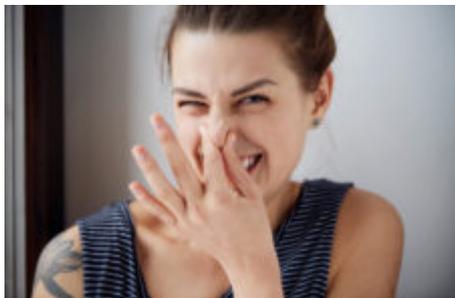


# The Chemistry of the DNC Protest Fart-In



By Josh Bloom — July 29, 2016



**No beans, no peace!** Photo:

Shutterstock

Best Twitter comment ever? I think so.

*"That's sure to upset the flatus quo."*

Damn! Wish I'd thought of that one. It is pure genius. **(1)**

You have to give much credit to a group of Bernie Sanders supporters, one of whom is Dr. Walter Tsou of the Philadelphia branch of Physicians for Social Responsibility and also a former Philadelphia health commissioner, for a rather [unorthodox method of protesting](#) <sup>[1]</sup>. I don't have a word to say about their political leanings, (or anyone else's, for that matter) but they sure get a bunch of points for sheer creativity. They think that our political system stinks, and they are prepared to do something about it.

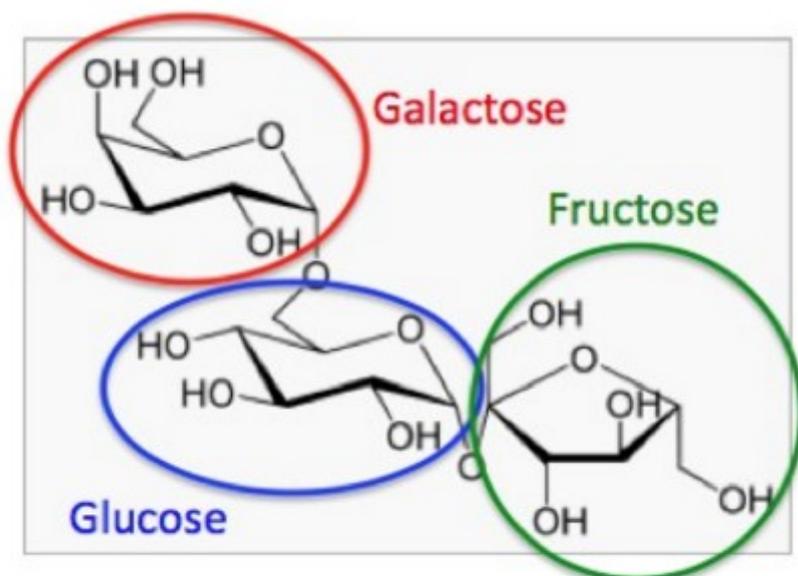
Rather than simply flapping their mouths, as most politicians do, the activists are flapping something at the other end of the digestive system. They are going to have a "fart-in."

The group has received a shipment of the "industry standard"—baked beans, as well as navy, pinto, lima beans. Will this work, or will it just be a bunch of hot air? (Sorry)

Let's take a look at the chemistry of the process, and see if the chemistry smells right. (Sorry again)

The process emitting intestinal gas is governed by digestion, specifically, what our intestines are capable of handling, and what they are not. In the "not" category is a family of carbohydrates, which are called oligosaccharides—molecules that consist of between 3 and 10 single sugar molecules that are chemically bound together.

One of the oligosaccharides that is found in beans is raffinose. Although all three of its component sugars are easily digestible when they are separate, when they are bound together to form a



## Raffinose- A 3 sugar oligosaccharide

This is because humans can absorb, via the small intestine, only monosaccharides (single sugars) like the galactose, glucose, and fructose that make up raffinose. This even holds true for common cane sugar (sucrose), a molecule that is made up from molecule of glucose and one of glucose fructose.

Obligatory chemistry lesson: If you are not a chemist, you will probably not notice the absence of any **sulfur (S)** in raffinose. On the surface, this would seem to make the fartathon destined to fail. Why?



**It's stinky lesson time!**

Photo: olympichottub.com

Here's a useful mnemonic: **S = Stinks**. And it sure does! Just about all chemists HATE working with sulfur-containing chemicals (**1**). So does everyone else in the building, since they will also smell it—even in distant parts of the building. It takes an unbelievably low concentration of many sulfur-containing chemicals—as little as one part per billion—to be detectable by the human nose.

Here are a some sulfur-containing chemicals that you may be familiar with:

isoamyl mercaptan- skunk spray (the worst smelling of several chemicals that are made by the skunk)

Methyl mercaptan- bad breath, the additive that gives natural gas an odor (for safety), and one of the two chemicals that make farts smell

Hydrogen sulfide- Rotten eggs, the other fart odor chemical, volcanos...

Thiophenol- Pure death. Some chemists claim that it is [the worst smelling chemical](#) [2] they have ever worked with. You have probably never encountered it. Keep it that way.

So, by itself, raffinose cannot form anything smelly which would seem to limit the protestors' arsenal to noise only. While delightful in their own right, fart noises are unlikely to create much of a stink (Sorry #3) at the convention. And there are iPhone apps that can do this on demand. (Can you?)

When oligosaccharides are *chemically* broken down, they do form a number of gases (methane, carbon dioxide, hydrogen, others), but none of these gases has an odor.

But, the activists will be getting a little help from their gut bacteria. Indigestible sugars (there are a number of them) are not absorbed in the small intestine. Rather, they travel south to the large intestine, where there is no shortage of bacteria, some of which consider oligosaccharides to be Kobe beef.

When they are given an extra food source, these bacteria multiply rapidly. Two of the waste products of bacteria are hydrogen sulfide and methyl mercaptan. Both contain sulfur, and both stink. The more beans, the more bacteria. And the more bacteria, the more smell.

So guys, let em' rip. It's not as dignified as throwing tea into Boston Harbor, but it's a lot more fun.

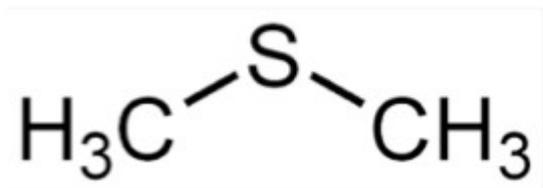
And rather cheeky.

###

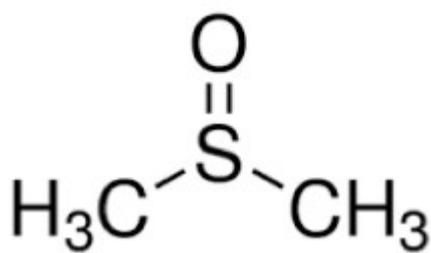
Notes:

(1) You can thank Derek Sorenson [@th3Derek](#) [3] for this gem.

(2) The stink rule only applies to sulfur (II)— the form that has no oxygens on it.



Dimethyl sulfide  
Smells like death



Dimethyl sulfoxide  
Odorless

---

COPYRIGHT © 1978-2016 BY THE AMERICAN COUNCIL ON SCIENCE AND HEALTH

---

**Source URL:** <https://www.acsh.org/news/2016/07/29/the-chemistry-of-the-dnc-protest-fart-in>

**Links**

[1] <http://www.usnews.com/news/articles/2016-07-27/anti-clinton-fart-in-makes-stink-at-dnc-gates>

[2] [http://blogs.sciencemag.org/pipeline/archives/2012/05/15/things\\_i\\_wont\\_work\\_with\\_selenophenol](http://blogs.sciencemag.org/pipeline/archives/2012/05/15/things_i_wont_work_with_selenophenol)

[3] <https://twitter.com/th3Derek>