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2019 Science Award Retracted Amid Controversy Over Glyphosate's Danger

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Since 1980, the American Association for the Advancement of Science (AAAS) — the world's largest scientific society and publisher of several journals, including Science — has presented an annual award for Scientific Freedom and Responsibility to "scientists, engineers or their organizations, whose exemplary actions have demonstrated scientific freedom and responsibility in challenging circumstances." As explained on the AAAS website:[1]

> "The types of actions worthy of this award include acting to protect the public's health, safety or welfare; focusing public attention on important potential impacts of science and technology on society by their responsible participation in public policy debates; or providing an exemplary model in carrying out the social responsibilities of scientists, engineers or in defending the professional freedom of scientists and engineers.
>
> Some awardees have risked their freedom and even physical safety by their actions, while others have been honored for their advocacy and their leadership."

2019 Award Winners

This year, the AAAS was slated to present the Scientific Freedom and Responsibility award to two human health researchers who have published papers linking glyphosate exposure to chronic kidney disease of unknown etiology (CKDu) in Sri Lankan farmers:

- Dr. Sarath Gunatilake,[2] professor of health science at the University of California, whose areas of expertise includes occupational and environmental health research.
- Channa Jayasumana, Ph.D.,[3] a faculty member of Medicine and Allied Sciences at the Rajarata University of Sri Lanka, who conducts research into nephrotoxins (kidney toxins) and the causes and treatments for chronic kidney disease.

Their paper "Glyphosate, Hard Water and Nephrotoxic Metals: Are They the Culprits Behind the Epidemic of Chronic Kidney Disease of Unknown Etiology in Sri Lanka?"[4] was published in 2014, followed by "Simultaneous Exposure to Multiple Heavy Metals and Glyphosate May Contribute to Sri Lankan Agricultural Nephropathy,"[5] and "Drinking Well Water and Occupational Exposure to Herbicides Is Associated With Chronic Kidney Disease in Padavi-Sri

Pura, Sri Lanka,"[6] in 2015.

In the third paper listed, the team found people who drank water from wells where glyphosate and heavy metal concentrations are higher had a fivefold increased risk of CKDu.

Award Winners Are Both Outspoken Critics of Glyphosate

Both Gunatilake and Jayasumana have previously taken a strong stance against glyphosate-based herbicides, highlighting the dangers of herbicide adjuvants. In a 2018 Daily Mirror article,[7] Gunatilake noted that adjuvants added to glyphosate-based herbicides "are 1,000 times more toxic than glyphosate itself." He went on to say:

> "The point I'm trying to raise is that glyphosate without adjuvants is not very useful. Therefore, manufacturers have added these toxic chemicals into glyphosate and nobody is talking about them! Over the last 25 years, the pesticide industry had us hoodwinked by referring only to glyphosate and not to the adjuvants or additives included in these herbicides."

Jayasumana, meanwhile, provided testimony[8] at the yearlong International Monsanto Tribunal,[9] which began December 2015, asserting that glyphosate use has resulted in ecocide.

In its February 4, 2019 press release,[10,11] (which has since been removed from its website[12]), AAAS stated Gunatilake and Jayasumana "faced death threats and claims of research misconduct while working to determine the cause of a kidney disease epidemic that has claimed tens of thousands of lives in their home country of Sri Lanka and around the world. Ultimately, their advocacy led to the culprit, an herbicide called glyphosate, being banned in several affected countries."

Jessica Wyndham, director of the AAAS Scientific Responsibility, Human Rights and Law Program, said:[13]

> "To right a wrong when significant financial interests are at stake and the power imbalance between industry and individual is at play takes the unique combination of scientific rigor, professional persistence and acceptance of personal risk demonstrated by the two scientists recognized by this year's award."

2019 Award Retracted Amid Controversy Over Glyphosate's True Danger

According to Gunatilake and Jayasumana, consumption of glyphosate-contaminated water may contribute to chronic kidney disease by facilitating the transport of heavy metals such as arsenic and cadmium into the kidneys.[14]

The AAAS award announcement incited a rash of critique by defenders of glyphosate, leading the AAAS to issue another statement just two days later, saying the organization is "taking steps to reassess the 2019 Award for Scientific Freedom and Responsibility, after concerns were voiced by scientists and members. This award will not be presented … as

originally planned while we further evaluate the award selection."

(Incidentally, AAAS CEO Rush Holt announced his retirement on that same day.[15]) One outspoken critic was Kevin Folta — a pro-GMO University of Florida professor caught intentionally hiding his funding from Monsanto — who stated that the pair's 2014 paper merely "presented a hypothesis. There were no data. There were no experiments. It was a semi-well-crafted hypothesis that could be tested."[16] In a recent article, GMWatch.org rebuts Folta's claims, saying:

> "Folta's claim that there are 'no data' in the paper is false. There are plenty of data in this and the authors' follow-up papers — from epidemiological and case-control studies, as well as geographical surveys — that support the idea that glyphosate herbicides should be withdrawn from use as a precautionary measure until they can be proven safe.
>
> Are these data conclusive? No. They point to an association. It's true that the link between glyphosate exposure and chronic kidney disease will always remain a 'hypothesis' until it is proven in controlled long-term animal feeding studies …
>
> The truth is that they are unlikely to be done, due to the massive expense and the unwillingness of industry and governments to fund studies that could show that they were responsible for exposing people to poisons over many years."

Should Scientific Freedom Award Be Revoked Based on Controversial Findings?

True, Gunatilake and Jayasumana's theory is just one of dozens of hypotheses for what might be causing chronic CKDu.[17,18,19] (Cadmium toxicity is on that list, though.) Overall, it doesn't appear as though any one given influence can explain all, or even most, cases of CKDu, so the search for answers continues.

The problem with the AAAS' revocation is that whether the research findings are absolutely "true" is not entirely relevant for this particular award. As tweeted by Jack Heinemann,[20] a professor at the University of Canterbury in New Zealand, whose research topics include horizontal gene transfer, GMO risk assessment, conflicts of interest in research and sustainable agriculture:[21]

> "Whether or not the link between glyphosate (or formulation) and kidney disease is right misses the point. A scientific freedom award is given for persecution. If you only give it for proven science, it would be delayed decades and it would only benefit those who persecute."

Gunatilake and Jayasumana are relatively cautious in their own conclusions, describing the link between glyphosate and CKDu as follows:[22]

> "A strong association between the consumption of hard water and the occurrence of this special kidney disease has been observed, but the relationship has not been explained consistently. Here, we have hypothesized

> the association of using glyphosate, the most widely used herbicide in the disease endemic area and its unique metal chelating properties.
>
> The possible role played by glyphosate-metal complexes in this epidemic has not been given any serious consideration by investigators for the last two decades … Although glyphosate alone does not cause an epidemic of chronic kidney disease, it seems to have acquired the ability to destroy the renal tissues … when it forms complexes with a localized geo environmental factor (hardness) and nephrotoxic metals."

Former AAAS President Is Now Biotech Shill

While it may seem cynical to cry foul at every turn, industry influence and conflicts of interest have become so commonplace these days that it simply cannot be ignored. In a recent tweet, science journalist Paul D. Thacker[23] (who also had a hand in writing the Open Payments Act, which mandates the disclosure of compensation from the pharmaceutical and medical industry) noted:[24]

> "If you ever worried that science was being warped by corporate interests, this backpedal by AAAS in giving an award to pesticide researcher [sic] should lay that to rest. Answer seems to be 'yes.'"

In a series of tweets, Thacker also points out links between former AAAS president Nina Fedoroff and the biotech industry, which has become well-known for pressuring medical journals and other organizations to revoke and discredit undesirable research and/or journalism.[25]

In 2015, Fedoroff, a plant molecular biologist, joined the OFW Law firm — which lobbies for the agrochemical industry — as senior science adviser for agriculture policy, global food security and government affairs.[26]

She was also present at the 2017 release of "Little Black Book of Junk Science,"[27] a book by the American Council on Science and Health (ACSH), a chemical industry front group that I've written about on several occasions, and was a chosen speaker at a GMO Answers symposium cosponsored by Scientific American in 2016.[28]

GMO Answers was created by the PR firm Ketchum, which works on behalf of the Council for Biotechnology Information to improve the public image of GMOs. U.S. Right to Know has previously called attention to a video ad in which the firm talks about how it doubled positive GMO coverage using online social media monitoring.[29]

AAAS Has 'Mixed Record on Public Interest Issues'

Considering how strong professional ties can be, even when officially severed, it doesn't seem farfetched to suspect Fedoroff's association with AAAS and the agrochemical industry might have an influence. GM Watch also notes:[30]

> "The AAAS has a mixed record when it comes to public interest issues. In 2013 the AAAS' board of directors issued a statement opposing the labeling of GM foods in the U.S. … The AAAS was at the time chaired by Nina Fedoroff, who has close ties to the GMO industry.
>
> But in an incident that showed that the AAAS is not monolithic but contains scientists who do not toe the GMO lobby's line, a group of scientists and physicians that included many long-standing AAAS members condemned the AAAS board of directors' statement as 'an Orwellian argument that violates the right of consumers to make informed decisions.'
>
> They pointed to evidence showing that Roundup, the herbicide used on most GM crops, could pose risks that consumers might reasonably want to avoid. Sadly, the AAAS board seems more likely than its membership to have the power to decide on the fate of the award that was to be given to the Sri Lankan scientists."

Latest GMO Monopoly Driven by Fear

While glyphosate-based herbicides still dominate the global market, rapidly mounting weed tolerance has led to the introduction of dicamba-based herbicides and a new crop of genetically engineered (GE) plants designed to withstand it. Dicamba is an incredibly potent toxin, and dicamba drift damaged or destroyed an estimated 3.6 million acres across the U.S. between 2016 and 2017 alone.

This included not only fields growing non-dicamba-resistant crops but also trees. In response, the U.S. Environmental Protection Agency placed some restrictions on dicamba usage. For instance, special training is required to apply the herbicide, and its application is prohibited when wind speeds are greater than 10 mph. Farmers are also asked to assess the risk that spraying could have on nearby crops, as well.

Despite this, reports of damage from dicamba drift continued through 2018. What's worse, many farmers report feeling they have no choice but to buy Monsanto-Bayer's GE dicamba-tolerant seeds, or else they risk having their crop destroyed by dicamba drift from their neighbors.

Randy Brazel, a soybean grower, tells NPR[31] he had little choice but to switch to dicamba-tolerant soybeans after one of his neighbors called saying he was making the switch. NPR writes:

> "[D]icamba fumes from fields of Xtend soybeans have curled up the leaves of sycamore trees and millions of acres of traditional soybeans across much of the Midwest and South. Brazel wasn't willing to take the risk of that happening to his crops.
>
> He canceled his entire order and bought the new dicamba-tolerant soybeans instead. 'Then I have to get on the phone and call every other neighbor and say, 'Listen, I did not want to do this. But I am going to be forced to go dicamba.' Well, then that forces all those neighbors to call all their neighbors. And eventually what you have is a monopoly,' he says."

In some parts of the U.S., protecting your crop from dicamba damage from neighbors is part of the sales pitch for the dicamba-resistant Xtend soybeans, NPR reports. In response to this mounting pressure to switch or lose your farm, a lawsuit has been filed against Monsanto on behalf of farmers, arguing the dicamba-tolerant seeds violate antitrust law.

As noted by NPR, "The lawsuit claims that the company understood that the risk of drifting dicamba could drive competitors out of the market." Bayer (which bought Monsanto in May, 2018) has asked for the lawsuit to be dismissed. A decision from the court is still pending.

Substantial Amounts of Glyphosate Found in Food

The sad fact of the matter is, if you're eating nonorganic foods, especially processed food, then you're eating glyphosate on a regular basis. Farmers apply nearly 5 billion pounds (over 2 billion kilograms) of glyphosate to farm crops each year, worldwide.[32] Approximately 300 million pounds are applied on U.S. farmland.

Testing has revealed 70 percent of Americans had detectable levels of glyphosate in their system in 2016; between 1993 and 2016, the glyphosate levels in people's bodies increased by 1,208 percent.[33]A recent investigation by journalist Carey Gillam[34] revealed Roundup has been found in virtually all foods tested, including granola and crackers.

The Health Research Institute Labs (HRI Labs) has also conducted glyphosate testing, finding the chemical in Ben & Jerry's ice cream. Other foods typically contaminated with glyphosate include grains, legumes, beans, orange juice and wine.

HRI's testing also reveals people who eat oats on a regular basis have twice as much glyphosate in their system as people who don't (likely because oats are desiccated with glyphosate before harvest). Meanwhile, people who eat organic food on a regular basis have an 80 percent lower level of glyphosate than those who rarely eat organic.

Glyphosate May Affect Your Health in Several Ways

Glyphosate actually has a glycine molecule as part of its structure (hence the "gly" in glyphosate). Glycine is a very common amino acid your body uses to make proteins. As a result, a senior scientist at MIT, Stephanie Seneff, Ph.D., believes your body can substitute glyphosate for glycine, which results in damaged proteins being produced.

Glycine also plays a role in quenching inflammation, as explained in "Glycine Quells Oxidative Damage by Inhibiting NOX Superoxide Production and Boosting NADPH," and is used up in the detoxification process. As a result of glyphosate toxicity, many of us may not have enough glycine for efficient detoxification. According to research published in the journal Entropy in 2013, the main toxic effects of glyphosate are related to the fact that it:[35,36]

- Inhibits the shikimate pathway, found in gut bacteria in both humans and animals
- Interferes with the function of cytochrome P450 enzymes, required for activation of vitamin D in the liver, and the creation of both nitric oxide and cholesterol sulfate, the latter of which is needed for red blood cell integrity
- Chelates important minerals, including iron, cobalt and manganese. Manganese deficiency, in turn, impairs mitochondrial function and can lead to glutamate

toxicity in the brain
- Interferes with the synthesis of aromatic amino acids and methionine, which results in shortages in critical neurotransmitters and folate
- Disrupts sulfate synthesis and sulfate transport

Glyphosate also disrupts, destroys, impairs or inhibits:[37]

- The microbiome, thanks to its antibiotic activity
- Sulfur metabolism
- Methylation pathways
- Pituitary release of thyroid stimulating hormone, which can lead to hypothyroidism

How to Test Your Glyphosate Level and Eliminate It From Your System

The chemical has also been linked to an increased risk of Non-Hodgkin lymphoma and lung cancer.[38]Considering the possible dangers of glyphosate, it would make sense to minimize your exposure, and if you have high levels already, to take steps to detoxify it.

HRI Labs has developed home test kits for both water and urine, and if you have elevated levels, you can drive out the glyphosate by taking an inexpensive glycine supplement.

Dr. Dietrich Klinghardt recommends taking 1 teaspoon (4 grams) of glycine powder twice a day for a few weeks and then lowering the dose to one-fourth teaspoon (1 gram) twice a day. This forces the glyphosate out of your system, allowing it to be eliminated through your urine.

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