Specialty Cosmetic Ingredients Initiative *March 2010*

Welcome!

We proudly present the 'lucky' Thirteen(th) Edition of "*Cosmetic Industry Connects*", the official e-update of the Specialty Cosmetic Ingredients Initiative, a collaborative effort led by Alberta Agriculture & Rural Development , which includes local industry, research institutions, industry organizations, crop growers, major industry players and service providers.

Our goal is: "Helping to build a globally competitive plant-based cosmetic and personal care ingredient industry in Alberta."

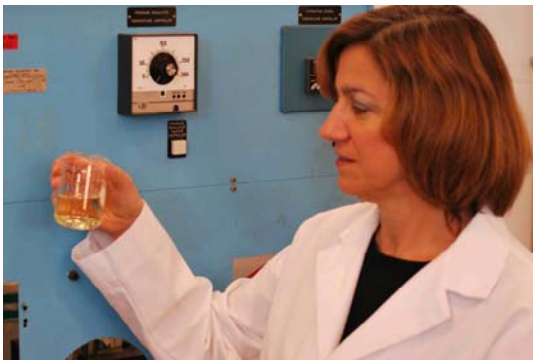
Our SPOTLIGHT is On

Dr. Feral Temelli

Division Director, Food Science & Bioresource Technology and Professor of Food Process Engineering, Department of Agricultural, Food and Nutritional Science (AFNS), University of Alberta
http://www.afns.ales.ualberta.ca/food.cfm

The Specialty Cosmetic Ingredients (SCI) Initiative is pleased to have Dr. Feral Temelli as a member of SCI's Alberta Strategic Advisory Group. She brings a wealth of expertise, knowledge and networks to the Group and an excitement about the opportunities for Green Chemistry.

Temelli is originally from Turkey and completed her undergraduate and master's degrees in Chemical Engineering at the Middle East Technical University. "The area of food engineering was just emerging and our professors encouraged us to go abroad to study," says Temelli. "I went to the University of Florida and completed a PhD in Food Science. My research focused on the fractionation of citrus peel oils using supercritical fluid technology, a leading edge technology at the time."



Dr. Feral Temelli conducting research

After completing her PhD, Temelli accepted an offer to move to Canada to the University of Alberta, bringing her expertise in food engineering and ingredient processing as a new approach to research. Her first position was in the Department of Foods and Nutrition under the Faculty of Home Economics, which 22 years and a few mergers later became the Department of Agricultural, Food and Nutritional Science in 1994.

"Although the process of forming AFNS was challenging, the concept was to bring the whole food chain under the same umbrella from production to processing to food and nutrition," says Temelli. "AFNS has been very

successful over the past 16 years and has grown to 68 academics bringing in over $25 million in research funding annually. AFNS is a phenomenal department and it has been very exciting to be part of that chain of successful activity." As Division Director, Food Science & Bioresource Technology, Temelli not only leads a large program with 15 academics, she also teaches advanced food science courses and supervises several graduate student projects.

Temelli's research program focuses on separation technologies as applied to a wide range of crops under two broad categories. "One is the use of supercritical fluid technology for the extraction and fractionation of ingredients to isolate high value components such as phytosterols, tocopherols, carotenoids and others, as well as particle formation for delivery of these bioactives," explains Temelli. Grain fractionation technology development focusing on value-added processing of especially barley and oats is the other major area. "The goal is the recovery of high-value components such as beta-glucan and evaluation of the functional properties and product applications of the various grain fractions."

Under Temelli's co-leadership, innovativeness and drive for excellence, Agri-Food Discovery Place (AFDP), a new $25M small scale pilot plant and research facility jointly supported and operated by ARD and UofA, has become a reality. The facility can provide crop utilization and integrated biorefining, which is the capability to separate biomass into components and convert them to higher value ingredients for use in various applications.

"One piece of grain or biomass can go through several steps of biorefining and the result is the potential for hundreds of isolates and applications," explains Temelli. "Each isolated component should be targeted to its highest value and best functionality, whether for food, cosmetics, nutraceuticals, biofuels, biochemicals or other uses." As an SCI Strategic Advisor, Temelli welcomes new research ideas and collaborative research projects between AFDP, industry and other partners.

Agri-Food Discovery Place: Open for Business

Agri-Food Discovery Place, (AFDP) a 5000 sq metre world-class innovative research, training and technology transfer facility in Edmonton, Alberta is "*Open for Business*", says Executive Director, Bob Rimes. "We are predominantly an applied research pilot plant facility with scale-up equipment that can help entrepreneurs with good projects validate their bench scale opportunities. There is an opportunity here for industry clients, and we have all the right elements to be able to follow through."

In operation since 2008, AFDP is the very first facility in North America with a partnership serving not only the University of Alberta academic staff, but also the Bio-Industrial Technologies Opportunities Team of Alberta Agriculture and Rural Development (ARD). The intention of this partnership is to bring the facility to full capacity

and develop cross-functional technical and business development teams that can support the needs of all stakeholders. Teaching and training of highly qualified people is a high priority as well.

“My mandate is to manage the facility like a business and for it to be self-sustaining when it comes to the R&D equipment used for applied research”, explains Rimes. A user fee schedule is in place for engineering and technical consultation, laboratory bench support, pilot plant development, clean-up, material/sample storage and facility use.

AFDP is comprised of three functional working areas; a Level II biosafety wing, crop wing, and an administrative support wing. AFDP is Canada’s only pre-pilot plant with Level II biocontainment and solvent extraction facilities.

"The Meat Safety and Processing Research Unit (MSPRU), is designated for research on the processing of meat products and development of novel technologies.” says unit lead, Dr. Lynn McMullen, professor, Food Microbiology at the University of Alberta. The MSPRU has been functional for the past three years with support from government and industry contributors. “We were lucky to get a high level of support from all levels of government and the industry to put in place a meat processing facility where we can work with pathogens under conditions that simulate those found in the industry,” says McMullen.

The MSPRU team has been working diligently with industry clients on projects that include shelf life studies of processed meats, and novel interventions to control of foodborne pathogens in processed meat products.

Agri-Food Discovery Place, Edmonton

Dr. Feral Temelli, working together with the Bio-Industrial Opportunities Team engineers, has led the development of Crop Utilization and Enhanced Materials Research Unit (CUEMRU) focusing on integrated biorefining of crops. “Although our focus in the past was primarily on food ingredients, as other applications started emerging and growing in Alberta, we realized we needed to expand to a broader biorefining and crop utilization perspective,” says Temelli, who is also the Division Director, Food Science & Bioresource Technology at the University of Alberta. “The way we define biorefining and what has become the foundation for the design of AFDP's Crop Wing, is the separation, conversion and applications development of various isolates for their highest and best use.”

The biomass is separated into various components such as lipids, proteins, fibers, starch and other minor components, then through various technologies is converted to their highest

value and best use, whether that is for food, cosmetics, nutraceuticals or industrial applications. For example, fractionating barley grain results in various isolates such as beta-glucan, which is a high value fiber ingredient for the food industry, oil potentially for food, nutraceutical or cosmetics, and starch, which may find its way into food or for ethanol production or other uses.

> *"We are predominantly an applied research pilot plant facility with scale-up equipment that can help entrepreneurs with good projects validate their bench scale opportunities." – Bob Rimes*

Connie Phillips, Director of Bio-Industrial Technologies Opportunities Team with Alberta Agriculture and Rural Development sees Agri-Food Discovery Place as the critical link in Alberta's innovation system. "The building is quite unique in its contribution to the innovation system, both in scale and integration of the processes, and the way it is designed. It is also a direct link to all the University of Alberta research that's going on so there is greater opportunity to pick up what is going on in the 'University Pipeline'."

Temelli agrees. What makes AFDP unique is the ability to develop a variety of applications for the different fractions simultaneously under one roof. "Very few other places can accomplish this integrated biorefining and bioactive ingredient development all at once," explains Temelli. "Although we have faced some challenges getting the infrastructure and all of the required equipment in place, we now have the capability to expand our research and development efforts. Through AFDP, we see partnerships between government, University of Alberta and industry strengthen and opportunities for collaborative projects expanded." For example, big initiatives like the Canadian Triticale Biorefinery Initiative (CTBI), LiPRA (Lipid Products Research Alberta), the Alberta BioMaterials Development Centre (ABDC), and BCN (Biorefining Conversions Network) are very exciting and examples of future initiatives resulting from the biorefining and bioactive ingredient development program.

Phillips sees the upcoming year as a 'transition year' for the technical crew and AFDP as a whole because the facility will be close to fully operational. "We are making enormous headway - five years from now AFDP will be making a significant contribution to the push for the bio-economy in Alberta and the development of the bio-industrial sector."

Rimes says AFDP is the best facility to support the people, the entrepreneurs, the academics, the specialists – the people who want to make Alberta a good place to do business. "That's where this place shines!"

For more information contact:

Bob Rimes, Executive Director
Agri-Food discovery Place, Rm 1-022
Department of Agricultural, Food and Nutritional Science (AFNS)
Building F-83, 6004 -118 Street
Edmonton, Alberta Canada
T6H 2V8
(780) 492-6945
Email: Bob.Rimes@ales.ualberta.ca

AFDP: Exciting new equipment ready for Cosmetic ingredient applications

Exciting new pieces of equipment have arrived in the Crop Wing side of Agri-Food Discovery Place and are ready for cosmetic ingredient applications. "Our biggest piece of processing equipment is the Hosokawa Air Classification System," explains Jeannette Lefebvre, Research Scientist, Bioindustrial Technology Branch. (Thanks to Alberta Advanced Education and Technology 'Unleashing Innovation' fund.) "Two components of the air classification system include the ACM-15 (hammer mill) and CW250 (pin mill), both units feed into the air classification unit (ATP 200) allowing the user to mill and fractionate feed material simultaneously!" The ATP 200 can also fractionate previously milled or powered material.

Used in conjunction with the air classification process and as a stand alone analysis, the Beckman –Coulter LS 13 320 Laser Diffraction Particle Size Analyzer is the most versatile and sophisticated laser diffraction particle size analyzer available today. Using the Fraunhofer and Mie theories of light scattering, the LS 13 320 series offers the highest resolution, reproducibility and unsurpassed accuracy. The multi-wavelength system has incorporated patented Polarization Intensity Differential Scattering (PIDS) technology covering a size range from 0.04 µm to 2,000 µm. Analysis can be performed in a dry or liquid state using the Tornado® Dry Powder System and Aqueous Liquid Module.

"Next on the list is the DIG-MAZ extraction system," says Lefebvre. "This unit can be used to extract essential oils, colorants, active ingredients and natural extracts from a variety of plants and mineral materials." What makes DIG-MAZ extraction special is the feature of counter-current, meaning the solvent streaming through the plants material goes from the bottom to the top. Thereby the plant materials are evenly moistened with solvent, incomplete extraction is avoided and the herbal material is leached out faster. The remaining line up in this series includes a Decanter, Spray Dryer, Ultra-filtration Unit, a 20L and 100L roto-evaporators, a stainless steel filter assembly and a 20L Soxhlet apparatus.

Special acknowledgement and thanks to Dean Kennelly, UofA, Faculty of ALES, Dr. Erasmus Okine, Chair of AFNS, Dr. Robert Wilson, VP Academic and Research, Olds College and Dr. Abimbola Abiola, Chair, School of Innovation, Olds College.

Special thanks also to Dr.'s Temelli & Bressler and Bob Rimes, Executive Director of AFDP for the equipment layout plan and managing the equipment transfer to Agri-Food Discovery Place.

This equipment is just a portion of the overall capabilities for cosmetics and many other applications at AFDP.

The FAQ's Ma'am, only the FAQ's!

Each issue we publish Frequently Asked Questions as part of our ongoing effort to ensure those interested in our project are provided with as much information as possible.

What is the senior cosmetic formulator project I have been hearing about?

The Specialty Cosmetic Ingredient (SCI) team has identified that one of the critical gaps in growing the cosmetic and personal care plant-based ingredient industry in Alberta is the lack of local access to a senior cosmetic formulator. Discussions and interviews with our Alberta Strategic Advisors, our International Strategic Advisors and cosmetic and personal care ingredient companies in Alberta and elsewhere indicate the lack of senior level formulation capability in Alberta is hampering the industry's growth.

As a result, the SCI team has been looking at ways to address this gap. An Alberta based company has indicated they are willing to lead a pilot project and are currently in the process of assessing the opportunity. Having access to a senior cosmetic formulator in Alberta will have many benefits for the Alberta industry, including:

1. Meeting the needs of Alberta based companies who are seeking access to a senior cosmetic formulator located in Alberta.
2. Helping companies identify new and unique natural ingredients that are currently, or can be grown in Alberta, thereby enhancing the profitability and diversifying the operations of, Alberta's producers.
3. Raising awareness of Alberta as an up and coming hotbed from which to source new ingredients and products.
4. Providing significant learning opportunities for companies in Alberta, including staff and researchers at Agri-Food Discovery Place, where some of the formulation work will be completed.
5. Laying the foundation for creation of a much needed ongoing senior cosmetic formulator business in Alberta.
6. Raising awareness, and highlighting the capabilities of Agri-Food Discovery Place.

We will keep you up to date as this exciting project progresses!

SAVE THE DATE
Cosmetic Industry Connects 2010 Event

Watch for more details about SCI's Fall 2010 industry event !!

Funding Opportunities

Growing Forward In Alberta:
Alberta Agriculture is committed to cultivating the Growing Forward objectives that have been developed in partnership with Agriculture and Agri-Food Canada.
The Growing Forward team has developed a one-window approach to program delivery to make access easier for you.

For specific details on all the current grants available, registration, application forms and project proposal guidelines please visit: http://www.growingforward.alberta.ca/growingforward/pg_gf_Programs.htm

OR

Contact the Ag-Info Centre toll-free at 310-FARM (3276) or Email: GrowingForward@gov.ab.ca

Growing Forward Nationally:
Initiatives under the **Growing Canadian Agri-Innovations Program** will help to build an innovative and competitive agricultural sector by encouraging industry leadership and investment in agricultural science and innovation.
For additional information about the Growing Canadian Agri-Innovations Program, please visit: www.agr.gc.ca/agri-innovations, or call toll-free 1-866-857-2287.

Agriculture and Agri-Food Canada Canadian Agricultural Adaptation Program (CAAP)
The federal Canadian Agricultural Adaptation Program (CAAP) supports projects aimed at facilitating the agriculture, agri-food, and agri-based products sector's ability to seize new opportunities, to respond to new and emerging issues, and to pathfind and pilot solutions to new and ongoing issues in order to help it adapt and remain competitive. In Alberta, the Agriculture and Food Council (AFC) is administering $21.9 million of CAAP funds on behalf of Agriculture and Agri-Food Canada.

For more information in Alberta:
Agriculture and Food Council
Telephone: 780-955-3714
E-mail: info@agfoodcouncil.com
http://www.agfoodcouncil.com/funding.aspx

CAAP, Adaptation Division:
Phone: 1-877-290-2188
Email caap-pcaa@agr.gc.ca
http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1182366508375&lang=eng

Regulatory

Health Canada REMINDER:
Interim Policy Statement of Health Canada's Working Definition on Nanomaterials and that consultation is open for comment starting March 1, 2010 until August 31, 2010
http://www.hc-sc.gc.ca/sr-sr/consult/_2010/nanomater/index-eng.php
Contact:
Health Canada, Policy, Planning and Coordination Division
Science Policy Directorate, Strategic Policy Branch
Ottawa, ON
Email: nanotechnologies@hc-sc.gc.ca

Canadian Natural Standards Board
The draft Proposed Amendments for National Standard of Canada for Organic Agriculture (CAN/CGSB 32.310 & CAN/CGSB 32.311) are now published and available at:
http://www.tpsgc-pwgsc.gc.ca/cgsb/prgsrv/stdsdev/nsa/pubrevdoc/pubrevdoc-e.html
Any interested person can review and submit comments on those proposals by downloading the comment forms at that same link . Public review ends on May 23rd, 2010.

Regulatory Continued…

Organic Trade Association (OTA)
The OTA published a white paper in October 2009, The Regulation and Labeling of Organic Personal Care Products: Issues and Policy Approaches.
http://www.ota.com/pics/documents/101909OTAPersonalCareWhitePaperFinal.pdf

The OTA Board of Directors will be meeting in April 2010 to engage in a formal decision-making process to decide which of the policy approach alternatives OTA should endorse.

US Food And Drug Administration (FDA)
A Q&A on "Organic" Cosmetics was posted on the FDA website on March 8 2010:
http://www.fda.gov/Cosmetics/ProductandIngredientSafety/ProductInformation/ucm203078.htm.

"Organic" Cosmetics
March 8, 2010
The following information is intended to respond to some questions people commonly ask FDA about "organic" cosmetics.

Does FDA have a definition for the term "organic"?
No. FDA regulates cosmetics under the authority of the Federal Food, Drug, and Cosmetic Act[1] (FD&C Act) and the Fair Packaging and Labeling Act[2] (FPLA). The term "organic" is not defined in either of these laws or the regulations that FDA enforces under their authority.

How is the term "organic" regulated?
The Agricultural Marketing Service of the U.S. Department of Agriculture (USDA) oversees the National Organic Program[3] (NOP). The NOP regulations[4] include a definition of "organic" and provide for certification that agricultural ingredients have been produced under conditions that would meet the definition. They also include labeling standards based on the percentage of organic ingredients in a product, including cosmetic products.

If a cosmetic is labeled "organic" according to the USDA, is it still subject to the laws and regulations enforced by FDA?
Yes. The USDA requirements for the use of the term "organic" are separate from the laws and regulations that FDA enforces for cosmetics. Cosmetic products labeled with organic claims must comply with both USDA regulations for the organic claim and FDA regulations for labeling and safety requirements for cosmetics. Information on FDA's regulation of cosmetics[5] is available on our Cosmetics[6] Web site.

Are cosmetics made with "organic" ingredients safer for consumers than those made with ingredients from other sources?
No. An ingredient's source does not determine its safety. For example, many plants, whether or not they are organically grown, contain substances that may be toxic or allergenic. For more on this subject, see FDA Poisonous Plant Database[7]. Under the FD&C Act, all cosmetic products and ingredients are subject to the same safety requirement: They must be safe for consumers under labeled or customary conditions of use (FD&C Act, section 601(a). Companies and individuals who market cosmetics have a legal responsibility to ensure that their products and ingredients are safe for the intended use.

Upcoming 2010 International Events

April 13-15, 2010
in-cosmetics
Paris, France
www.in-cosmetics.com

May 11-12, 2010
Suppliers' Day 2010
Edison, New Jersey
http://www.nyscc.org/suppliersday.html

June 2-3, 2010
Anti-ageing Skin Care Conference 2010
London UK
www.summit-events.com

June 10-12, 2010
Natural MarketPlace 2010 & Nutricosmetic Summit
Las Vegas, NV
http://www.naturalmarketplaceshow.com/nm10/public/enter.aspx
http://www.nutricosmeticsummit.com

July 18-20, 2010
Cosmoprof North American 2010
Las Vegas, NV
http://www.cosmoprofnorthamerica.com

September 28-30, 2010
HBA Global Exposition & Conference
New York, NY
http://www.hbaexpo.com/

October 14-16, 2010
Natural Products Expo East
Boston, MA
http://www.expoeast.com

October 20, 2010
Cosmetic Technology Transfer Conference
Woodbridge, New Jersey
http://www.nyscc.org/cttc.html

SCI's Team at ARD

Kathy Lowther, SCI Initiative Lead
Email: kathy.lowther@gov.ab.ca
Donna Fleury, SCI R& D
Email: donna.fleury@gov.ab.ca
Jeannette Lefebvre, Research Scientist
Email: jeannette.lefebvre@gov.ab.ca

A special thanks to consultants to the SCI Team, Corey Keith and John Schaw of Keith and Associates!

Comments, Ideas, Suggestions

You are receiving this issue of 'Cosmetic Industry Connects' e-update because you have requested to be on the distribution list. The SCI Team is proud of the fact that we receive messages of appreciation after every issue. We welcome your comments, suggestions and ideas for other articles or information you would like to see included in the next issue.

To Contact Us or To Unsubscribe

If you have comments, suggestions or ideas, or if you no longer wish to receive our updates please email us at: kathy.lowther@gov.ab.ca.

Government of Alberta

Growing Forward