e.g., morphine and quinine. Recent examples of plant-derived anti-cancer drugs include paclitaxel (taxol) from *Taxus brevifolia*, etoposide (vepesid) derived by partial synthesis from the lignan podophyllotoxin isolated from *Podophyllum peltatum* and irinotecan (camptosar) obtained based on the lead structure of camptothecin isolated from *Camptotheca acuminata*. Examples of drugs isolated from microorganisms are penicillin, cephalosporins, tetracyclines, aminoglycosides, rifamycins, and chloramphenicol. The anti-viral drug acyclovir and the antibiotic cephalosporin have been isolated from marine sources.

The Food Technology Centre has modern facilities to extract, isolate and purify natural bioactive compounds. Please contact Dr. Muhammad Yousaf, Organic/Purification Chemist, to learn more about our extraction, isolation and purification services: tel: (902) 368-5795; email [myousaf@gov.pe.ca](mailto:myousaf@gov.pe.ca).

## Highlights of the 2009 Boston Seafood Show/Conference

*By Yaw Dako, Food Technologist*

The 2009 Boston Seafood Show/Conference, North America's largest seafood show, was held on March 15-18 in Boston, USA. The show which brings together buyers and sellers of seafood and service providers to the seafood industry attracted visitors from 70 countries. More than 800 exhibitors from several countries including Canada, Chile, China, Equador, Japan, Nigeria, Spain and South Korea were present at the show.

The conference program was also well attended and very informative for participants. The topics covered included: 1) Technological Advances in Seafood Processing, which featured a presentation on the use of modified atmospheric processing and antimicrobial ice; 2) Fraudulent mislabeling/substitution of seafood in the industry; 3) Seafood sustainability issues; 4) Finding funding in tough economic times; and 5) Traceability in the seafood industry.

The Food Technology Centre exhibited and provided on-site technical support to our PEI and Atlantic Canadian clients. Together we formed an Atlantic Canada delegation of over twenty-five exhibitors, including more than ten PEI companies exhibiting.



Agriculture and Agri-Food Canada  
Agriculture et Agroalimentaire Canada

## Funding Profile: Agri-Opportunities Program

The \$134 million, **Agri-Opportunities Program**, launched in January 2007, is a five-year program that aims to accelerate the commercialization of new agricultural products, processes or services that are currently not produced or commercially available in Canada, and are ready to be introduced to the marketplace. Agri-Opportunities is delivered nationally by Agriculture and Agri-Food Canada.

Funding is provided to projects that focus on new agri-food, agriculture or bioproducts, that can be expected to increase market opportunities for the Canadian agricultural industry across the value chain and generate demand for primary agricultural products.

The Agri-Opportunities Program provides a maximum repayable contribution of \$10 million per project and per recipient regardless of the number of projects, over the life of the program, ending in March 2011.

More information on the Agri-Opportunities program can be obtained by downloading the program's [application guide](#). There are no deadlines to apply. Applications are welcome on an on-going basis. To contact a program officer please e-mail Agri-Opportunities Program ([agri-opps@agr.gc.ca](mailto:agri-opps@agr.gc.ca)) or call 1-877-BIO-4682 (1-877-246-4682).