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Science Reveals Which Plant-Based Burger Smells Most Like Real Thing



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Science Reveals Which Plant-Based Burger Smells Closest to the Real Thing

Plant-based meats have closed the gap on taste, but which one convinces your nose?

By [Michael d'Estries](#) Updated September 3, 2021 05:25PM EDT  Fact checked by [Haley Mast](#)



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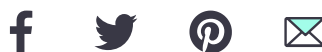
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Beyond Meat burger with fries.

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As someone who has been [enjoying veggie burgers](#) for decades, even in the face of friends and family turning up their noses at the thought of a quinoa black bean patty, I've found the last few years of plant-based products to be some of the tastiest. The alternative meats industry is booming, with new vegan and vegetarian choices showing up not just at the grocery store, but also with near-ubiquity [at fast food chains](#).

As with anything that claims to be an “alternative,” the proof is in the bite. Five years ago, you could have easily discerned between a plant-based burger and the real deal. Today, with brands like [Impossible](#)

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While our taste buds are reaping delicious advancements in plant-based products, the same can't necessarily be said of our noses. Whether you eat meat or not, there's no denying that burgers cooking in the kitchen or out on the grill have a distinct smell. According to LiLi Zyzak, a chemistry professor at Eastern Kentucky University and project lead on a new study of which veggie burgers smell closest to

their meaty counterparts, the volatile compounds released by cooking raw hamburger are difficult to source from plant-based alternatives. ¹

"The problem with plant-based burgers is that the plant protein itself contributes a strong odor," said Zyzak, who presented the team's findings at the American Chemical Society's [ACS Fall 2021](#). "For example, pea protein smells like green, cut grass, so companies have to find a way to mask that aroma. Some use heavy seasonings."

In an effort to "give consumers an idea of what's out there so that they can make informed decisions at the grocery store," Zyzak and her colleagues cooked eight popular brands of plant-based burgers and evaluated the aromas using five descriptors: meaty, fatty, buttery, sweet, and roasted. Turning the science up to 11, the team then used

gas chromatography-mass spectrometry (GC/MS) on the volatiles from

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clicked a button when they smelled an individual odor and said which of the descriptors it smelled like. The values from the GC-MS and individual noses were then combined to correlate to specific compounds.

So Who Is Winning the Nose (So Far) in the Plant-Based Burger Wars?

 Beyond Burger at Carl's Jr

Jesse Grant, Stringer/Getty Images

According to the results of the research, cooked burgers from Beyond Meat most closely match the odor profile of real hamburger.¹ That said, despite having characteristics of “meaty, fatty, and grilled meat,” Zyzak noted that it was “significantly different” from the real thing. Coming in second place was Nestlé’s Awesome Burger.

“I think Beyond’s done a pretty good job at it, actually,” Zyzak [told the National Post](#). “And the Awesome is really, really close to it in terms of the regular beef profile.”

As for some of the other contenders, the odor of the Impossible Burger gave off notes of yeast and grain, Kellogg’s Incogmeato Burger

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WE DON'T KNOW ANOTHER TRADE SECRET, Zyzak, laughing, added to the Post. "So we're trying to figure out, why would someone add that?"

In terms of next steps, Zyzak says that her team is working on a novel aroma collection device that they hope will unlock the "characteristic hamburger aroma chemical footprint." For alternative foodies like me, this can only mean more delicious tastes and smells are on the horizon for the growing plant-based industry.

To learn more about the science of smell with plant-based meats, you can view Zyzak's full media briefing [on the topic here](#).

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