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| http://images.magnetmail.net/images/clients/ACS/052312BeetleUSFS(2).gifBeetle-infested pine trees contribute more to air pollution and haze in forestsCredit: U.S. Forest Service |

The hordes of bark beetles that have bored their way through more than 6 billion trees in the western U.S. and British Columbia since the 1990s do more than damage and kill stately pine, spruce and other trees. A new study finds that these pests can make trees release up to 20 times more of the organic substances that foster haze and air pollution in forested areas. It appears in ACS’ journal Environmental Science & Technology.Kara Huff Hartz, Gannet Hallar and colleagues explain that western North America is experiencing a population explosion of mountain pine beetles, a type of bark beetle that damages and kills pines and other trees. The beetles bore into the bark of pine trees to lay eggs. Gases, called volatile organic compounds (VOCs), which act as defense mechanisms against the beetles, are released from the bore holes. VOCs, however, also contribute to the smog and haze that obscures views of natural landscapes in U.S. National Parks and other nature areas where tourists gather in the summertime. To determine exactly how beetle attacks affect the atmosphere, the researchers measured VOC levels in the air near healthy and infected pine trees.They found that beetle-infested trees release up to 20 times more VOCs than healthy trees near the ground surface. The predominant type of VOC was a monoterpene called ß-phellandrene. The data suggest that the bark beetle epidemic in the western U.S. could have led to higher monoterpene concentrations in the air that can contribute to haze, which can harm human health, reduce visibility and impact climate, say the researchers.The authors acknowledge funding from the [National Science Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983161&m=1923904&u=ACS&j=10382139&s=http://www.nsf.gov/).

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| http://images.magnetmail.net/images/clients/ACS/052312EST_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983162&m=1923904&u=ACS&j=10382139&s=http://web.1.c2.audiovideoweb.com/1c2web3536/052312est.jpg) for high-resolution image |

ARTICLE #1 **FOR IMMEDIATE RELEASE**“Effect of Bark Beetle Infestation on Secondary Organic Aerosol Precursor Emissions”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983163&m=1923904&u=ACS&j=10382139&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/es204205m) CONTACT:Kara E. Huff Hartz, Ph.D.Southern Illinois University CarbondaleCarbondale, Ill. 62901Phone: 618-453-3895Fax: 618-453-6408Email: khuffhartz@chem.siu.edu   [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #2 **FOR IMMEDIATE RELEASE****New process would make anti-malarial drug less costly**Organic Process Research & Development

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| http://images.magnetmail.net/images/clients/ACS/052312MalariaACS_thumb.jpegNew process would make anti-malarial drug less costlyCredit: American Chemical Society |

Scientists are reporting development of a new, higher-yield, two-step, less costly process that may ease supply problems and zigzagging prices for the raw material essential for making the mainstay drug for malaria. That disease sickens 300-500 million people annually and kills more than 1 million. The report on the process, which uses readily available substances and could be easily implemented by drug companies, appears in ACS’ journal Organic Process Research & Development.David Teager and Rodger Stringham of the Clinton Health Access Initiative explain that artemisinin combination therapy (ACT) is the most effective treatment for malaria, a parasitic infection that is transferred to humans from the bite of an infected mosquito. Artemisinin, which is used to produce the key ingredient in ACT, comes from Artemisia annua, a medicinal plant grown in China. In recent years, the price for artemisinin has undergone huge market fluctuations, ranging from about $180 to $410 per pound, due to weather conditions and the demand for ACT. Keeping costs down is important because most cases of malaria occur in developing areas in the tropics and subtropics. The researchers reasoned that one way to help stabilize prices would be to improve the current ACT manufacturing process, which consistently yields less of the ingredient than expected. That improvement would reduce the amount of Artemisia annua needed to make ACT.The new process is much simpler and generates less potentially hazardous waste than the current method. It also reduced the amount of artemisinin required to make ACT, which makes the process less costly. A “semisynthetic” version of artemisinin also worked well as a starting material in the new method. “We are in the process of sharing this procedure with manufacturing partners in our global fight to combat malaria,” say the researchers.The authors acknowledge funding from the [Bill and Melinda Gates Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983164&m=1923904&u=ACS&j=10382139&s=http://www.gatesfoundation.org/Pages/home.aspx), [DFID](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983165&m=1923904&u=ACS&j=10382139&s=http://www.dfid.gov.uk/) (the Department for International Development) and other [Clinton Health Access Initiative](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983166&m=1923904&u=ACS&j=10382139&s=http://www.clintonhealthaccess.org/) donors.

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| http://images.magnetmail.net/images/clients/ACS/052312OPRD_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983167&m=1923904&u=ACS&j=10382139&s=http://web.1.c2.audiovideoweb.com/1c2web3536/052312oprd.jpg) for high-resolution image |

ARTICLE #2 **FOR IMMEDIATE RELEASE**“Streamlined Process for the Conversion of Artemisinin to Artemether”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983168&m=1923904&u=ACS&j=10382139&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/op300037e)CONTACT:David S. Teager, Ph.D.Clinton Health Access InitiativeBoston, MA 02127Email: dteager@clintonhealthaccess.orgorRodger W. Stringham, Ph.D.Clinton Health Access InitiativeBoston, MA 02127Email: rstringham@clintonhealthaccess.org [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #3 **FOR IMMEDIATE RELEASEHazelnuts: New source of key fat for infant formula that’s more like mother’s milk**Journal of Agricultural and Food Chemistry

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| http://images.magnetmail.net/images/clients/ACS/052312HazelnutsIstock_thumb.jpgHazelnuts: New source of key fat for infant formula that’s more like mother’s milkCredit: iStock |

Scientists are reporting development of a healthy “designer fat” that, when added to infant formula, provides a key nutrient that premature babies need in high quantities, but isn’t available in large enough amounts in their mothers’ milk. The new nutrient, based on hazelnut oil, also could boost nutrition for babies who are bottle-fed for other reasons. The report appears in ACS’ Journal of Agricultural and Food Chemistry.Casimir Akoh and colleagues explain that human milk is the “gold standard” for designing infant formulas. Mothers naturally provide the healthful omega-3 fatty acid DHA (docosahexaenoic acid) and omega-6 fatty acid ARA (arachidonic acid) — important for brain development and the development of other organs — to infants during the last three months of pregnancy. These fatty acids (components of fats) are also in human milk. But premature infants don’t get full exposure to DHA and ARA in the uterus because they are born too soon. And their mothers’ milk doesn’t yet contain high enough levels when the infants are born. Some mothers, of course, do not nurse. That’s why infant formulas include proteins, sugars and fats to bring them closer to the standard of human milk.Currently, DHA and ARA (in the form of triacylglycerols) from algae are added to many formulas, but concerns exist about the digestibility of these algae-derived fatty acids, which are not exactly identical to those in human milk. So, Akoh’s team set out to build a new designer fat from hazelnut oil that more closely mimics the DHA and ARA in human milk. The report describes development of fats from hazelnut oil that contain DHA and ARA at the same positions found on fats in human milk. The scientists extensively analyzed these human milk fat mimics and conclude that the new DHA and ARA source is suitable for the supplementation of infant formulas.The authors acknowledge funding from the [University of Georgia](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983170&m=1923904&u=ACS&j=10382139&s=http://www.uga.edu/), [Çamlica Kültür ve Yardim Vakfi](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983171&m=1923904&u=ACS&j=10382139&s=http://www.camlicavakfi.org.tr/hakkimizda.aspx) (Turkey) and [Istanbul Technical University](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983172&m=1923904&u=ACS&j=10382139&s=http://www.itu.edu.tr/en/) Scientific Research Projects Department.

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| http://images.magnetmail.net/images/clients/ACS/050912JAgFood_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983173&m=1923904&u=ACS&j=10382139&s=http://web.1.c2.audiovideoweb.com/1c2web3536/050912jagfood.jpg) for high-resolution image |

ARTICLE #3 **FOR IMMEDIATE RELEASE**“Production of Human Milk Fat Analogue Containing Docosahaxaenoic and Arachidonic Acids”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983174&m=1923904&u=ACS&j=10382139&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/jf3012272)CONTACT:Casimir C. Akoh, Ph.D. University of GeorgiaAthens, Ga. 30602-2610Phone: 706-542-1067Fax: 706-542-1050Email: cakoh@uga.edu [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif ARTICLE #4 **FOR IMMEDIATE RELEASE: A PressPac Instant Replay\*****Real-life scientific tail of the first “electrified snail”**Journal of the American Chemical Society

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| http://images.magnetmail.net/images/clients/ACS/041112SnailACS_thumb.jpgReal-life scientific tail of the first “electrified snail”Credit: American Chemical Society[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983175&m=1923904&u=ACS&j=10382139&s=http://web.1.c2.audiovideoweb.com/1c2web3536/041112snailacs.jpg) to view high-resolution image. |

The world’s first “electrified snail” has joined the menagerie of cockroaches, rats, rabbits and other animals previously implanted with biofuel cells that generate electricity — perhaps for future spy cameras, eavesdropping microphones and other electronics — from natural sugar in their bodies. Scientists are describing how their new biofuel cell worked for months in a free-living snail in the Journal of the American Chemical Society.In the report, Evgeny Katz and colleagues point out that many previous studies have involved “potentially implantable” biofuel cells. So far, however, none has produced an implanted biofuel cell in a small live animal that could generate electricity for an extended period of time without harming the animal. “The snail with the implanted biofuel cell will be able to operate in a natural environment, producing sustainable electrical micropower for activating various bioelectronic devices,” the authors say.To turn a living snail into a power source, the researchers made two small holes in its shell and inserted high-tech electrodes made from compressed carbon nanotubes. They coated the highly conductive material with enzymes, which foster chemical reactions in animals’ bodies. Using a different enzyme on each electrode, one pulling electrons from glucose and another using those electrons to turn oxygen molecules into water, they induced an electric current. Importantly, the long-lasting enzymes could generate electricity again and again after the scientists fed and rested what they termed the “electrified” snail, which lived freely for several months with the implanted fuel cell.

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| http://images.magnetmail.net/images/clients/ACS/052312JACS_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983176&m=1923904&u=ACS&j=10382139&s=http://web.1.c2.audiovideoweb.com/1c2web3536/052312jacs.jpg) for high-resolution image |

ARTICLE #4 **FOR IMMEDIATE RELEASE**“Implanted Biofuel Cell Operating in a Living Snail”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983177&m=1923904&u=ACS&j=10382139&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ja211714w)CONTACT:Evgeny Katz, Ph.D.Clarkson UniversityPotsdam, N.Y., 13699Email: ekatz@clarkson.edu**\* A previous PressPac item that you may have missed**   [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #5 **FOR IMMEDIATE RELEASE****Old herbicides enlisted in new “war on the weeds”**Chemical & Engineering News

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| http://images.magnetmail.net/images/clients/ACS/052312CEN_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983178&m=1923904&u=ACS&j=10382139&s=http://web.1.c2.audiovideoweb.com/1c2web3536/052312CEN.jpg) for high-resolution image. |

The emergence of weeds resistant to the most widely used herbicide is fostering a new arms race in the war against these menaces, which cost society billions of dollars annually in control measures and lost agricultural production. That’s the topic of a story in the current edition of Chemical & Engineering News (C&EN), the weekly magazine of the American Chemical Society (ACS), the world’s largest scientific society.In the story, Melody M. Bomgardner, C&EN senior business editor, points out that glyphosate – introduced in the 1980s – has been the best-selling herbicide for over a decade. The biotechnology giant Monsanto markets glyphosate as Roundup, and in the late 1990s began selling so-called Roundup Ready seeds, engineered to be tolerant to the herbicide. About 94 percent of soybean acres were herbicide-tolerant, as was 73 percent of cotton acreage and 72 percent of corn acreage, according to the U.S. Department of Agriculture. That popularity fostered focused use of glyphosate instead of a range of herbicides, leading to the emergence of weeds resistant to glyphosate and a generation of farmers who aren’t well versed in the full spectrum of weed management.Companies like Monsanto and Dow AgroSciences are introducing crops engineered with resistance to other herbicides such as 2,4-D and dicamba. Bomgardner notes that farmers will still be able to manage most weeds through applications of glyphosate. For any resistant weeds that remain, they will have the option of adding 2,4-D or dicamba without worrying about damaging their crops. However, some scientists, farmers and activists worry that continued over-reliance on chemical herbicides will result in weeds that are increasingly difficult to control. ARTICLE #5 **FOR IMMEDIATE RELEASE**"War on Weeds"This story is available at: [http://cenm.ag/weeds](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983180&m=1923904&u=ACS&j=10382139&s=http://cenm.ag/weeds)  [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif **Journalists’ Resources****About the PressPac**The ACS PressPac consists of alerts to journalists about potentially newsworthy research published in ACS journals and Chemical & Engineering News. These alerts, or news tips, are not traditional press releases that provide comprehensive coverage of the research. Journalists can read the full text of the research provided with each alert and use the contact information for the lead authors to resolve any questions about the research or its newsworthiness.**News media registration for ACS’ 244th National Meeting & Exposition in Philadelphia**News media [registration](http://www.mmsend88.com/link.cfm?r=800557068&sid=19046597&m=1923904&u=ACS&j=10382139&s=https://www.xpressreg.net/register/acsf082/media/start.asp) is now open for the American Chemical Society’s (ACS’) 244th National Meeting & Exposition in Philadelphia, August 19-23, 2012. The event will include more than 8,600 reports on new discoveries in medicine and health, food and nutrition, energy, the environment and other fields where chemistry plays a central role. One of the largest scientific conferences of 2012, the meeting will take place at the Pennsylvania Convention Center and area hotels.To view the full news release about meeting registration, [click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=19046598&m=1923904&u=ACS&j=10382139&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_029922&use_sec=true&sec_url_var=region1&__uuid=3e808d0e-dcbd-4957-9ceb-468b230b8951).**Press releases, briefings and more from ACS’ 243rd National Meeting**[www.eurekalert.org/acsmeet.php](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983181&m=1923904&u=ACS&j=10382139&s=http://www.eurekalert.org/acsmeet.php) [http://www.ustream.tv/channel/acslive](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983182&m=1923904&u=ACS&j=10382139&s=http://www.ustream.tv/channel/acslive%20) **Inside Science News Service**For thoroughly enjoyable multimedia coverage of the science behind the news — a valuable resource for journalists and news media organizations everywhere. [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983183&m=1923904&u=ACS&j=10382139&s=http://www.insidescience.org/) to visit the Inside Science News website.**C&EN Video Spotlight: Testing Vehicle Emissions On-the-Go**Hear the chemistry story of the box-like gadget Ford Motor Company and the Environmental Protection Agency use to test vehicle emissions, all in the name of developing cleaner, more fuel-efficient cars and trucks. The machine, called the Semtech-DS, is the product of a collaboration between Ford and instrument company Sensors, Inc. As Ford scientist Mark Dearth explains, the instrument detects a variety of pollutants in tailpipe emissions, including carbon monoxide. It mounts onto heavy-duty trucks and off-road vehicles for testing engine emissions in real-world conditions.[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983184&m=1923904&u=ACS&j=10382139&s=http://youtu.be/VmglCodvjfk) to view the video.**Must-reads from C&EN: A Quest for Cleaner-Running Cars & Trucks**More than 40 years after a landmark federal law set the stage for reducing air pollution from motor vehicle tailpipes, carmakers continue an intensive search for ways to make cars and diesel trucks run cleaner. For the cover story on advances in “catalytic converters,” workhorses in this effort, contact Michael Bernstein at m\_bernstein@acs.org.**ACS Pressroom Blog** The ACS Office of Public Affairs' [pressroom blog](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983185&m=1923904&u=ACS&j=10382139&s=https://communities.acs.org/community/science/science_news) highlights research from ACS’ more than 40 peer-reviewed journals and National Meetings. **Bytesize Science Blog** Educators and kids, put on your thinking caps: The American Chemical Society has [a blog for Bytesize Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983186&m=1923904&u=ACS&j=10382139&s=http://www.bytesizescience.com), a science podcast for kids of all ages.  **ACS Satellite Pressroom: Daily news blasts on Twitter** The satellite press room has become one of the most popular science news sites on Twitter. To get our news blasts and updates, create a free account at [https://twitter.com/signup](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983187&m=1923904&u=ACS&j=10382139&s=https://twitter.com/signup). Then visit [http://twitter.com/ACSpressroom](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983188&m=1923904&u=ACS&j=10382139&s=http://twitter.com/ACSpressroom) and click the ‘join’ button beneath the press room logo. **C&EN on Twitter**Follow @cenmag <[http://twitter.com/cenmag](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983189&m=1923904&u=ACS&j=10382139&s=http://twitter.com/cenmag)> for the latest news in chemistry and dispatches from C&EN's blog, CENtral Science <[http://centralscience.org](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983190&m=1923904&u=ACS&j=10382139&s=http://centralscience.org)>.**ACS Press Releases** [Press releases](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983191&m=1923904&u=ACS&j=10382139&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_NEWSRELEASES&node_id=222&use_sec=false&sec_url_var=region1&__uuid=50b5ab93-801d-4d0d-868f-b9507ff9d709) on a variety of chemistry-related topics.[To Top](#top)http://images.magnetmail.net/images/clients/acs/goldline.gif**ACS Videos**The American Chemical Society encourages news organizations, museums, educational organizations and other web sites to embed links to these videos.**Spellbound: How Kids Became Scientists**

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| http://images.magnetmail.net/images/clients/ACS/Spellbound3.jpg |

The road to a Nobel Prize began for one scientist in elementary school when his father placed a sign on his bedroom door proclaiming him to be a “doctor.” This is just one of the many experiences that helped launch the careers of scientists from diverse backgrounds who are featured in a new ACS video series called [Spellbound: How Kids Became Scientists](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983192&m=1923904&u=ACS&j=10382139&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=1355&content_id=CNBP_028033&use_sec=true&sec_url_var=region1&__uuid=e8e6ee76-0abe-4e78-84c4-3717c995c65e). **Prized Science video series**

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Prized Science: How the Science Behind ACS Awards Impacts Your Life video series is new for 2011! In the first episode, see how Ahmed Zewail, Ph.D., developed a technology that's paving the way for new medicines, new fuels and new materials that will give people longer, healthier, happier lives. Zewail is the winner of the 2011 Priestley Medal. The second episode features the work of David Craik, Ph.D., who made advances toward new drugs for treating health problems that affect millions of people around the world, including antibiotic-resistant bacteria and AIDS. Craik is the winner of the ACS 2011 Ralph F. Hirschmann Award in Peptide Chemistry, sponsored by Merck Research Laboratories. More episodes will appear later in the year. The series is available at the [Prized Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983193&m=1923904&u=ACS&j=10382139&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=446&content_id=CTD1_018821&use_sec=true&sec_url_var=region1&__uuid=594bce97-0b05-4df7-b759-1a0f9156c5d8) website and on DVD. **First Living, Dancing Periodic Table of the Elements**

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That famous chart displaying the chemical elements that make up everything on Earth — a fixture on the walls of classrooms and labs — literally comes alive in this new video from the American Chemical Society (ACS). [Chemists Can Dance!](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983194&m=1923904&u=ACS&j=10382139&s=http://bytesizescience.com/index.cfm/2011/3/29/The-Chemistry-Dance) features scores of chemists wearing symbols representing the elements, kicking up their heels to the tune of an original rap song. It's all part of ACS' celebration of the International Year of Chemistry. Check out the fun and share the link.**A Day Without Chemistry** Imagine a day without cars, electric lights, TV, telephones, safe food and water, medicine, clothing, your house and thousands of other familiar objects that make up modern society. Do it, and you are imagining a day in a world without chemistry. ACS explores that thought-provoking premise in a new high-definition video released as part of the celebration of the International Year of Chemistry. [A Day Without Chemistry](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983195&m=1923904&u=ACS&j=10382139&s=http://www.youtube.com/watch?v=AbfW_CMMe48) follows a person who sees more and more everyday necessities and conveniences disappear before his widening eyes.[The Chemistry of Sourdough Bread](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983196&m=1923904&u=ACS&j=10382139&s=http://www.bytesizescience.com/index.cfm/2010/9/27/Chemistry-of-Sourdough)[The Chemistry of Fireworks](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983197&m=1923904&u=ACS&j=10382139&s=http://www.bytesizescience.com/index.cfm/2010/6/25/Bytesize-Science-Presents-The-Chemistry-of-Fireworks)[The Chemistry of Grilling and Barbecuing](http://www.mmsend88.com/link.cfm?r=800557068&sid=18983198&m=1923904&u=ACS&j=10382139&s=http://www.bytesizescience.com/index.cfm/2010/6/15/Chemistry-of-Barbeque) [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif**ACS Podcasts**

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