



# ACS NEWS SERVICE

Weekly Press Package

Dec. 20, 2006

Here is the latest American Chemical Society (ACS) News Service Weekly press package (PressPac) with reports selected from 35 major peer-reviewed journals and *Chemical & Engineering News*.



---

ACS NEWS SERVICE

*Weekly PressPac* – ALL CONTENT IS FOR IMMEDIATE USE EXCEPT  
ARTICLE #5 (EMBARGOED FOR 9 A.M., EASTERN TIME, JAN 1, 2007)

---

PressPac Archive: <http://www.chemistry.org/news/presspac.html>

The American Chemical Society (ACS) News Service PressPac is your access point for discoveries in fields ranging from astronomy to zoology, which are reported in the 35 peer-reviewed journals of the American Chemical Society. With more than 158,000 members, ACS is the world's largest scientific society. Chemistry is the science that transforms lives, and these news alerts are from the leading edge of that science at ACS headquarters.

Contact: Michael Woods  
202-872-4400  
[m\\_woods@acs.org](mailto:m_woods@acs.org)

In This Edition:

- **High aflatoxin levels in wild bird feed**
- **Toward pinpointing the location of bacterial infections**
- **New sensor simplifies efforts to safeguard drinking water from cyanide**
- **Easing concerns about the toxicity of diamond nanoparticles**
- **Headaches form over a possible new form of aspirin**
- **Journalists' Resources:**
  - **ACS Evergreens — Holiday Story Ideas and Podcasts**
- **Mark Your Calendars: Chemistry's expanding role in cancer research**

*The information in this press package is intended for your personal use in news gathering and reporting and should not be distributed to others. Anyone using advance ACS News Service Weekly Press Package information for stocks or securities dealing may be guilty of insider trading under the federal Securities Exchange Act of 1934.*

*To download manuscripts and images, please click on the links provided with each item. Please cite the individual journal, or the American Chemical Society, as the source of this information.*

---

ARTICLE #1 FOR IMMEDIATE RELEASE

**High aflatoxin levels in wild bird feed**

*Journal of Agricultural and Food Chemistry*

Wild birdseed contained higher levels of aflatoxins and other mycotoxins than any other kind of pet food analyzed in studies done around the world, a new review of those studies reports in an article scheduled for the Dec. 27 issue of ACS' *Journal of Agricultural and Food Chemistry*.

Trevor K. Smith and colleagues at the University of Guelph in Ontario point out that mycotoxins are harmful compounds produced by fungi that can grow in cereal grains and nuts used in many pet foods. The compounds are carcinogenic and have other ill effects when consumed at sufficient doses.

The U. S. Food and Drug Administration (FDA) and its counterpart in Canada have a legal limit of 20 micrograms per kilogram for aflatoxin in pet food. "Wild bird feed was found to be the most contaminated among different types of pet foods in several surveys, possibly due to the use of corn, nuts, and seeds as significant ingredients," the researchers said. "Up to one-fourth of the wild bird feed samples were contaminated with more than 100 micrograms of aflatoxin. This presents a potential health threat to the birds."

Among commercial dog and cat foods, the percentage of samples positive for aflatoxin varied from study to study, the researchers found. However, even the positive samples generally had levels of aflatoxin below the FDA limit.

ARTICLE #1 FOR IMMEDIATE RELEASE

"Mycotoxins in Pet Food: A Review on Worldwide Prevalence and Prevention Strategies"

DOWNLOAD PDF

<http://pubs.acs.org/cgi-bin/sample.cgi/jafcau/asap/pdf/jf062363+.pdf>

DOWNLOAD HTML

<http://pubs.acs.org/cgi-bin/sample.cgi/jafcau/asap/html/jf062363+.html>

CONTACT:

Trevor K. Smith, Ph.D.

University of Guelph

Guelph, Ontario, Canada

Phone: 519-824-4142 Ext. 53746

Fax: 519-822-7897

Email: [tsmith@uoguelph.ca](mailto:tsmith@uoguelph.ca)



The red cardinal. (U.S. Fish and Wildlife Service)

ARTICLE #2 FOR IMMEDIATE RELEASE

**Toward pinpointing the location of bacterial infections**

*Journal of the American Chemical Society*

In an advance in the emerging field of bacterial imaging, scientists are reporting development of a method for identifying specific sites of localized bacterial infections in living animals. Bradley D. Smith at the University of Notre Dame and colleagues describe the method in a report scheduled for the Jan. 10 edition of the *Journal of the American Chemical Society*, a weekly publication.

The researchers previously discovered fluorescent molecular probes containing zinc that could be used to discriminate between common pathogenic bacteria — such as *E. coli* and *Staphylococcus aureus* — and mammalian cells. In new research, they report using the probes to pinpoint the sites of staph infections in living laboratory mice. In everyday medicine, physicians may have difficulty distinguishing localized bacterial infections from sites of sterile inflammation.

“Bacterial imaging is an emerging technology that has many health and environmental applications,” the researchers note. “For example, there is an obvious need to develop highly sensitive assays that can detect very small numbers of pathogenic bacterial cells in food, drinking water, or biomedical samples. In other situations, the goal is to study in vivo the temporal and spatial distribution of bacteria in live animals.”

ARTICLE # 2 FOR IMMEDIATE RELEASE

“Optical Imaging of Bacterial Infection in Living Mice Using a Fluorescent Near-Infrared Molecular Probe”

DOWNLOAD PDF

<http://pubs.acs.org/cgi-bin/sample.cgi/jacsat/asap/pdf/ja0665592.pdf>

DOWNLOAD HTML

<http://pubs.acs.org/cgi-bin/sample.cgi/jacsat/asap/html/ja0665592.html>

CONTACT:

Bradley D. Smith, Ph.D.

University of Notre Dame

Notre Dame, Indiana

Phone: 574-631-8632

Fax: 574-631-6652

Email: [smith.115@nd.edu](mailto:smith.115@nd.edu)

---

ARTICLE #3 FOR IMMEDIATE RELEASE

**New sensor simplifies efforts to safeguard drinking water from cyanide**

*Analytical Chemistry*

A new method for detecting cyanide in drinking water and other sources offers numerous advantages over cumbersome existing technology, scientists report in an article scheduled for the Jan. 1 issue of ACS' *Analytical Chemistry*, a semi-monthly journal.

Idaho State University's Jeffrey J. Rosentreter, Yegor G. Timofeyenko and Susan Mayo point out that cyanide is critical in industries ranging from fertilizers and plastics to mining and steel production, with 1.4 million tons produced worldwide each year. Cyanide also is toxic and its presence in the environment must be monitored closely. Existing instruments, however, require large samples, take a long time to produce results, require specially trained operators, and have poor precision and other drawbacks.

The researchers describe development of a new cyanide sensor that overcomes those disadvantages, while being inexpensive and portable. The sensor, for instance, produces results of toxins in water instantaneously and targets the specific form of cyanide toxic to humans and other organisms — making it especially attractive for safety and security applications, the researchers state.

ARTICLE #3 FOR IMMEDIATE RELEASE

“Piezoelectric Quartz Crystal Microbalance Sensor for Trace Aqueous Cyanide Ion Determination”

DOWNLOAD PDF

<http://pubs.acs.org/cgi-bin/sample.cgi/ancham/asap/pdf/ac060890m.pdf>

DOWNLOAD HTML

<http://pubs.acs.org/cgi-bin/sample.cgi/ancham/asap/html/ac060890m.html>

CONTACT:

Jeffrey J. Rosentreter, Ph.D.

Phone: 208-282-4444

Fax: 208-282-4373

Email: [rosejeff@isu.edu](mailto:rosejeff@isu.edu)

---

ARTICLE #4 FOR IMMEDIATE RELEASE

**Easing concerns about the toxicity of diamond nanoparticles**

*The Journal of Physical Chemistry B*

New research has brightened the prospects for using nanodiamonds as drug carriers, implant coatings, nanorobots and other medical applications that take advantage of diamond nanoparticles' attractive properties. The research is scheduled for publication Dec. 28 in ACS' weekly *The Journal of Physical Chemistry B*.

Liming Dai (University of Dayton), Saber M. Hussain (Wright-Patterson Air Force Base) and colleagues, including PhD student Amanda Schrand, explain that advances in technology have made a new generation of nanodiamonds available. Although diamond in bulk form is inert and biocompatible, nano-materials often behave differently than their bulk counterparts. That led to concern that diamond nanoparticles might have toxic effects on cells.

“We have for the first time assessed the cytotoxicity of nanodiamonds ranging in size from 2 to 10 nm,” the researchers state, adding that nanodiamonds were not toxic to a variety of different cell types. “These results suggest that nanodiamonds could be ideal for many biological applications in a diverse range of cell types,” they add.

ARTICLE #4 FOR IMMEDIATE RELEASE

“Are Diamond Nanoparticles Cytotoxic?”

DOWNLOAD PDF

<http://pubs.acs.org/cgi-bin/sample.cgi/jpcb/k/asap/pdf/jp066387v.pdf>

DOWNLOAD HTML

<http://pubs.acs.org/cgi-bin/sample.cgi/jpcb/k/asap/html/jp066387v.html>

CONTACT:

Liming Dai, Ph.D.

University of Dayton

Dayton, Ohio

Phone: 937-229-2670/2679

Fax: 937-229-3433

Email: [ldai@udayton.edu](mailto:ldai@udayton.edu)

---

**ARTICLE #5 EMBARGOED FOR 9 A.M., EASTERN TIME, JAN. 1, 2007**

**Headaches form over a possible new form of aspirin**

*Chemical & Engineering News*

New scientific insights into the packaging of molecules in solids may tempt jokesters to add a second line to that old medical axiom, “Take two aspirin and call me in the morning.” Insiders familiar with an unfolding controversy about aspirin — more than 100 billion tablets of which are produced worldwide each year — might quip, “Well, doctor, should I take Form I or Form II?”

An article scheduled for the Jan.1 issue of *Chemical & Engineering News*, the ACS’ weekly newsmagazine, discusses the controversy that has arisen since 2006, when scientists isolated, described and filed a patent for a putative new form of aspirin. Written by *C&EN* senior editor Ivan Amato, the article describes subtle differences in the crystal, or internal, structures of familiar acetylsalicylic acid and the newly described Form II of aspirin.

The article explains that the discovery of Form II may not have any practical implications for people who take aspirin. However, uncertainties about Form II do showcase surprising knowledge gaps in organic chemists' understanding of the solid state of matter, Amato writes. Those gaps are apparent at a time when pharmaceutical companies are recognizing that minuscule differences in the crystal structures of drugs can have big influences on how drugs work in patients.

ARTICLE #5

**EMBARGOED FOR 9 A.M., EASTERN TIME, JAN. 1, 2007**

“Aspirin’s Dose of Structural Insight: A recently identified crystal packing of aspirin is reminding chemists that discoveries lurk in the most familiar places”

FOR FULL TEXT, CONTACT:

Michael Bernstein

ACS News Service

Phone: 202-872-6042

Fax: 202-872-4370

Email: [m\\_bernstein@acs.org](mailto:m_bernstein@acs.org)

---

## Journalists’ Resources

### ACS Evergreens — Holiday Story Ideas

‘Tis the season for evergreens — those evergreen feature stories that *are* fresh to every new generation of readers, viewers and listeners. Here are a few of our favorites from the ACS News Service, with links to press releases and full texts of the corresponding original scientific journal articles.



**Yes, Virginia, some snowflakes *are* the same**

[http://acswebcontent.acs.org/journalist\\_resources/snowflakes.pdf](http://acswebcontent.acs.org/journalist_resources/snowflakes.pdf)



**Tweaking bubbly’s bubbles**

[http://acswebcontent.acs.org/journalist\\_resources/champagne.pdf](http://acswebcontent.acs.org/journalist_resources/champagne.pdf)



**O Christmas tree: Your bark may fight arthritis**

[http://acswebcontent.acs.org/journalist\\_resources/bark.pdf](http://acswebcontent.acs.org/journalist_resources/bark.pdf)



**Cranberries contain a natural antibiotic**

[http://acswebcontent.acs.org/journalist\\_resources/cranberries.pdf](http://acswebcontent.acs.org/journalist_resources/cranberries.pdf)



**“Gift of the Magi” bears anti-cancer agents**

[http://acswebcontent.acs.org/journalist\\_resources/magi.pdf](http://acswebcontent.acs.org/journalist_resources/magi.pdf)



**Cinnamon helps lower sugar levels in diabetes**

[http://acswebcontent.acs.org/journalist\\_resources/cinnamon.pdf](http://acswebcontent.acs.org/journalist_resources/cinnamon.pdf)



**Dark chocolate: A heart-healthy treat**

[http://acswebcontent.acs.org/journalist\\_resources/chocolate.pdf](http://acswebcontent.acs.org/journalist_resources/chocolate.pdf)



**Popcorn: No more leftover kernels?**

[http://acswebcontent.acs.org/journalist\\_resources/popcorn.pdf](http://acswebcontent.acs.org/journalist_resources/popcorn.pdf)

**Holiday Podcasts**

<http://acswebcontent.acs.org/presspac/holidaypodcast.html>

---

## **Mark Your Calendars: Chemistry's expanding role in cancer research**

### *Chemistry in Cancer Research: A Vital Partnership*

Chemistry has an increasingly important role in research on cancer diagnosis, prevention and treatment. To spotlight that role, the American Chemical Society (ACS) and the American Association for Cancer Research (AACR) will cosponsor a special conference entitled, "Chemistry in Cancer Research: A Vital Partnership," Feb. 4-7 in San Diego, Calif. The program will feature presentations by prominent scientists on drug discovery, proteomics, the chemical biology of carcinogenesis, biomarkers and analytical chemistry, modeling and bioinformatics, and structural biology.

<http://acswebcontent.acs.org/meetings/specialty/AACR/index.html>

---

The American Chemical Society — the world's largest scientific society — is a nonprofit organization chartered by the U.S. Congress and a global leader in providing access to chemistry-related research through its multiple databases, peer-reviewed journals and scientific conferences. Its main offices are in Washington, D.C., and Columbus, Ohio.