Beer yeast designed to attract humans ... and pesky flies

By Rhodi Lee, Tech Times | October 10, 9:18 AM

Beer has a distinct smell. New research suggests there's a reason why this popular alcoholic beverage smells this way: to attract fruit flies.

The common brewer's yeast is responsible for the beer's most prominent odor, and these produce chemicals that mimic the aroma of a ripening fruit that attracts pesky little flies. While flies can be an annoyance for brewers, they actually benefit the yeast as the flies disperse the yeast into the environment.

In a new study published in the journal Cell Reports on Oct. 9,Kevin Verstrepen from the VIB Laboratory of Systems Biology in Leuven, Belgium and his colleagues conducted an experiment to see how flies would respond to yeast when the alcohol acetyl transferase (ATF1) yeast gene, which is responsible for aroma synthesis, is removed. They found that flies were not attracted to the mutant yeast cells and this too has unwanted implications on the yeast.

When the flies land on the fruity non-mutated yeast, they unknowingly pick the yeasts on their legs and disperse them. The flies, however, were not attracted to the aroma-mutated yeast. As a result, the yeast was not as much dispersed as the smelly yeast.

"Deletion of ATF1 alters the olfactory response in the antennal lobe of fruit flies that feed on yeast cells," the researchers wrote. "The flies are much less attracted to the mutant yeast cells, and this in turn results in reduced dispersal of the mutant yeast cells by the flies."

Verstrepen said that the mutually beneficial relationship of flies and yeast may have existed for millions of years. The flies eat yeast for protein, with the scent serving as their guide to the source. The yeast cells then benefit from the fruit flies as they are dispersed to new places.

The researchers explained that because the yeast does not have the capability to move around on its own, it may have developed the strategy so it can be transported from nutrient-poor environments to nutrient-rich habitats such as ripe fruit or rotting trash that fruit flies incidentally always frequent.

It likewise appears that humans also benefit from the volatile compounds that give beer its pungent smell because of the compounds' role in the flavors of beer and wine.

"Recent research shows that the choice of a particular yeast strain or variety explains differences in taste between different beers and wines," Verstrepen said. "In fact, yeasts may even be responsible for much of the "terror," the connection between a particular growing area and wine flavor, which previously often was attributed to differences in the soil."

Related Articles

Skygazers watch Oct. 8 Blood Moon with awe and wonder
Earth's oceans warming faster than we realized: Blame global warning?
ISS astronauts take a stroll in space to stow away broken ammonia pump
US-Japanese physicists win Nobel Prize for inventing energy-saving blue LED
Sponsored From Around the Web

**8 Words That Don't Translate into English**

**Magic Trick Gives Money to Those in Need**

**Craig Lewis: The World’s First Heartless Human**

**Hilarious Photos Taken at the Perfect Moment**

**WATCH: Who Knew You Could Do This With an Apple?**

**Weirdest Show on Wheels: Bizarre Photos of Motorcyclists**

**19 Things That Probably Only Happen in Dubai**

**A New Solution That Stops Snoring and Lets You Sleep**

**10 Girl Scout Cookie Facts You Probably Don’t Know**

**FLASHBACK: 4-Year-Old Boy Moved to Tears by Emotional Song “Say Something”**

---

**Beer yeast designed to attract humans ... and pesky flies**

http://www.techtimes.com/articles/17587/20141010/beer-yeast-designe...
Beer yeast designed to attract humans ... and pesky flies : LIFE : Tech... http://www.techtimes.com/articles/17587/20141010/beer-yeast-designe...

Dave Rubenstein • 3 months ago

The author (and the headline editor, especially) seem to confuse the phenomenon that yeast and the flies provide benefits to one another with the idea that these benefits were "designed" in some way. Evolution's natural selection rewards genes that work better in a given environment, but those better-working genes cannot be said to be designed, rather they are random mutations that continued to be replicated because they helped their host.

Dave Rubenstein • 3 months ago

"Designed?"

Yeast may be a successful organism, in part due to the odor, but it was not designed to attract flies. Evolution isn't intelligence. It's just as stupid to try to suggest that the author is suggesting that, back in the 1930's, someone chose this bit of goo over that one to make beer because it smells good is a proof that God exists. I don't read that here. "Deletion of ATF-1 alters the olfactory response". Yup, thats in Psalms somewhere, so God must exist. Understand, I'm Christian, and understand that God did plan everything ahead of time, I'm not suggesting otherwise. I'm suggesting that arguing the designs of man must be rewritten to support evolution is beyond paranoid, and only weakens your position that evolution is science, not a tenet of atheist religion.

Wake up, drink more coffee, and read the article again. Designers (meaning people with calculators) have been manipulating the DNA of much of what goes into your mouth for decades. This is called genetics. They are writing about genetics here. It exists whether you or I believe in it.

Patty Brown

Michael Hart • 3 months ago

"Designed?"

If I choose to build my house on a solid bit of mountain, are you also going to deny that I've designed it, because mountains are a geological process? Beer evolved? That's about the funniest idea I've heard this month. It's just as stupid to try to suggest that the author is suggesting that, back in the 1930's, someone chose this bit of goo over that one to make beer because it smells good is a proof that God exists. I don't read that here. "Deletion of ATF-1 alters the olfactory response". Yup, thats in Psalms somewhere, so God must exist. Understand, I'm Christian, and understand that God did plan everything ahead of time, I'm not suggesting otherwise. I'm suggesting that arguing the designs of man must be rewritten to support evolution is beyond paranoid, and only weakens your position that evolution is science, not a tenet of atheist religion.

Wake up, drink more coffee, and read the article again. Designers (meaning people with calculators) have been manipulating the DNA of much of what goes into your mouth for decades. This is called genetics. They are writing about genetics here. It exists whether you or I believe in it.

Jeff • 3 months ago

why r u so mad about this? Was it because u were just designed that way?

Jordan Lewis • 3 months ago

Lol @ Dave and his crazy mythology of accidental magic.

Patty Brown • 3 months ago

Jordan and his crazy mythology of a benign creator who plans everything.

Jeff • 3 months ago

Lol @ patty, because I want to join in on the fun!

emukueemukue • 3 months ago

Why bother stating the obvious? Most people already know that. And people who do not, will never know.

Grendelmen • 3 months ago

"Designed?"

Yes, by natural selection.

Patty Brown • 3 months ago

Once again, we have to wonder, who's "using" who?

Throckmartin • 7 months ago

Yeast may be a successful organism, in part due to the odor, but it was not designed to attract flies. Evolution isn't 'design', that is something engineers do.

Michael Hart • 3 months ago

It's sad that anyone could or would try to see a conspiracy in this article. FYI, Your argument against intelligent design seems to proclaim ID much more than the article above. Thanks, and keep up the good work.

Soperhobbit • 3 months ago

Sir you and your loved one in that picture are atrocities against man. You are so viciously ugly that it defies any possible inference of an intelligent designer. Unless you did something to deserve your face looking like a catius anus. Then all bets are off, obviously.

Learning44 • 3 months ago

I'm an atheist, and disagree with Michael, but I'm pretty sure that YOUR lack of a picture speaks volumes. And insulting people's appearance is the best you can do? That is a logical fallacy. In case you are unable to look that up, please visit http://www.nobeliefs.com/falla... and look at the definition of "Ad hominem". ad hominem: Latin for "to the man." An arguer who uses ad hominems attacks the person instead of the argument. Whenever an arguer cannot defend his position with evidence, facts or reason, he or she may resort to attacking an opponent either through labeling, straw man arguments, name calling, offensive remarks and
Beer yeast designed to attract humans ... and pesky flies : LIFE : Tech... http://www.techtimes.com/articles/17587/20141010/beer-yeast-designe...