

Chanterelle mushrooms as a taste enhancer

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Dr. Verena Mittermeier from the Chair of Food Chemistry and Molecular Sensory Science and Andreas Dunkel from the Leibniz-Institute for Food Systems Biology in front of their institute. Credit: Leibniz-LSB@TUM

Chanterelles (*Cantharellus cibarius*) are one of the most popular mushrooms in Germany. Depending on the weather, chanterelle season starts in early July. Connoisseurs value the mushroom's delicate fruity aroma, which is reminiscent of apricots, and its aromatic and slightly bitter taste profile. Not only do chanterelles have a unique flavor profile, they also function as taste enhancers, lending dishes a well-rounded mouthfeel and a lingering, rich flavor.

Key substances for the kokumi sensation

"Using the ultra-high-performance liquid chromatography-mass spectrometry method developed by our team, we are now the first to accurately quantify the key substances in chanterelles that are responsible for the kokumi effect," says Dr. Verena Mittermeier from the TUM Chair of Food Chemistry and Molecular Sensory Science. Dr. Verena Mittermeier already contributed significantly to the study during her time as a Ph.D. student under Prof. Thomas Hofmann, who now serves as the President of TUM.

As the research team's findings show, the effect is caused by natural substances derived from [fatty acids](#). Storage conditions, such as duration of storage and temperature, affect the composition and concentration of these fatty acid derivatives in the mushrooms. Whether the [mushrooms](#) are stored whole or chopped also plays a role.

New quality control marker

According to food chemist Andreas Dunkel from the Leibniz-Institute for Food Systems Biology at the Technical University of Munich, some of these derivatives are specific to chanterelles and can therefore be used as markers to control the quality of mushroom products. These findings could also be used to systematically improve the flavor profile of mushroom dishes or other savory dishes using natural [substances](#).

Andreas Dunkel explains: "Kokumi is a Japanese word that does not refer to a specific [flavor](#) quality such as salty or sweet." Instead, the fatty acid derivatives modulate the sensory characteristics of other ingredients.



Andreas Dunkel from the Leibniz-Institute for Food Systems Biology and Dr. Verena Mittermeier from the Chair of Food Chemistry and Molecular Sensory Science in the laboratory. Credit: Leibniz-LSB@TUM

More information: Verena Karolin Mittermeier et al, Ion-Mobility-Based Liquid Chromatography–Mass Spectrometry Quantitation of Taste-Enhancing Octadecadien-12-ynoic Acids in Mushrooms, *Journal of Agricultural and Food Chemistry* (2020). [DOI: 10.1021/acs.jafc.0c02034](https://doi.org/10.1021/acs.jafc.0c02034)

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