

FOOD TECHNOLOGY CENTRE

Innovation for the Food & Bioresource Industries

Prince Edward Island, CANADA

NEWSLETTER

May 2007

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Free Preliminary Consultation

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

The **Prince Edward Island Food Products Development Fund** will assist Island businesses with projects conducted at the Food Technology Centre. Support is also available for product development activities conducted at FTC for companies in our neighbouring provinces through the NS, NB, and NL governments. Contact Yaw Dako, Food Technologist (902-569-7699)

FTC provides certified **organic processing** services. Contact Dr. Leigh Gao, Food Scientist/Engineer at 902-368-5465.

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.

FTC can provide solutions in **natural products extraction** and nutraceuticals/functional foods product development. Contact Dr. Edward Charter, Manager, Food Science & Natural Products Extraction, at 902-368-5912.

From Idea Concept to the Grocery Store: FTC's Role in Assisting Small and Medium Scale Food Processors

By Yaw Dako, Food Technologist

A food product seen on a grocery store shelf evolved from an idea envisioned by an individual or a group of persons. For a small or medium scale food producer, moving this concept from the idea stage to the grocery store shelf involves many challenges and obstacles. As discussed in our December 2005 newsletter article, *Things to Consider for Large Scale Production*, some of the many challenges faced in moving a product concept forward include:



- Standardization of product formulation
- Modification of processing methods
- Determination of the product's primary packaging
- Shelf-life and nutritional label determination
- Test market manufacturing, and
- Ensuring food regulatory compliance and the development of quality assurance and food safety programs for the developed product.

FTC works with our clients to help them standardize their product formulations on both the bench-top and scale-up stages of product development. We also assist in modifying the methods for processing food products when the need arises. Determining primary packaging that will both appeal to the consumer and protect the product is another area of service that FTC provides. Our services for product shelf-life determination and nutritional labelling are of benefit to many food producers. For clients that require a manufacturing facility to produce test market products, FTC's pilot plants are an excellent resource. Also provided by the Centre is assistance to clients in areas of food regulatory compliance and the development of quality and food safety programs to ensure the production of safe and top quality food products. For further details on the information above, please contact Yaw Dako, Food Technologist, at (902) 569-7699. The PEI Business Development Inc. publication, **Things to Consider for Large Scale Production**, written by Esther Lee, Food Scientist, is available at the Food Technology Centre library. If you would like a copy, please contact Kathy MacEwen at (902) 368-5239.

Liquid In - Liquid Out — a Challenge to Extraction Processes

By Stephen Gould, Senior Extraction Technologist

Most methods of extracting desired compounds from a biomass include the addition of a liquid (or solvent) as a tool to extract these compounds. When making a cup of tea, for example, one uses hot water to extract the many compounds found in the specially prepared dry tea leaves. When you use the tea bag once, you will get a pleasant quantity of tea compounds, perhaps 65% extracted into 300 ml of hot water. If the price of tea increased to \$10 per tea bag, we would all start reusing the bags. The tea would be weaker and would contain fewer valuable compounds. To get another 25%-35% of the valuable compounds from this tea bag would require specialized techniques and much more liquid.

The bioresource industry demands that the highest purity and quantity of valuable compounds are extracted. To meet these demands requires, among other things, a large quantity of solvent. The solvent itself then becomes the largest impurity and must be removed. Removing a large quantity of liquid from the compound can be very challenging when the compounds of interest are heat sensitive. FTC has several techniques to overcome this challenge, including large scale freeze-drying, and rotary evaporation. These techniques optimize and control the temperature of the liquid extract and substantially increase the evaporation rate by reducing the pressure above the liquid.

Workshop on Sanitation Verification for Quality Control Personnel

The Food Technology Centre may hold a workshop on **Sanitation Verification for Quality Control Personnel** soon, depending upon the response we receive. If you or someone from your business have an interest in attending, please contact ftcweb@gov.pe.ca.

The following topics would be covered in a one day workshop.

- Environmental swabbing technique
- Importance of proper sampling, and shipping of product for laboratory testing
- Proper documentation and paperwork relating to samples for lab testing
- Understanding your microbiology report
- Discussion of problem areas in your plant
- Cleaning steps and types of sanitizers for specific purposes in the food plant
- Sources of microbes in your plant

We would include hands-on demonstrations of swabbing within our pilot plant, and swabbing and water testing supplies will be available to take to your plant. Please notify us in advance if you require these supplies by calling (902) 368-5937.

Upcoming courses:

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

For further information on these, please contact Jim Landrigan at 902-368-5772 or by email at jklandri@gov.pe.ca

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Feedback: If you have ideas for future newsletters or any comments, we would love to hear from you. Please call Janet Docherty at 902-368-5226 or email jvdocher@gov.pe.ca



This 20 litre rotary evaporation device located at FTC increases the evaporation rate of solvents by controlling the temperature, increasing the surface area by rotating, and decreasing the pressure by vacuum.

When a large quantity of liquid solvent is required to get the valuable compound out of a biomass, FTC has the techniques and the tools to get the liquid out.

Featured Equipment: Evaporative Light Scattering Detector

By Gosia Zawadzka, Senior Analytical Technologist

The **Polymer Laboratories ELS 2100 Evaporative Light Scattering Detector (ELSD)** is used with High Performance Liquid Chromatography (HPLC) system. ELSD is especially useful to detect compounds with no UV chromophore or extinction coefficient. Compounds such as carbohydrates, some lipids, bioactives and pharmaceuticals may be found. The use of ELSD eliminates need for pre- or post-column derivatization. Whenever the chromatographic separation requires gradient flow of mobile phase, often the traditional detectors like UV or Refractive Index produce drifting or noisy base line contrary to ELSD. The ELSD allows for detection of non-volatile and semi-volatile compounds in liquid stream. The instrument's gas control permits evaporation of solvents at very low temperature. The solvent stream with the solute is nebulised and carried by a gas flow through an evaporation chamber. The mist of solute particles scatters the light to a photosensitive device, the signal is proportional to the mass or concentration of passing particles.

Funding Profile: NRC-Industrial Research Assistance Program

The [NRC Industrial Research Assistance Program \(NRC-IRAP\)](#) is designed to help Canadian small and medium-sized enterprises (SMEs) meet the technological challenges they face in delivering new products, processes or services. Its goal is to enhance innovation capacity, so that you may turn good ideas into profitable business lines as quickly as possible. NRC-IRAP offers advisory services as well as potential access to financial assistance.

NRC-IRAP provides access to technology and business advice, financial assistance, contacts and national and international networks. Firms helped by NRC-IRAP are better equipped to perform R&D, to commercialize new products and processes, and to access new markets. The program provides customized solutions to over 12,000 SMEs annually and is delivered by an extensive integrated network of 260 professionals in 100 communities across the country. Working directly with these clients, NRC-IRAP supports innovative research and development and commercialization of new products and processes.

Tom O'Rourke, Industrial Technology Advisor, NRC-IRAP Atlantic and Nunavut Region, has an office at the Food Technology Centre in Charlottetown, PE, and may be reached by telephone at (902) 626-2965, and fax (902) 626-2969. Email: Tom.O'Rourke@NRC-CNRC.gc.ca

Training for Retort Operators

Our retort training workshop completed in January was so successful we decided to hold another one. The Food Technology Centre is planning to present another five-day retort operator's course entitled Canned Foods: Thermal Processing and Container Evaluation in September, 2007.

Supercritical Fluid Extraction Workshop

The [SFE workshop](#) which was postponed has been tentatively rescheduled to be held September 17-19, 2007. Please contact ftcweb@gov.pe.ca if you are interested in attending. (We will be getting in touch with those who replied to our first call for interest.)

