Greenlist Bulletin

From the Toxics Use Reduction Institute
at the University of Massachusetts Lowell

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This is the weekly bulletin of the TURI Library at the University of Massachusetts Lowell. Greenlist Bulletin provides previews of recent publications and websites relevant to reducing the use of toxic chemicals by industries, businesses, communities, individuals and government. You are welcome to send a message to mary@turi.org if you would like more information on any of the articles listed here, or if this email is not displaying properly.

Tox21 to Date: Steps toward Modernizing Human Hazard Characterization

Source: *Environmental Health Perspectives*, July 2013
Author: Kellyn S. Betts

A new review in *EHP* describes the first phase of the federal government's Tox21 collaboration, which is attempting to establish alternatives to the time-consuming and expensive animal testing used to evaluate chemical toxicity. The review details important strides investigators have made in demonstrating the usefulness of high-throughput data for identifying potential hazards and prioritizing chemicals for more extensive testing. In the long run, the program may help "protect people from exposure to a much greater number of harmful chemicals than is possible based on current testing methods," says lead author Raymond Tice, chief of the Biomolecular Screening Branch of the NIEHS's National Toxicology Program (NTP) Division.

Officially begun five years ago, Tox21 is an outgrowth of U.S. federal interagency collaborations initiated in 2005 to explore the utility of a high-throughput screening program. It includes scientists at NTP and other NIH entities as well as the Environmental Protection Agency's (EPA) National Center for Computational Toxicology. In 2010 the Food and Drug Administration (FDA) joined Tox21, but the new report focuses mainly on the efforts of the original Tox21 partners.

Read more...

Also read in *Environmental Health Perspectives*, "Improving the Human Hazard Characterization of Chemicals: A Tox21 Update."

Group finds carcinogen in Pepsi products

Source: Boston.com, July 3, 2013

NEW YORK (AP) -- An environmental group said Wednesday that the caramel coloring used in Pepsi still contains a worrisome level of a carcinogen, even after the drink maker said it would

change its formula.

In March, PepsiCo Inc. and Coca-Cola Co. both said they would adjust their formulas nationally after California passed a law mandating drinks containing a certain level of carcinogens come with a cancer warning label. The changes were made for drinks sold in California when the law passed.

The chemical is 4-methylimidazole, or 4-Mel, which can form during the cooking process and, as a result, may be found in trace amounts in many foods.

Read more...

See article from the Center for Environmental Health, "One Year Later, Pepsi Still Contains Cancer-Causing Food Coloring."

Also read the California Office of Environmental Health Hazard Assessment Fact Sheet on 4-methylimidazole.

Researchers Find Cancer Risks Double When Two Carcinogens Present at 'Safe' Levels

Source: Texas Tech University, June 28, 2013
Author: John Davis

Science knows that arsenic and estrogen can cause cancer. At certain very low levels, the chemicals offer little to no threats to human health.

However, new research conducted by Texas Tech University scientists has found that low doses of both chemicals together -- even at levels low enough to be considered "safe" for humans if they were on their own -- can cause cancer in prostate cells.

The combination of the two chemicals was almost twice as likely to create cancer in prostate cells, the research found. The study was published online in the peer-reviewed journal *The Prostate*.

Read more...

Read original article in *The Prostate*, "Chronic exposure to arsenic, estrogen, and their combination causes increased growth and transformation in human prostate epithelial cells potentially by hypermethylation-mediated silencing of MLH1."

How to Characterize Chemical Exposure to Predict Ecologic Effects on Aquatic Communities

Source: *Environmental Science and Technology*, June 13, 2013
Authors: Ralf B. Schäfer, Nadine Gerner, Ben J. Kefford, Jes J. Rasmussen, Mikhail A. Beketov, Dick de Zwart, Matthias Liess, and Peter C. von der Ohe

Reliable characterization of exposure is indispensable for ecological risk assessment of chemicals. To deal with mixtures, several approaches have been developed, but their relevance for predicting ecological effects on communities in the field has not been elucidated. In the present study, we compared nine metrics designed for estimating the total toxicity of mixtures regarding their relationship with an effect metric for stream macroinvertebrates. This was done using monitoring data of biota and organic chemicals, mainly pesticides, from five studies comprising 102 streams in several regions of Europe and South-East Australia. Mixtures of less than 10 pesticides per water sample were most common for concurrent exposure. Exposure metrics based on the 5% fraction of a species sensitivity distribution performed best, closely followed by metrics based on the most sensitive species and *Daphnia magna* as benchmark. Considering only the compound with the highest toxicity and ignoring mixture toxicity was sufficient to estimate toxicity in predominantly agricultural regions with pesticide exposure. The multisubstance Potentially Affected Fraction (msPAF) that combines concentration and response addition was advantageous in the study where further organic toxicants occurred. We give recommendations on exposure metric selection depending on data availability and the involved compounds.

Read more...

EU parliament proposes ban on fluorinated gases

Source: *IHS Chemical Week*, June 21, 2013

The European Parliament says its environment committee has proposed a ban on fluorinated gases in refrigerators, air conditioners, and heat pumps. The plan proposes to phase out completely the use of fluorinated gases in the European Union between 2015 and 2020 "in sectors where energy-efficient and cost-effective alternatives are available," the parliament says.

Read more...

The full article is available at the TURI Library.

View the European Parliament page on fluorinated greenhouse gases.

Also read another article in the press, "European parliament committee backs ban on planet-warming F-gases."

Commission backs EFSA's definition of endocrine-disrupting chemicals

Source: EurActiv.com, July 5, 2013

In a letter to the anti-pesticides activist group PAN Europe, EU Health Commissioner Tonio Borg backs the European Food Safety Authority's (EFSA) definition of endocrine-disrupting chemicals, saying it is in accordance with the international scientific consensus.

Some endocrine-disrupting chemicals occur naturally, while synthetic varieties can be found in pesticides, electronics, personal care products and cosmetics. Some can also be found as additives or as unintended contaminants in food.

The Pesticides Action Network campaign group had accused EFSA of creating loopholes for the pesticides industry to escape banning of chemical substances they use.

In an opinion published this spring, EFSA underlined that not all endocrine-active substances have an adverse effect on the hormone system and that a distinction needed to be made between those that do and those that do not. The Parma-based agency defined "endocrine-active" substances as essentially harmless while "endocrine disruptors" are considered as causing potentially adverse health effects.

Read more...

Also read "New chemicals, drugs added to EU water pollution watch list."

Regional Report: Testing For Toxic Chemicals In Hanover Took Years

Source: Vermont Public Radio, July 5, 2013
Authors: Mitch Wertlieb and Annie Russell

There has been ongoing concern about a chemical that was used in the Army's Cold Regions Research and Engineering Laboratory in Hanover, New Hampshire.

The chemical, Trichloroethylene, or TCE, is a solvent that had been used at CRREL for nearly three decades until 1987, when it was labeled a carcinogen. . . .

Hanover residents were aware of two TCE spills at the lab in the 1970's, but the cleanup was limited to the chemical found in groundwater.

Brubeck says back in the early 1990's, the community thought the TCE problem was taken care of. However, the testing and cleanup that occurred decades earlier didn't account for the *vapor* form of the carcinogen.

"Come March this year of 2013, all of the sudden residents were told there is a TCE vapor problem and we need to test adjacent properties," said Brubeck.

Read more...

Please send a message to mary@turi.org if you would like more information on any of these

resources. Also, please tell us what topics you are particularly interested in monitoring, and who else should see Greenlist. An online search of the TURI Library catalog can be done at http://library.turi.org for greater topic coverage.

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