

# Malic acid encourages sweet cherry cracking

July 29 2015

---

"Cracking" is a problem for sweet cherry production wherever the high-value crop is grown. However, despite considerable research, the reason that this phenomenon occurs has not been clear. In a new study, Andreas Winkler, Max Ossenbrink, and Moritz Knoche reveal their discovery of what makes sweet cherries crack.

Knoche, lead author of the study published in the *Journal of the American Society for Horticultural Science*, said the scientists from the Institute for Horticultural Production Systems at Leibniz University set out to investigate consequences of the leakage of cell contents into the fruit's apoplast. "We observed a surprising and dramatic increase in cracking when [sweet cherry](#) fruit are brought into direct contact with the expressed juice of sweet cherries," Knoche said.

The scientists compared water uptake and fruit cracking in 'Sam' sweet cherries following incubation in polyethylene glycol (PEG) 6000, real sweet cherry juice extracted from the same batch of fruit using a spaghetti press, or in artificial juice comprising the five most abundant osmolytes of sweet cherries. Fruit incubated in deionized water served as the control.

"Our results demonstrate that sweet cherry juice causes rapid fruit cracking for low amounts of [water uptake](#). The effect of the juice on cracking can be reproduced using an artificial juice composed of the five most abundant osmolytes in real juice, which include malic acid. It can also be reproduced using malic acid on its own," the authors explained. "We clearly identified malic acid as the major crack-

promoting component in sweet cherry [juice](#)."

The researchers added that malic acid may be an "important link" in a reaction chain that begins with the bursting of individual epidermal cells and ends with the formation of macroscopic skin cracks. They noted that the same conditions may also occur in sweet cherry [fruit](#) in orchards.

**More information:** The complete study and abstract are available on the ASHS J. Amer. Soc. Hort. Sci. electronic journal web site: [journal.ashspublications.org/c...t/140/3/280.abstract](http://journal.ashspublications.org/content/140/3/280.abstract)

Provided by American Society for Horticultural Science

Citation: Malic acid encourages sweet cherry cracking (2015, July 29) retrieved 26 April 2024 from <https://phys.org/news/2015-07-malic-acid-sweet-cherry.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.