



# Food Safety Specialty Section NEWSLETTER



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## President's Comments: Chemical Food Safety – The Academic Challenge

By Jim Pestka, Michigan State University

With the start of the Fall semester this week, I am faced with the daunting but happy task of organizing and presenting a timely graduate course in "Advanced Food Toxicology". Michigan, home of the PBB crisis in the late 1970's, has a continuing interest in this field and it is thus been a priority area for research and teaching at Michigan State. As I have considered this course, many questions have arisen as to what are critical topics for future food toxicologists in industry, government and academia. Herbal supplements? Acrylamide? Bioterrorism? Obesity? Since students will be from diverse academic backgrounds, the strategy at this point will be to introduce basic toxicologic principles,

biotransformation, toxicokinetics and strategies for safety assessment. This will be followed by discussion of natural toxins, food allergens, food additives, processing-induced toxicants, anthropogenic toxicants, and bioactive chemicals/anti-toxicants. The final section will deal with emerging issues such as biotech-derived foods, food irradiation, heritable and somatic genetic toxicity, alternative toxicity testing, and bioterrorism. The format of the course will be a balance of conventional lectures, text assignments, and with continuous evaluation of recent papers dealing with mechanistic studies and risk assessment of specific food-borne chemicals. A priority for me as President of FS<sup>3</sup> this year will be to gather input from members on future needs in the field of chemical food safety. One way to start is to solicit your feedback on my proposed course plan. Is it on target? Is something missing? Will it help prepare future applicants for positions at your home base? Your input along with student feedback (which is always forthcoming) will be helpful in crystallizing a general strategy for academic presentation of chemical food safety in the classroom, web, or workshop as well as conveying this science to an increasingly skeptical public. Further benefits might be new ideas for symposia and continuing education at future SOT meetings and ultimately, a vibrant and expanding FS<sup>3</sup>. I hope to share these ideas in a future newsletter. Please send your comments to me at [pestka@msu.edu](mailto:pestka@msu.edu).

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## FS<sup>3</sup> COMMUNICATIONS CHAIR: BRYAN DELANEY

Thanks to all the newsletter contributors. Extra special thanks to Dr. Lori Moilanen (Senior Toxicologist, Syracuse Research Corporation, Golden, CO) for formatting this newsletter! Know of an upcoming meeting, a new food toxicology book, something brewing at the FDA? Share it through the FS<sup>3</sup> Newsletter. Submit items to [Bryan\\_Delaney@cargill.com](mailto:Bryan_Delaney@cargill.com). The FS<sup>3</sup> Newsletter is available on the World Wide Web at <http://www.sot.org>.

## 2. Minutes of the Executive Committee Meeting (March 18, 2002)

Present: R. Roth (Chair), T. Vollmoth, B. Delaney, J. Mattsson, G. Burdock, K. Tolson, J. Pestka, K. Voss, R. Riley, E. Jeffery

1. Discussed the agenda for the business meeting.
  - a. Program proposals (need more proposals)
    - i. Ron Riley Agroterrorism
    - ii. Workshop on safety issues involved in herbal products
      1. This will only work if it is mechanism-based
  - b. Student Awards
    - i. Frank Lu: Bondari
    - ii. Taylor & Francis: Eluffel
    - iii. Burdock travel: Afti \$500, Fertuck \$500, Liu \$250, Yi \$250
      1. The last two had previously received awards
      2. Whoever chairs the awards committee next year should get ribbons in addition to certificates.
2. Bylaws. Mattsson will summarize changes and the executive committee will endorse. The key change is in the makeup of the exec: change from 3 to 4 councilors. This is based on there being more work required of the group from SOTHQ. The 4<sup>th</sup> councilor would have as his/her duty special issues. There was a discussion about the lack of duties of the VP and work with the 4<sup>th</sup> councilor on special issues.
3. Financial Report. General Fund:
  - a. Starting budget, \$3,004
  - b. Income:
    - i. dues \$1,875,
    - ii. interest \$223:Total income \$2,098
  - c. Expenses:
    - i. Exec committee refreshments \$150,
    - ii. Business meeting refreshments \$975,Total expense: \$1,125  
Ending Balance, \$3,977

Frank Lu Award Fund:  
Starting: \$21,130  
Income \$1,083  
Expense \$500  
Ending \$22,213

Taylor Francis Award: (zero balance)  
T&F gave a \$500 check and \$100 book certificate to an awardee

Burdock Travel Awards: (zero balance)  
\$1,500 given early in the year, paid out as student awards
4. Finance Discussion: Burdock fund interest went into the general fund. The committee decided to leave it like that this year, but to ensure that in future years any interest amassed goes toward support of student travel. There was a discussion about the growth of the Frank Lu award. It is now large enough that it could split into two awards. No decision was made. There was considerable discussion about how to attract more student applications. We should generate an academic toxicology faculty list of emails to mail to. The IFT food safety section (Carl Winter) and the ASNS dietary bioactive components (Elizabeth Jeffery) should also be contacted and asked to email out the advertisement to their membership. Pestka offered to perform these communications. The ad must go out in September. Burdock did not provide an additional \$1,000 this year because there were too few applicants.
5. Committee assignments for 02/03: Delaney: Communications. Vollmuth: Awards. Membership: Burdock, Voss: Secretary/Treasurer. Delaney was advised to contact Roger Coulombe for help updating the website that links off the main SOT web page. Updating the pamphlet will be membership (Burdock) responsibility.

### 3. Graduate Student Research and Travel Awards

by Tom Vollmuth

The Food Safety Specialty Section has several awards for students conducting research on food-borne natural and xenobiotic agents. These will be awarded at the Annual SOT meeting and are divided into two categories: 1). merit-based student abstract awards and 2). travel awards:

#### Outstanding Graduate Student Research Awards

In 2003, FS<sup>3</sup> anticipates conferring two awards based on meritorious graduate student abstracts:

a) *The Taylor & Francis Award*, sponsored by the Taylor & Francis Publishing Co for an outstanding abstract submitted by a graduate student. The award recipient will receive \$500.00 in cash, a \$100 gift certificate redeemable towards Taylor and Francis publications, and a recognition plaque.

b) *The Frank C. Lu Award* consists of a \$500 cash award and a recognition plaque.

The evaluation criteria for each of the above awards includes adequacy of the methodology/approach, uniqueness/creativity inherent in the project, thoroughness of investigation, statement of hypothesis, soundness of judgment used in interpretation of results, and relevance to food safety. Consideration for judging is limited to the information presented at the 2003 meeting.

Graduate Student Research Award applications must include *four* copies of each of the following items: (1) abstract, (2) a short summary of the work presented at the annual meeting including its purpose, rationale, statement of significance and relevance to food safety and (3) a statement (no more than three sentences) describing the student's role in the project. The application should be signed by the student and cosigned by the student's major research advisor. The summary is limited to two pages (on 8 1/2" by 11" paper, no smaller than 10 point font—strictly enforced).

#### Graduate Student Travel Awards

For 2003, cash awards will be given to at least three students to help defray travel expenses to the 2003 SOT Meeting in Salt Lake City. A donation from the Burdock Group has made these awards possible. The travel awards are open to all full-time graduate students who will attend the Meeting and whose research interest involves the toxicology of foods and food ingredients. Students early in their graduate programs who have not yet attended an SOT meeting and who do not have funding to attend this year's meeting are particularly encouraged to apply.

This award, which offers up to \$500.00 to cover expenses not met by other funding, is **not** dependent upon submission of an abstract and does not preempt a student from applying for other travel support. However, if another award is received, the FS<sup>3</sup> travel award will supplement it up to but not to exceed the student's reasonable and documented travel and registration expenses. Also, if an award is made to a student not yet a member of FS<sup>3</sup>, the awardee must agree to join the Specialty Section for the succeeding year.

To apply for a travel award, the applicant must submit a letter of request stating: (1) that the student is enrolled and in good standing in a doctoral training program; (2) how the student's research relates to food toxicology/food safety (no more than ½ page); (3) whether the student has received any other travel award previously to attend an annual SOT meeting; (4) whether the student and his/her major advisor are currently members of FS<sup>3</sup>, and; (5) if currently not a member of FS<sup>3</sup>, that the student agrees to become an FS<sup>3</sup> member upon the next membership renewal deadline. The application letter should be signed by the applicant and cosigned by his/her major academic advisor.

**To apply either for a student abstract award or a travel award**, please send the required application materials to:

Dr. Thomas A. Vollmuth, Chair  
FS3 Awards Committee  
Pepsi-Cola Company  
Scientific and Regulatory Affairs  
700 Anderson Hill Road  
Purchase, NY 10577  
[thomas.vollmuth@pepsi.com](mailto:thomas.vollmuth@pepsi.com)

Please address questions to Dr. Thomas Vollmuth at [thomas.vollmuth@pepsi.com](mailto:thomas.vollmuth@pepsi.com). **The deadline for all submissions is Friday, January 31, 2003. All applications must be postmarked by this date.** The award committee will review the applications before the SOT Annual Meeting, and will announce the awardees at the FS<sup>3</sup> Business Meeting in March. The winners will be informed prior to the Meeting.

## **4. FS<sup>3</sup> Financial Report**

**By Ken Voss, Secretary/Treasurer**

### **FS<sup>3</sup> General Fund**

We began the period July 2001 - June 2002 with \$3,004. Contributions, dues, interest and other income amounted to \$4,088. Total expenses were \$2,857, almost all of which was used for student awards and our business meeting/reception in Nashville. Net assets are currently \$4,235.

### **Frank Lu Award Fund**

The current balance is \$22,213. This balance includes interest and contributions taken in during July 2001 - June 2002 and the \$500 prize (debit) awarded to the winner of the 2002 Frank Lu Outstanding Graduate Student Award.

Monetary gifts for the Taylor & Francis Award (\$600) and the Burdock Student Travel Awards (\$1,500) were also received during 2001-2002. The money was awarded to the Taylor & Francis and Burdock Student Travel Award winners, leaving a "year end balance" of \$0 for these awards.

## **5. Specialty Section Participation**

**By George A. Burdock**

The Food Safety Specialty Section (FS<sup>3</sup>) is one of only a few SOT sections specifically dedicated to the needs of a specialized industry. FS<sup>3</sup> exists because of the fact that while certain governing principals are applicable in all fields of toxicology, food and food ingredients have special place in our society and require application of a unique regulatory philosophy. Because the rules of the game are so different from other fields of toxicology, to be a knowledgeable player in the game, food toxicologists must "network." You can never read enough to understand the underlying meaning of a trend or the rationale of developing change; and most of what you read is "old news" by the time it gets to your desk anyway. You can never "think outside of the box" when the only source of your information is the box next door. You need to stand out on your home turf, you need to be the person with the new idea. The fresh information and the seeds of these ideas are with your colleagues at FS<sup>3</sup>. Find out what is new, what is going on, network for information or even new jobs.

You can enhance your own effectiveness by enhancing the resources available at FS<sup>3</sup>. While the participant base needed for "critical mass" has been achieved, lack of maintenance can cause energy to dissipate; gaining mass can bring about even greater energy yield. If you bring a friend or colleague to an FS<sup>3</sup> meeting, you contribute to that increase in mass and we all benefit from the energy increased mass generates. Bring a colleague, you can both meet those people you read about who are driving the changes in food toxicology and regulation. You can spark ideas in others, you need to contribute your knowledge and your viewpoints. FS<sup>3</sup> provides a chance for your position and career to finally work for you. FS<sup>3</sup> is a resource you can't afford to pass up.

## **6. Symposia Update**

**By Joel Mattsson**

Disappointment, SOT did not select the FS<sup>3</sup> proposed symposia for 2003. In spite of the enthusiasm for FS<sup>3</sup> and cosponsors for these two symposia, neither was selected by SOT. In one case the SOT decision not to include our proposal was based upon selection pressure, stating that about 50% of proposals were rejected. In the other case, SOT regarded the proposal as 'provocative', but felt it overlapped with other proposals and needed more direct links to toxicology. Abstracts of these FS<sup>3</sup> proposals are presented below, to better acquaint FS<sup>3</sup> member to what they and SOT will be missing:

## 6. Symposia Update (cont.)

**Symposium proposal rejected.** “*Nutrigenomics and Safety*”, proposed by Dr. Madhusudan Soni and Dr. Timothy Zacharewski. Abstract -- The recent completion of human genome “blueprint” has triggered an explosion in research into how drugs might be individualized to capitalize on each patient’s unique genetic code. The line between food and drug is blurring in the era of the genome. These developments are certainly affecting the nutritional sciences. It appears that the food industry is on the verge of a new era where companies will design foods and market them to consumers according to their genetic makeup. The applied genomics technologies will be of invaluable importance to food industry (nutritional genomics or nutrigenomics). Eating a designer diet could help individuals avoid diseases such as coronary disease, diabetes, cancer, central nervous disorders, etc, with much greater precision than possible today. Future genetic studies will help identify which individuals will benefit the most from particular foods. This symposium will focus on applied genomics technology and the impact of these technologies on nutrition, health sciences and food safety.

**Symposium proposal rejected.** “*Chemical Agroterrorism: From Farm to Table*”, proposed by Dr. Ronald Riley and Dr. Robert Coppock. Abstract -- The intentional use of chemicals to contaminate human food and animal feed to disrupt the food supply or inflict illness and disease is one that until recently few people considered possible. Today we are faced with the reality that there are individuals and groups who view the food supply as a target for creating chaos. Numerous chemicals are available and their focused or disseminated effects provide insights into the broad universal threat to food and feed security. Animal agriculture is considered to be a "soft" terrorist target, which means that the risk to the terrorist is small when compared to the potential impact of the terrorist act itself. Specific scenarios in which chemicals can be used to seriously disrupt one or more animal agricultural sector will be presented. The probability that a terrorist could cause increased risk of chronic disease or widespread acute disease in humans through intentional contamination of food is low. However, intentional contamination, even with non-toxic doses and short-term exposure could be very disruptive to the food supply. The amount of material that would be required to create an incident could be very small due to the public’s low tolerance for uncontrollable and unobservable risks. If low-level contamination were announced, how would the US regulatory agencies respond to minimize adverse health, economic and political impacts? If acutely toxic contamination was announced, what risk management strategies are in place to minimize adverse impacts, and are there proactive steps that can be taken to minimize the probability of intentional contamination. The information provided and the answer to the questions posed will be of interest to a wide spectrum of specialists within the Society of Toxicology.

In addition to the two symposium proposals by FS<sup>3</sup>, the FS<sup>3</sup> was the co-sponsor for two continuing education topics and one other symposium. SOT selected both of the continuing education programs, but rejected the symposium proposal.

**Continuing Education: Accepted.** *Medicinal Herbals and Dietary Supplements.*

**Continuing Education: Accepted.** *Fundamentals of Risk Assessment.*

**Symposium: Not accepted.** *Toxins from Poisonous Plants: Animal Models for Teratogenesis, Pyrrolizidine Alkaloids, and Glycosidase Inhibitors.*

**Time to prepare for next year.** The recent discovery of 'high levels' of acrylamide in several common fried and baked foods reminds us how little we know about the potential toxicants of food, whether natural, from food processing/preparation, or from contaminants. The response to the food acrylamide issue by the European Commission Scientific Committee on Food (3 July 2002) is interesting as it rejects quantitative risk assessment for carcinogens in food. Acrylamide is considered both an in vivo genotoxicant and carcinogen. Levels were up to 3500 ppb in potato chips (i.e., French fries), and mean values for several foods were around 200 ppb. FS<sup>3</sup> members might want to explore the implications of the rejection of quantitative risk assessment for toxicants in food. Is there a double standard, one for 'natural' toxicants and one for synthetic toxicants, in this case, the same molecule acrylamide? Which approach is correct?

(continued next page)

## 6. Symposia Update (cont.)

It is that time of year for FS<sup>3</sup> members to make their proposals to FS<sup>3</sup> for sponsorship of continuing education, symposia, and workshops for SOT 2003. There are lots of exciting topics in food safety, and we need to continue to bring these food safety topics to the SOT membership. Please contact Ron Riley 2002 FS3 Vice-President Elect, who is developing the FS<sup>3</sup> contributions to the SOT Program in 2004 ([rriley@ars.usda.gov](mailto:rriley@ars.usda.gov) 706-546-3377).

## 7. What excites you about your work?

By Ronald T. Riley

The program for 2004 is your opportunity to promote topics that are important to you and in doing so also promote food safety. Active involvement in the annual meeting's program ensures that the Food Safety Specialty Section is a visible and viable component of the Society of Toxicology. Without successful contributions to the program we function primarily as a social group with little political impact within our chosen profession. It is therefore essential that if we are to survive and prosper as a specialty section, we must contribute strongly to the meeting program. Now is the time for you to plan a submission for the 2004 program. I have found that the best way to produce a successful program proposal is to select a topic that is important and exciting to you personally and then expand your specific interest to a broader topic of interest using other SOT members that are also personally involved in the broader topic but in a specific and complementary way. This ensures that when you put the proposal together it is focused and is filled with knowledgeable and easily accessible speakers some of whom can help in getting co-sponsorship from other specialty sections.

Here are some topics that I have been considering for submission next year. I present these just as examples of how I personally conjure up topics that I would like to be part of the SOT program. I STRONGLY ENCOURAGE EVERY MEMBER TO DO THE SAME. Each is a topic that interests me because it involves aspects of my own research or topics that are important to the USDA. *For a symposium* "Food contaminants as susceptibility factors in food-borne disease processes". My specific interest in this topic is the possible involvement of fumonisins in the high incidence of neural tube defects in populations consuming vitamin (folate and B vitamins) deficient diets. *For a CE course* - "A review of chemical methods for assessing the role of sphingolipids in disease processes and programmed cell death". This course would teach the latest methods for measuring changes in ceramide, sphingomyelin, sphingoid bases, sphingoid base-1 phosphates, and glycosphingolipids in tissues and cells in culture. *Another symposium* - "Processing methods for reducing the health risks from food-borne chemical contaminants". My specific interest here is how processing effects the levels of mycotoxins in foods and in particular deoxynivalenol, fumonisins, and aflatoxin.

Here are some topics for which I have no expertise but I think that they could make interesting symposia: "The role of genetic polymorphism on susceptibility to food borne disease", "Assessing the safety of transgenic animals used for human food", "Chemoprotective factors in foods and supplements - separating the truth from the hype"; "Can the safety of nutraceuticals and dietary supplements be assured", "Dietary estrogens - risks and benefits", "Dietary strategies for reducing risks from chronic diseases", "Dietary supplements and potential adverse drug interactions", etc, etc, etc!!!

DON'T WAIT UNTIL MARCH TO GET YOUR IDEAS TOGETHER!!! THE FORMS ARE ON THE SOT WEBSITE. SUBMIT YOUR IDEAS FOR THE 2004 PROGRAM ASAP AND IF YOU WANT TO SERVE ON THE PROGRAM COMMITTEE CONTACT RON RILEY. ([rriley@saa.ars.usda.gov](mailto:rriley@saa.ars.usda.gov); tel -706 546-3377; fax 706 546-3116).

## **8. Manuscript of interest**

**By Joel Mattsson**

GD Charles, VA Linscombe, B Tornesi, JL Mattsson and BB Gollapudi. 2002. An *in vitro* screening paradigm for extracts of whole foods for detection of potential toxicants. *Food and Chemical Toxicology* (in press). The application of organic, conventional and biotechnology techniques can alter the intrinsic levels of natural toxicants in crop foods and methods are needed to screen for unexpected changes in toxicant levels. We evaluated crude, aqueous preparations of 37 foods purchased from a local market in a battery of four *in vitro* mammalian toxicity screens. The foods were evaluated in one or more of the following tests: (1) cytotoxicity (37 foods) and (2) chromosomal aberration test (9 foods), both in Chinese hamster ovary cells, (3) limb bud micromass assay (nine foods) using 11-day old CD-1 mouse embryos and (4) estrogenicity (MCF-7 cells transfected with estrogen receptor and luciferase reporter constructs, 12 foods). IC<sub>50</sub>s for cellular proliferation ranged from <1% (v/v, garlic) to >10% (v/v, 18 foods), the maximal concentration tested. Five of nine preparations (soybeans, broccoli, garlic, snow peas and corn) were clastogenic and two (soybeans and snow peas) inhibited chondrogenesis in the limb bud micromass assay. Five of nine preparations (soybeans, snow peas, cumin, asparagus and bean sprouts) produced significant estrogenic responses. Overall, the 12 foods evaluated in two or more of the tests showed different patterns of response. These preliminary data indicate that screening for potential toxicants is possible with fast, relatively inexpensive *in vitro* tests. These *in vitro* tests, while potentially useful to detect unexpected toxicants in plants that may signal the need for further evaluation, are not directly useful to predict human or animal risk from eating these plants.

## **9. Specialty Section Dues – A Letter from George Daston**

Dear Colleagues:

I took our recommendation regarding the Specialty Section dues structure to Council yesterday. Council accepted it with minor modifications. It will go into effect with the dues renewal at the end of the year. Council agreed to reduce the dues to \$15 per Specialty Section (it is now \$25), with students receiving one free Specialty Section membership. This gets the dues structure back to pre-2001 levels and should encourage more Specialty Section membership. To make up the shortfall in revenue, the annual meeting registration will be increased by \$10 for regular members, \$20 for non-members, and \$5 for students. (This is the only change from our recommendation. The non-member increase was pegged at \$20 because the non-member registration is typically twice the member registration fee. The increase in the student rate is nominal.) This is charged to ALL meeting attendees, not just those who belong to Specialty Sections.

The revenue from the dues goes directly to your coffers; i.e., for every Member who signs up for your Specialty Section, your section gets \$15 (with the exception of the students who get in free). The revenue from the meeting registration fee will be divided up based on how many of your Section's members are attending the annual meeting. As an example, if the increased registration fee brings in a total revenue of \$30,000, and there are 1500 Specialty Section members in attendance, then each member of your Specialty Section registered for the annual meeting will mean an additional \$20 for the Section. (People belonging to multiple sections will have their \$20 divvied up equally among the sections to which they belong.) We have run the numbers, and it looks like this funding system will provide sufficient funds to continue to run the kinds of activities (e.g., modest receptions, student awards, etc.) that you have been doing. We realize that waiting until the annual meeting to find out what your exact budget is won't be practical, so we will estimate at the beginning of the fiscal year based on past attendance, then make up the difference after the annual meeting. I think this is a good outcome for the Specialty Sections. I thank you for your efforts in putting the recommendation before Council.

Please don't hesitate to contact me if you have questions.

Regards, George