

Chemical magic in the mouth

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Scientists report that mouth bacteria are responsible for creating the distinctive flavors of certain foods, including some fruits and vegetables. Credit: Wikipedia

Scientists in Switzerland are reporting that bacteria in the human mouth play a role in creating the distinctive flavors of certain foods. They found that these bacteria actually produce food odors from odorless components of food, allowing people to fully savor fruits and vegetables. Their study is scheduled for the November 12 edition of the ACS bi-weekly *Journal of Agricultural and Food Chemistry*.

In the study, Christian Starkenmann and colleagues point out that some

fruits and vegetables release characteristic odors only after being swallowed. While scientists have previously reported that volatile compounds produced from precursors found in these foods are responsible for this 'retroaromatic' effect, the details of this transformation were not understood.

To fill that knowledge gap, the scientists performed sensory tests on 30 trained panelists to evaluate the odor intensity of volatile compounds – known as thiols – that are released from odorless sulfur compounds found naturally in grapes, onions, and bell peppers. When given samples of the odorless compounds, it took participants 20 to 30 seconds to perceive the aroma of the thiols – and this perception persisted for three minutes.

The researchers also determined that the odorless compounds are transformed into the thiols by anaerobic bacteria residing in the mouth – causing the characteristic 'retroaromatic' effect. "The mouth acts as a reactor, adding another dimension to odor perceptions," they explain. However, the authors conclude, it is saliva's ability to trap these free thiols that helps modulate the long-lasting flavors.

Citation: "Olfactory Perception of Cysteine – S-Conjugates from Fruits and Vegetables" [dx.doi.org/10.1021/jf801873h](https://doi.org/10.1021/jf801873h)

Source: ACS

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