



NEWSLETTER

Oklahoma Section American Chemical Society

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Food Toxicology in Everyday Life – From the Cradle to the Grave

**Friday - September 29, 2006
Wood Science Building
Oklahoma Baptist University
Shawnee OK 84701**

***Dr. Laura J. Clifford*
Department of Biochemistry/Chemistry
University of Oklahoma
Norman OK 73069**

The media often portrays the American food supply as riddled with dangerous substances. Cautions for pregnant women to avoid certain foods, widespread press coverage about recalled products, and the erroneous perception of organic foods as safer options have contributed to declining consumer confidence in the food supply. Is this concern warranted? All too often, the source and mechanisms of toxic substances in our food are misunderstood. A brief synopsis of common natural toxins and microbial agents will be presented on the basis of age and potential exposure.

[Reservation Information on Page 2]

Schedule: [Note: the “family night” meeting format.
Also a FRIDAY evening meeting]

6:00 PM Social Hour: Wood Science Building: Games [indoor/outdoor], soft drinks. Social hour: volleyball & croquet.

7:00 PM Dinner: Wood Science Building: Tables/chairs set up inside or folks can eat outside if weather permits.

8:00 PM Speaker: Wood Science Building - Large Lecture Hall.

Menu: Hamburgers, hotdogs, potato chips, pickles, cookies & brownies.

Cost: \$7.00-ACS Member; \$5.00-ACS Student Affiliate; \$3.00 Child < 12 years.

Deadline: Wednesday, 27 September, 2006 - 5:00 PM. Shawna York 405.878.2028
shawna.york@okbu.edu [Indicate # of adults & # children.]

Directions To Wood Science Building:

From I-40:

Exit at Kickapoo Interchange.

Head South on Kickapoo until you reach University [third traffic light].

Turn **WEST** onto University and then next **right** onto “The Oval”.

Wood Science Building is the first building on the right.


If spaces are available, attendees can park on “The Oval”.

If not, follow “The Oval” back around to University and parking lots can be found on both sides of the street **west** of “The Oval” on University.

From South:

Take **Kickapoo Spur** Exit off US 177. North on Kickapoo to University.

Dr. Laura J. Clifford

Laura J. Clifford received her doctorate in Food Science and Environmental Toxicology in 2002 from Michigan State University in East Lansing, Michigan. From 2002 until 2004, she performed post-doctoral research at the University of California, Santa Cruz. Dr. Clifford was appointed as an Adjunct Instructor in the Department of Chemistry at Cabrillo College in Aptos, California, from 2002 until 2005. In 2005, she was appointed as an Assistant Professor in the Department of Chemistry and Biochemistry at the University of Oklahoma. While currently pursuing teaching on a full-time basis, her toxicology research in the past has included the characterization of the mycotoxins fumonisin B₁ and deoxynivalenol [vomitoxin], as well as the study of the efficacy of alkaloids and anthocyanins from *Echinacea purpurea*. 

Organic Details***

“THE GREEN INVASION” [June 12], about increasing organic food sales, reported that “organic produce cannot be grown with pesticides.” While pests in organic crops are managed with non-chemical methods first, U.S. Department of Agriculture organic standards allow growers to use an approved list of pesticides as a last resort. Although biologically based, these pesticides are not totally harmless to humans or the environment. Another misconception is that organic food is pesticide free. A study in *Food Additives & Contaminants*, reported that organic food had significantly less residue compared with conventionally grown food; however, low levels of pesticides [including DDT] were still present on up to 27 per-cent of the

organic samples. Small amounts of unavoidable contamination occur via drift from neighboring fields, pesticides from the atmosphere, or soil contaminated with persistent DDT-type of insecticides banned 30 years ago. Finally, the terms *pesticide* and *insecticide* are not synonymous. An insecticide controls insect pests and is simply one type of pesticide.

Christina DiFonzo

*Field Crops Entomologist
Michigan State University
East Lansing, Mich.*

*** Reprinted from “Letters”, US News & World Report, July 3-10, 2006

Student Awards

The Oklahoma Section has two awards for undergraduate students. The **Terrill Smith Travel Award** for undergraduates to travel to a regional or national ACS meeting to present a paper or poster. Two awards of up to \$600 are available each year, one for fall and one for spring travel. This award is named in honor of Dr. Terrill [Terry] Smith, longtime Oklahoma Section officer and councilor, who retired from UCO in 1999. Terry strongly supported undergraduate research and student affiliates at UCO and in the section.

The **Roger Baldwin Graduate School Award** is for undergraduate students who have been accepted to attend graduate school in the chemical sciences. One award of \$500 will be presented each spring. This award is named in honor of Dr. Roger Baldwin, another longtime Oklahoma Section officer who is retired from Kerr McGee Corporation. The section is able to offer these new awards partially due to Roger’s persistent fund-raising efforts associated with the Southwest Regional Meeting in 2003.

Award applications are available from the website, <http://membership.acs.org/O/Oklahoma/Index.htm>. For more information about these awards, contact Gordon Eggleton, geggleton@sosu.edu.

Oklahoma Chemist Award - 2007

Nominations for **Oklahoma Chemist of the Year - 2007** are now being accepted.

Five [5] copies of a single nomination should be sent by **no later than January 22, 2007 to:**

**Dr. K. Darrell Berlin-Chair
Oklahoma Chemist Awards Committee
Department of Chemistry
Oklahoma State University
Stillwater OK 74078
405.744.5950
kdb@okstate.edu**

Criteria and Guidelines for the Preparation of the Nomination and For Selection of the Recipient of The Oklahoma Chemist Award.

1. A nomination letter for the candidate by a colleague, friend, etc.
2. A complete, **up-to-date resumé** of the candidate.
3. A two-page **“highlight”** of the candidate’s **major accomplishments**.
4. Five [5] letters of support for the nominee.

[a] Two [2] letters from colleagues at the **candidate's place of employment.**

[b] Three [3] letters from **outside the candidate's place of employment.** Letters from **individuals with expertise in the candidate's field are especially welcomed.**

5. **Special information** on the candidate **is also solicited**, especially as to how the candidate has advanced chemistry in the state of Oklahoma.
6. Candidates may be involved **in research or in chemical education** within the state.

kdb 

Job Opportunity

The Southwest Region of the ACS is seeking an energetic individual to succeed Dr. Kenneth Ashley as **Secretary-Treasurer of the Region.** Responsibilities are not onerous, but are crucial to the continued health of the Region. They consist of administrative duties, including bookkeeping and bill paying; information communication to Sections within the Region; records maintenance, archival material; and making preparations for the Regional board meeting which occurs on the last day of each year's Southwest Regional Meeting. A commitment of at least two years would be most helpful to the Region.

For more information or to volunteer to perform this important function, **please contact Denise Lynn Merkle, Ph.D. at dmerkle@sciconsult.com or 817.921.0029.**

Bioalcohol fuel

Bioalcohol-producing plants like corn or switch grass convert, at best, 0.03% of peak incident solar energy into alcohol fuel energy, considering daily and seasonal variations, crop turnover times, photosynthesis efficiencies, and foliage intercept fractions. With 5,400 kW per acre of peak sunshine, 1 acre can thus generate 1.6 kW of biofuel on a continuing basis, equivalent to 9 barrels of oil per year. Therefore, to replace 5 billion bbl of oil consumed yearly in the U.S. requires 555 million acres of arable land or one-fourth of the entire U.S. Only countries with vast arable lands, like Brazil and the U.S., could support such cultivations.

Worse, however, is that 80% of the 1.6kW of produced biofuel is needed for fabricating and operating farm machinery, manufacturing fertilizers, and extracting alcohol. This extra 1.3 kW per acre, can be provided by coal or uranium-derived electricity. In an only-biomass, no-oil, no-uranium, no-coal economy, however, the needed land would be 2,775 million acres, more than the entire 2,240 million acres of U.S territory!

The world's oil reserves are sunshine-produced biomass fuels from decayed plants deposited over a billion years. Even assuming that only 1% of the world's land created these ancient oil reservoirs, energy conservation tells us it should be difficult to generate biomass fuel 1,000 times faster than nature did. The solar flux to Earth has not changed much in a billion years.

Solar panels and wind farms require vast areas of sunny and windy [desert] lands with many energy storage units, distribution stations, and access roads. Because of this, capital and maintenance costs for solar or wind power are four times greater than those for equivalent nuclear power. To substitute for the enormous quantities of oil consumed by our fleets of cars, trucks, trains, ships, and airplanes, and to run our heavy industries, we need nuclear- or coal-derived heat and electricity as a prime energy source to synthesize portable fuels [synfuels] from air and water.

Synfuels such as hydrogen, ammonia, and hydrazine can power internal combustion and fuel-cell engines. Uranium reserves can support an oil-substituting synfuel program for 1,600 years with non-air-polluting fast fission reactors. The other possible prime energy source is air-polluting, globe-warming combustion of coal, which can last 150 years. To avoid global warming and preserve coal for future use in plastics and drugs, for example, coal should not be burned. This leaves us with uranium power to overcome the out-of-oil crisis of 2030.

Jeff W. Eerkens
Columbia, Mo.

This letter was on **Page 4, C&E News, July 17, 2006, reprinted by permission of Dr. Jeff W. Eerkens**, Adjunct Research Professor, Nuclear Science & Engineering Institute, University of Missouri, Columbia, MO. 65211

2006 Chemistry Olympiad

Over 200 high school students from the Oklahoma Section ACS participated in the 2006 Chemistry Olympiad. Six students took the United States National Chemistry Olympiad Exam, consisting of multiple choice, free response, and laboratory practical sections, at Oklahoma Baptist University this spring.

Those students were: Daniel Graham and Ilya Sluch of OSSM, mentored by Fazlur Rahman; Sam Dunhill of Moore High School, mentored by Valerie Ferguson; Zach Brush and Taylor Huff of Edmond North High School, mentored by Deborah Greear; and Philip Gresham of Classen SAS, mentored by Carolyn Bish. Two of these students, Daniel Graham and Ilya Sluch, received “High Honors” in the national competition, placing them in the top 50 nationwide.

Cost/Gallon – A Selected List

Vick's Nyquil	\$132.05	Lipton Iced Tea	\$ 8.43
Pepto Bismol	\$ 111.84	Gatorade	\$ 10.17
Scope	\$ 54.70	Crown Royal	\$ 128.00
Aqua Fina Water	\$ 11.46	Orange Juice	\$ 4.50
Budweiser	\$ 12.09	Corona	\$ 15.85
Synthetic Motor Oil	\$ 15.00	Power Steering Fluid	\$ 31.89

Section Officers/Committee Members.

The Section will hold a Fall 2006 election for Chair-Elect and Treasurer. Nominations for the positions are now being accepted! If you wish to nominate someone, or stand for one of these offices yourself, contact: **Steve McKim, Nominations Chair:** 580.745.2648 or smckim@sosu.edu The ballots will be mailed at the beginning of November, 2006.

Oklahoma Fall 2006 Section Meetings:

October:

Monday October 16, 2006
Speaker: Dr. Thomas Spittler [ACS Tour Speaker]
Location: ECU Student Union / Ada

November:

Date: Thursday, November 9, 2006
Speaker: Chemist of the Year 2005-Neil Purdie
Location: OSU / Stillwater

September 2006 Section Meeting

Friday, 29 September, 2006

Oklahoma Baptist University

Food Toxicology in Everyday Life – From the Cradle to the Grave.



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