

It's a first: Scientists find ethyl vanillin in a specially-bred strawberry

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University of Florida scientists have found ethyl vanillin—an aroma compound in many artificial vanilla-flavored food products—in a UF/IFAS-bred strawberry. This is a key finding for the food and

beverage industry and for the UF/IFAS strawberry breeding program.

Vanilla beans contain the character-impact compound vanillin, which imparts vanilla [flavor](#). Ethyl vanillin provides an even more powerful vanilla-like flavor. It is synthesized in labs and is one of the most widely used artificial flavors in the food, beverage, food supplements and pharmaceutical industries.

Finding ethyl vanillin in a [strawberry](#) may prove valuable for the flavor and food industries in the quest of offering consumers more natural flavors, said Yu Wang, an associate professor of food science and [human nutrition](#) at the UF/IFAS Citrus Research and Education Center.

"If [restaurants](#) and people cooking at home prefer their ingredients to be natural, they use vanilla extract," said Wang, lead author of the newly published study. "They could also use artificial vanilla flavor, which might contain ethyl vanillin. It's the same as when the flavor and [food industries](#) develop both natural and artificial flavors for the final food and beverage products, consumers have similar choices as well."

In the new study, UF/IFAS scientists extracted 131 aroma compounds from the Medallion strawberry, the UF/IFAS-bred variety that was commercialized in 2020. Both vanillin and ethyl vanillin were detected in the fruit.

Vance Whitaker, a UF/IFAS professor of horticultural sciences and a strawberry breeder, worked on the research, co-advising doctoral student Mark Porter with Seonghee Lee, a UF/IFAS associate professor of horticultural sciences. Wang also credited Xuebo Song, her post-doctoral researcher, for developing the analytical method by which scientists identified ethyl vanillin.

Scientists already knew that the Medallion strawberry occasionally had a

faint flavor of vanilla.

"I initially thought I was imagining it, but this research suggests I was not," said Whitaker. He and Lee are faculty members at the UF/IFAS Gulf Coast Research and Education Center. "Medallion would have great flavor, even without these two compounds—vanillin and ethyl vanillin—due to its high sugars and all the other aroma compounds. But the fact that strawberries can have a vanilla flavor is cool, and the fact that Medallion has this makes it even more of a premium strawberry."

Whitaker called attention to Porter's Ph.D. research as part of an effort to understand the genetic control behind the most important strawberry aroma compounds.

"Ultimately, this feeds into the breeding program to make the flavor of our new varieties even better," Whitaker said. "Right now, ethyl vanillin is not the most important compound impacting strawberry flavor, but this research allows us now to try to increase both vanillin and ethyl vanillin in future varieties, to perhaps create a strawberry that has a clear and consistent [vanilla](#) flavor note."

More information: Xuebo Song et al, Identification of ethyl vanillin in strawberry (*Fragaria × ananassa*) using a targeted metabolomics strategy: From artificial to natural, *Food Chemistry: X* (2023). [DOI: 10.1016/j.fochx.2023.100944](#)

Provided by University of Florida

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