

# Researchers create definitive method to detect wildfire tainted wine grapes

October 24 2017

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Wesley Zandberg, assistant professor of chemistry at UBC's Okanagan campus.  
Credit: Nathan Skolski, UBC Okanagan

Wine producers and grape growers have a new, powerful tool at their disposal to help manage the impact of grapes exposed to smoke from

forest fires.

Researchers from UBC's Okanagan campus have devised a new analytical test to precisely and accurately measure the amount of volatile phenols-compounds absorbed by grapes when exposed to smoke that can impact wine flavour-that are present in the fruit prior to [wine production](#)

"Until now, detecting these smoky compounds in grapes required fermenting a small sample over at least ten days and relying on subjective measures like taste and odour," says Wesley Zandberg, assistant professor of chemistry at UBC's Okanagan campus. "We've developed a test that detects the exact amount of volatile phenols present in the [grape](#). There's no need to ferment them first and we get results within a matter of hours."

According to Zandberg, wine grapes that are exposed to smoke from wildfires absorb and metabolize volatile phenols in their skin, which may affect the taste of the wine later on. He says [wine producers](#) and [grape growers](#) utilizing subjective measures currently have to wait one or two weeks to find out if their grapes are suitable for wine-making. Meanwhile, costs and risk mount as their crops sit on the vine.

"By accurately and quickly measuring the presence of volatile phenols, we're offering a much better tool to help vineyards and wineries manage the risk from smoke exposure," says Zandberg. "By knowing precisely whether and by how much each crop has been impacted by [smoke exposure](#), growers and winemakers alike can make informed decisions about whether the grapes should be used or abandoned altogether."

Zandberg and his PhD student Matthew Noestheden, working in collaboration with several local vineyards and a Kelowna-based analytical company Supra Research and Development, have developed

their test after a thorough review of all scientific literature on how *Vitis vinifera*-the plant that produces [wine grapes](#)-absorbs and metabolizes the smoky-flavoured compounds. They then used a series of chemical techniques to isolate the metabolized volatile phenols and measure them to a high degree of accuracy.

But Zandberg is also quick to point out that many wines are aged in smoked oak barrels that contain volatile phenols, so their presence is not necessarily a bad thing.

"We can also apply our technique after the grapes have been fermented and aged to measure phenol levels in the [wine](#) itself. This could be hugely beneficial in helping winemakers determine whether wines have enough smoky compounds to match their desired flavour profile after aging in smoked barrels."

**More information:** Matthew Noestheden et al, Quantitating Organoleptic Volatile Phenols in Smoke-Exposed *Vitis vinifera* Berries, *Journal of Agricultural and Food Chemistry* (2017). [DOI: 10.1021/acs.jafc.7b03225](#)

Provided by University of British Columbia

Citation: Researchers create definitive method to detect wildfire tainted wine grapes (2017, October 24) retrieved 22 June 2024 from <https://phys.org/news/2017-10-definitive-method-wildfire-tainted-wine.html>

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