

Sojourn Cellars, Ziggy, and TCA

At the [August 17 Family Winemakers tasting in San Mateo](#)



(<http://www.familywinemakers.org/wineries?wineryID=458&sort=S>), we discovered [Sojourn Cellars and their excellent pinot noir](#) (<http://www.sojourncellars.com>). While doing research on Sojourn's website we ran across [the story of Ziggy, "The Love Dog" and official canine of the vineyard](#) (<http://www.sojourncellars.com/who-we-are/our-people/ziggy>). According to the Sojourn website,

Ziggy is our 6-year-old Fox Red Labrador. Currently responsible for retrieving tennis balls, guarding the office door, and keeping track of which pocket the FedEx guy keeps the treats in, she can be found trailing Craig wherever he goes, riding in the truck, and occasionally, lounging in the Tasting Salon.

Ziggy spent her puppyhood training learning to sniff out TCA [the chemical that causes corked wine] in oak staves destined for the wine industry. After an intensive, two-year program, she was adopted by Craig and Ellen, who occasionally call on her to show off her sniffing skills. Ziggy has been featured in Wine Business Monthly and Food and Wine magazines.

Ziggy lives in Sonoma with Craig, Ellen, and her pals Natalie and Julia.

This is the tale of Sojourn Cellars, Ziggy, and TCA. She has had two articles in the wine industry press. Both are great reading and highly recommended.

Ziggy's Story

We were intrigued by this and followed the links to [stories about Ziggy in Food and Wine](#)[1] and the [Wine Business Monthly](#).^[2]

The Food and Wine Version



http://californiawinefan.com/wp-content/uploads/2014/08/20140827_SojournZiggy.jpg

Ziggy

Ray Isle, writing in *Food and Wine* (<http://www.foodandwine.com/articles/learning-to-sniff-out-corked-wine>), took on Ziggy in a contest to see whether his human sense of smell could detect an oak barrel stave contaminated with 2 parts per trillion of TCA (2,4,6- trichloroanisole, the chemical that causes cork taint). Mr. Isle is no amateur, possessing a certificate (from Vinquiry, \$75 fee) that states he is able to detect 1 part per trillion TCA. There was, of course, one issue. He refused to get down on all fours, claiming he “had to maintain a certain amount of dignity.” We’ll get back to that point shortly. But the outcome was clear. **Ziggy found the contaminated stave while Ray couldn’t. And Mr. Isle made an important observation: Ziggy got his name because his search pattern is a zig-zag.**

Mr. Isle’s article is delightful reading and highly recommended. We were reminded of a talk we heard at the weekend Wine Appreciation seminar at U.C. Davis. Prof. Hildegard Heymann is a well-known expert on sensory analysis, especially of wine. She gave a presentation on the science of sensory analysis. Along the way she mentioned that her research had, at one point, used bloodhounds to track certain scents. She then showed a photo of a graduate student being abused. This abuse consisted of a blindfold and earplugs, leaving only the sense of smell to track. The photo showed the grad student on all fours following the same zig-zag path used by the bloodhounds. Had Mr. Isle gotten down on all fours, he would have lost some dignity but might have been more successful.

The Wine Business Monthly Version

For quite a few years, **WBM** has run a column by the pseudonymous Jake Lorenzo, playing the role of a wine detective. **In this episode, Jake finds out he has some local competition (<http://www.winebusiness.com/wbm/?go=getArticle&dataId=62903>).**

Iggy Calamari called to give me a warning: “Jake, you got some private eye competition in your hometown, Sonoma,” he said, “and she’s good-looking and friendly as hell.”

Jake Lorenzo has lived in Sonoma for 33 years. There’s nowhere near enough investigative work for even one detective to make a living. It’s bad enough I’ve got to take on sleazy cases for winery owners insecure about their married relationships. I get queasy every time the bare larder forces me to take on bodyguard duty for some drug-crazed rock and roller or, even worse, some pampered starlet with her silicone breasts hanging out of a skin-tight bodysuit. Now, I’m going to have to share the meager work with some other detective. I don’t think so.

I hustled over to Calamari’s. No one answered my knock, but the door was unlocked so I went in. The coffee pot was still on, and I thought I heard some noise coming from Calamari’s lab. I walked quietly across the yard toward the lab when suddenly I was bowled over from behind. Someone jumped on my chest, and I was slapped in the face by something cold, wet and sticky.

“I see you’ve met Ziggy,” Calamari laughed.

...

The [Sojourn Cellars] salon is open daily by appointment. If, while you are tasting those delightful wines, you feel a wet, slimy ball being pushed into your lap, then you have just met Ziggy, Sonoma’s other great detective.

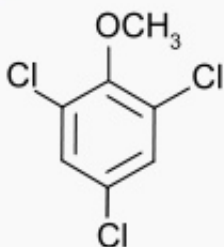
Jake’s story is another great read with a few more facts. Even though TCA contamination is called “cork taint” it’s far worse if a barrel is contaminated. After all, one tainted cork costs 750 ml of wine. But a tainted barrel contains 50 or 60 gallons of wine (about 250 to 300 bottles). Detecting TCA on barrel staves is far more valuable than simply sniffing corks.

One added note: a comment on one of the articles noted that **in the future the commenter would sniff the cork**. That misses the point. **The smell will be in the wine, not on the cork. The only reason to pick up a cork is to make sure the wine has not leaked (identifiable by streaks of wine going all the way up the cork). Don’t smell it, don’t chew it, just look at it. If the cork is OK, focus on what’s in the glass.**

Chemistry Note

It’s been a while since we wrote anything about **wine chemistry**. This seems like a good opportunity. Since this isn’t a refereed journal, I’ll rely on [Wikipedia \(http://en.wikipedia.org/wiki/2,4,6-Trichloroanisole\)](http://en.wikipedia.org/wiki/2,4,6-Trichloroanisole) :

2,4,6-Trichloroanisole



<http://californiawinefan.com/wp-content/uploads/2014/08/TCAmolecule.jpg>

2,4,6-Trichloroanisole (TCA) is a chemical compound that is a chlorinated (http://en.wikipedia.org/wiki/Chlorine) derivative of anisole (http://en.wikipedia.org/wiki/Anisole). TCA is a fungal metabolite (http://en.wikipedia.org/wiki/Metabolite) of 2,4,6-trichlorophenol (http://en.wikipedia.org/wiki/2,4,6-Trichlorophenol), which is used as a fungicide. It can be found in minute traces on packaging materials stored in the

presence of fiberboard treated with trichlorophenol.

TCA is the chemical primarily responsible for cork taint (http://en.wikipedia.org/wiki/Cork_taint) in wines. TCA has also been implicated as a major component of the “Rio defect” in coffees from Central and South America, which refers to a taste described as medicinal, phenolic, or iodine-like.[3]

TCA is usually produced when naturally occurring airborne fungi (<http://en.wikipedia.org/wiki/Fungus>) and bacteria (<http://en.wikipedia.org/wiki/Bacteria>) (usually Aspergillus (<http://en.wikipedia.org/wiki/Aspergillus>) sp., Penicillium (<http://en.wikipedia.org/wiki/Penicillium>) sp., Actinomyces (<http://en.wikipedia.org/wiki/Actinomyces>), Botrytis cinerea (http://en.wikipedia.org/wiki/Botrytis_cinerea), Rhizobium (<http://en.wikipedia.org/wiki/Rhizobium>) sp., or Streptomyces (<http://en.wikipedia.org/wiki/Streptomyces>)) are presented with chlorinated (<http://en.wikipedia.org/wiki/Halogenation>) phenolic compounds (<http://en.wikipedia.org/wiki/Phenols>), which they then convert into chlorinated anisole derivatives ([http://en.wikipedia.org/wiki/Derivative_\(chemistry\)](http://en.wikipedia.org/wiki/Derivative_(chemistry))). The chlorophenols can originate from various contaminants such as those found in some pesticides (<http://en.wikipedia.org/wiki/Pesticide>) and wood preservatives (<http://en.wikipedia.org/wiki/Preservative>). Chlorophenols can also be a product of the chlorine (<http://en.wikipedia.org/wiki/Chlorine>) bleaching process used to sterilize ([http://en.wikipedia.org/wiki/Sterilization_\(microbiology\)](http://en.wikipedia.org/wiki/Sterilization_(microbiology))) or bleach (<http://en.wikipedia.org/wiki/Bleach>) wood, paper, and other materials; they can be synthesized by reaction of hypochlorites (<http://en.wikipedia.org/wiki/Hypochlorite>) with lignin (<http://en.wikipedia.org/wiki/Lignin>). They can also migrate from other objects such as shipping pallets treated by chlorophenols.

The odor of TCA is not directly perceived. Instead, the molecule distorts the perception of smell by suppressing olfactory signal transduction (http://en.wikipedia.org/wiki/Signal_transduction). The effect occurs at very low concentrations (single parts per trillion), so even very minute amounts of TCA can be detected. It causes unpleasant earthy, musty and moldy aromas.[4]

Conclusion

There are millions of stories in the wine industry. This one caught our eye. **Kudos to Craig Haserot, his family, and the gang at Sojourn for adopting this terrific dog and introducing her to play.**

[1] Isle, Ray, ” Learning to Sniff Out Corked Wine” *Food and Wine* (no date listed). Available at

<http://www.foodandwine.com/articles/learning-to-sniff-out-corked-wine>

(<http://www.foodandwine.com/articles/learning-to-sniff-out-corked-wine>) accessed August 27, 2014.

[2] Lorenzo, Jake, “Competition” *Wine Business Monthly* February, 2009. Available at

<http://www.winebusiness.com/wbm/?go=getArticle&dataId=62903> (<http://www.winebusiness.com/wbm/?go=getArticle&dataId=62903>) accessed August 27, 2014.

<http://www.winebusiness.com/wbm/?go=getArticle&dataId=62903>) accessed August 27, 2014.

[3] Spadone, Jean Claude; Jean Claude Spadone; Gary Takeoka; Remy Liardon (1990). “Analytical investigation of Rio off-flavor in green coffee”. *Journal of Agricultural and Food Chemistry* **38**: 226–233. doi

(http://en.wikipedia.org/wiki/Digital_object_identifier) :10.1021/jf00091a050 (<http://dx.doi.org/10.1021%2Fjf00091a050>).

[4] Takeuchi, Hiroko; Hiroyuki Kato; Takashi Kurahashi (2013-09-16). “**2,4,6-Trichloroanisole is a potent suppressor of olfactory signal transduction**” (<http://www.pnas.org/content/early/2013/09/12/1300764110>) . *Proceedings of the National Academy of Sciences*: 201300764. doi (http://en.wikipedia.org/wiki/Digital_object_identifier) :10.1073/pnas.1300764110

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