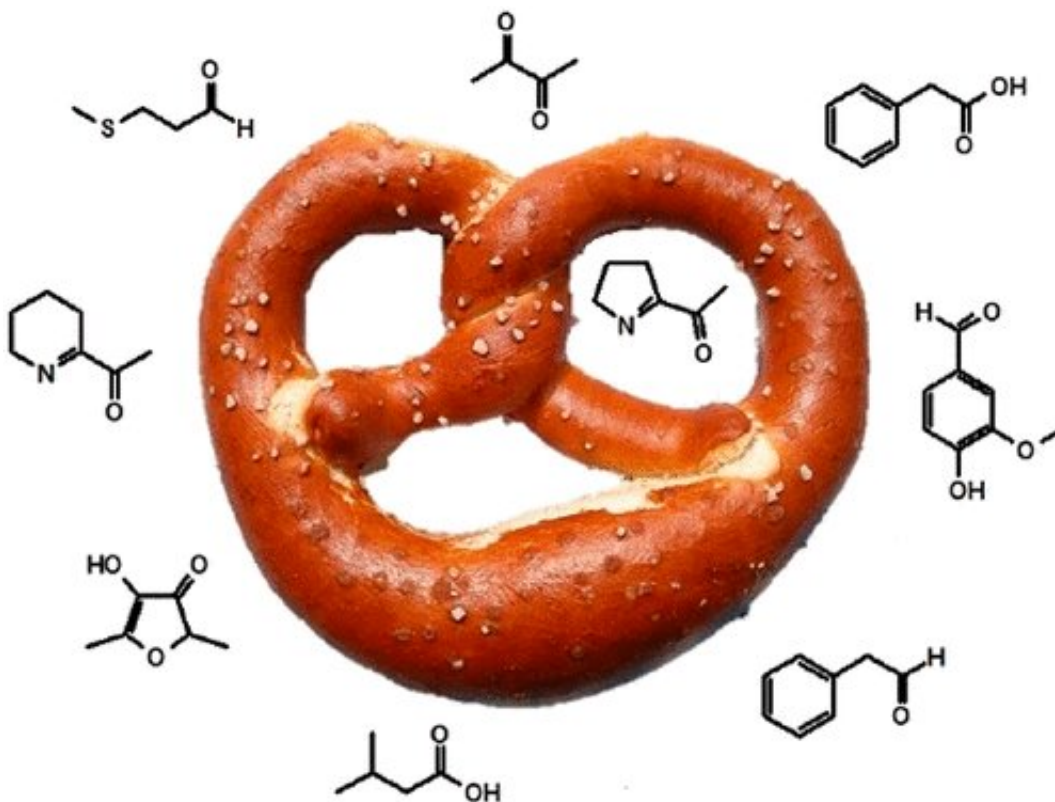


# Solving the knotty question of soft-pretzel aroma

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Credit: American Chemical Society

Whether at Oktoberfest, the movie theater or a shopping mall, the enticing aroma of soft pretzels is unmistakable. Now, researchers have identified the key compounds that give these twisted knots their distinctive scent. They report their results in *ACS' Journal of Agricultural and Food Chemistry*.

The characteristic taste, texture and smell of pretzels results in part from lye treatment of the pretzel dough, as well as from the coarse salt sprinkled on top. Like other foods, pretzels emit dozens of [volatile compounds](#), but it can be difficult to determine which of these actually interact with [odor receptors](#) in the nose to trigger an aroma perception in the brain. In the past, researchers have used analytical techniques in combination with trained human sensory panelists to characterize the key [odor](#) compounds in wheat bread, rye bread and baguettes. Sebastian Schoenauer and Peter Schieberle wanted to identify the volatile compounds in soft pretzels that make their aroma different from that of the other baked goods.

Using trained sensory panelists, the team first determined that the brown crust, rather than the white crumb, of soft pretzels elicited the unique aroma. Then, the researchers extracted volatile [compounds](#) from the pretzel crust and separated them by gas chromatography. With their noses, they determined which ones had an odor, and identified them with mass spectrometry. Additional experiments with the panelists revealed that 4-hydroxy-2,5-dimethyl-3(2*H*)-furanone, which has a caramel-like odor, and 2-acetyl-1-pyrroline—a roasty, popcorn-like smell—were the key contributors to the pretzel aroma profile. The researchers then created a good approximation of the pretzel smell in the lab by combining the top six odor components. Although some of the same odorants were present in other baked goods, the overall amounts and ratios between components varied.

**More information:** Sebastian Schoenauer et al. Characterization of the Key Aroma Compounds in the Crust of Soft Pretzels by Application of the Sensomics Concept, *Journal of Agricultural and Food Chemistry* (2019). [DOI: 10.1021/acs.jafc.9b02601](https://doi.org/10.1021/acs.jafc.9b02601)

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