# FOOD TECHNOLOGY CENTRE

## *Innovation for the Food & Bioresource Industries*

*Prince Edward Island, CANADA*

**NEWSLETTER**

May 2009

**Featured in this issue:**
- Proactive Approach Against *Listeria*
- What's Interesting About Lycopene?
- Sherwood TORNADO M501 Programmable Fluid Bed Dryer
- NRC Industrial Research Assistance Program

## 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 Prince Edward Island businesses with projects conducted at the Food Technology Centre. Companies from our neighbouring provinces of New Brunswick and Nova Scotia also have funding support available from their provincial governments for product development activities conducted at FTC. Contact Yaw Dako, Food Technologist (902) 569-7699.

## Prince Edward Island Seafood Processors take a Proactive Approach to Plant Sanitation

*By Wendy MacRae, Laboratory Technologist*

*Swabbing conveyor lines at a PEI seafood plant*

Sanitation is a necessary way of life in seafood processing. Prince Edward Island Seafood Processors are taking a proactive approach in maintaining high standards within their processing plants.

Given the recent Maple Leaf *Listeria* contamination incident, there are heightened concerns for food safety especially for *Listeria*. It is ubiquitous and dangerous to people with depressed immune systems (20-30% fatality rate). *Listeria* can take residence in a food processing plant and be difficult to completely eliminate. But *Listeria* can be controlled using proper measures.

The Seafood Processors Association sponsored two one-day workshops conducted by the Food Technology Centre (FTC) on the control of *Listeria* in seafood processing plants. To identify any *Listeria* concerns in a seafood plant, a project leading up to the workshop involved environmental monitoring of three separate processing plants on PEI. FTC staff went to these individual plants to help evaluate and swab areas within the plant that could serve as potential sources of contamination or trouble spots. The findings were then presented in conjunction with the *Listeria* workshop.

These workshops are valuable to maintain a high level of training and to ensure staff do not become complacent and miss any details relevant to the overall sanitation within their work environment. They are an excellent opportunity to ask questions, receive feedback, highlight innovations and ensure proper techniques are being followed. It is FTC's objective to provide training and refresher courses annually.

This proactive approach by the PEI Seafood Processors is extremely beneficial to the industry. In the past six months, eleven similar *Listeria* workshops were conducted in PE, NS, NL and NB by the Food Technology Centre.

## What's So Interesting About Lycopene?

*By Edward Charter, B.A.Sc., Ph.D., Manager, Natural Products Extraction*

Lycopene (molecular formula $C_{40}H_{56}$) is a red pigment (a carotenoid) found in tomatoes and other red coloured fruits. In the tomato, this compound protects the seeds from damage caused by light and oxygen — and when consumed as a cooked tomato product, and possibly as a supplement, there are indications that lycopene may provide protection against prostate and skin cancers.

There has been much interest in recent years in the potential anti-cancer properties of lycopene. For example, a study by the Harvard School of Public Health showed that men consuming 10 or more servings of tomato based foods weekly had a significantly reduced rate of prostate cancer (a 45% reduction). Because tomato sauce was the most common tomato-based food consumed, and the cooked form seemed more protective than the raw form, it has been suggested that the heating of the tomato releases lycopene and other nutrients that provide the protective effect. Studies, such

## 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

## Funding Programs

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

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as the one mentioned above that tie consumption of tomatoes to reduced cancer risk, have reinforced the notion that lycopene might be beneficial as a supplement.

On the other hand, researchers at the National Cancer Institute and the Fred Hutchinson Cancer Research Centre were unable to positively link blood lycopene levels to a reduced cancer risk. Their study involved 28,000 men between the ages of 55 and 74. So the jury is out on whether or not lycopene on its own has the potential to fight cancer in a major way. It may be that other compounds present in the tomato are also needed in combination with lycopene to provide a strong protective effect. This is not totally surprising, and it seems the best advice for now would be to eat a healthy variety of vegetables, including tomatoes, if you want to gain the benefits from numerous natural compounds that help protect from cancer.

*** The information regarding anti-cancer properties of lycopene is taken from *An Apple a Day*, by Joe Schwarcz. (Toronto, Ontario, HarperCollins Publishers Ltd., 2007).**

## Featured Equipment: Sherwood TORNADO M501 Programmable Fluid Bed Dryer

*By Liping (Lilian) Yu, MSc, PEng, Food Scientist*

A Fluid Bed is formed when a bed of particles is transformed into a fluid-like state (resembling a boiling liquid) by forcing a gas through the bed. The fluid bed principle is used to advantage in heating, cooling, carrying out chemical reactions, homogenizing, and drying, but the success of these applications can only be realized when the solid sample is thoroughly mixed during the process. Thorough mixing during drying makes fluid bed drying faster than other drying processes in which the sample lies dormant. Another major advantage of the fluid bed drying process is its high reproducibility.

The Sherwood TORNADO M501 Programmable Fluid Bed Dryer at the Food Technology Centre uses the same principles that apply to industrial scale units. The Tornado not only can provide the quickest way of drying samples on a small scale, it can also be used to assess the feasibility, cost and timescale, of different materials which are being considered for large scale drying.

Examples of some applications of the machine include dehydration of grains, yeasts, fruits & vegetables, potato granules, coffee, tea, plant extracts, etc. This machine is available for use in FTC's pilot plant. For further information, please contact Lilian Yu by phone at (902) 368-6154 or by e-mail at lyu@gov.pe.ca

## Funding Collaborators — NRC Industrial Research Assistance Program

The National Research Council of Canada 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. The program's goal is to enhance innovation capacity, so that SMEs can turn good ideas into profitable business lines as quickly as possible.

NRC-IRAP provides access to technology, business and technical advice, financial assistance, and contacts through 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 240 field staff in more than 100 communities across the country. Working directly with these clients, NRC-IRAP supports innovative research and development and commercialization of new products and processes.

For more information please contact Tom O'Rourke, Industrial Technology Advisor, NRC-IRAP Atlantic and Nunavut Region; Tom 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