

Pinot Noir Vinegar

2017 Midlands Regional Arts and Sciences Faire, Division 5 Brewing and Vinting: Speciality Beverage - Vinegar

Oswyn of Baðon of Shire of Wurmwald

mka Sean Wilson (oswyn969@gmail.com)

By Oswyn of Baðon

Introduction

Our word vinegar comes from the French, *vin aigre*, sour wine [1]. Making “sour wine” is not hard as it will happen all by itself. Vinegar is different from verjuice which is the unfermented juice of sour grapes, or immature grapes.

Vinegar dates back to pre-historic times. I don't think we will know exactly where and when it was discovered but it is at least as old as brewing as the two processes are related. Supposedly, the Babylonians used vinegar as a cleaning agent as early as ~5000 BC. Ancient Egypt has evidence of vinegar as early as ~3000 BC. Ancient China has evidence of vinegar as early as ~1200 BC [2].

According to multiple sources, “the Pinot Noir grape is one of the earliest varieties of grape to be cultivated with the purpose of making wine. As early as the first century AD, ancient Romans were producing wine using the Pinot Noir grape. After invading Gaul (France), the Romans noticed that the Gallic tribes were drinking a wine stored in wooden casks and bred from wild native Pinot Noir grapes, and were surprised by the unique flavours. It is said that Roman emperors coveted this wine for more than 300 years.

When the barbarian horde swept through France centuries later, wine making was still a priority. Production was handed down to the peasants, who worked for wealthy landowners.

But the single most important reason that Pinot Noir survives to this day has to do with Catholic monks. Pinot Noir was the wine of choice for use in their sacraments, and the approval of the Church was more than enough to garner mass appeal. By the sixth century AD, Burgundy was divided into multiple vineyards, which were all owned by regional churches.” [3]

Oswyn would probably be familiar with this vinegar from his home of Bath where there was a significant church and abbey. Undoubtedly, some of the sacramental wine would have turned to vinegar at some point.

Vinegar is therefore ancient and in both Classical times and Medieval times, it served the same purposes. It was a cleaning agent, it was a preservative, it was a condiment, it was a medicine, and a drink. Vinegar still serves the same purposes today as well.

There are two methods of making vinegar in Classical and Medieval times. The first is the easiest. Just leave a fermented liquid (typically a wine, ale, or something below ~20% alcohol) out in the air. Wild acetic-acid bacteria will colonize the liquid, turning the alcohol into acetic acid. The other method is known as the Orleans method. In this method, a cask is laid on its side. Air holes are drilled in the sides. Wine is added to the cask to below these airholes. A mother of vinegar is added if you have one, otherwise wild bacteria will be enter with the air. The airholes are stopped with cloth to allow air in but not insects and such. After several months, you have vinegar. About 80% of the cask would be drained to either use/sell right away or age further. More wine is added to the cask and the process allowed to continue. Acidity of up to 10% can be achieved with this method [4].

What is a mother of vinegar? Wild acetic-acid bacteria will form one in time. It is a gelatinous mass that protects the acetic-acid bacteria. You can use it over and over again. Modernly, you can buy mothers to produce different vinegars. Just like you can make a beer with bread yeast, you can make a vinegar with any mother. But particular mothers have been produced specifically for certain alcohols. There are not nearly as many mothers as strains of yeast though.

Making vinegar (the easy way)

Making vinegar is anti-brewing. That is like an anti-proton; it is similar but the opposite of brewing. Brewing is taking sugar and a microbe to make alcohol. Vinegar is taking alcohol and a microbe to make acid. Some will caution to not make vinegar and brew in the same environs.

Modernly, you just need to use caution and sanitation is the key to both processes. When you brew you sanitize everything to remove wild yeast and bacteria. This will kill the acetic-acid bacteria too. When you make vinegar, you do the same thing. In fact, you have to have alcohol to have vinegar so it is not unusual to brew something and then immediately turn it to vinegar. Do realize that if your beer or wine goes off, it is likely due to the acetic-acid bacteria and you need to be more aggressive with sanitation going forward.

Sanitize a half-gallon mason jar. Add one 750 mL bottle of wine. Fasten the lid tightly to the jar. Shake vigorously for 5 minutes! This is very important. Modern wines often have sulfites added to inhibit bacteria growth. Vigorous shaking will remove the SO₂ from the liquid wine. Another method is to use 1-2 mL of H₂O₂ (hydrogen peroxide) per 750 ml bottle of wine (the strength you buy at the drug store is fine). The H₂O₂ will react with the SO₂ to form hydrogen sulfate (a gas) and the rest will precipitate out.

Once you have shaken the wine, you want to add about 2 cups of water to the mix. Alcohol content above 20% will kill the bacteria. Most wines will be low enough in alcohol content as to not kill the bacteria. But this is to just make sure. Then add the mother of vinegar. Put some cheesecloth over the top of the jar and use the lid ring to secure it.

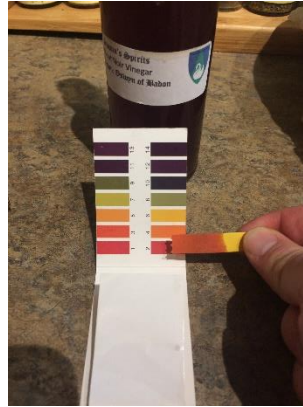
Let the jar sit in a warm spot for at least a month. The bacteria really like it to be ~80 °F to 90 °F. It will work as low as 65 °F but it will take longer. I leave my jars in the open in a sunny place. I have read some sources that say to put in a closet. I feel the sun helps control the temperature and keep eels (see below) and molds down.

You may see the mother float to the top of the jar. This is cool and a good sign that things are working but it is not a necessary condition. You may also see a new mother form.

I take the pH of the mixture before I put it out to sit. Normally, I get a pH of 5. I let my vinegars sit out for at least 2 months before I test them again. My normal ending pH for wines is 2 or so. The more alcohol, the higher the ending pH. You can then age the vinegar further. The Orleans and Balsamic methods continue to age the vinegars in wood casks for several months to several years.



First batches of vinegar in Mason Jars
(Pinot Noir, Pinot Grigio, Cherry Stout Malt)



pH of Pinot Noir vinegar



Charred oak barrel for aging vinegar.



Mother of vinegar against side of jar.

I have seen continued growth after bottling. I suggest after bottling the vinegar, boil a pot of water and put the bottles in the boiling water bath for 5 to 10 minutes. This should kill off any molds and the bacteria.

Other alcohols

You can use beer, cider, and harder alcohols to make a vinegar. You may not need to shake, especially if you are certain there are no sulfides in the alcohol. You may not need water for cider or beer. You may need more water for higher alcohols. You want the overall alcohol content to be below 15% for sure and closer to 10%. You will need to do the math on that.

Potential problems

Vinegar eels – these are 1- 2 mm organisms that can appear due to acidity being too low, wild fermentation, or old mothers. The Malle [5] book doesn't say if they are harmful but they are unattractive. Brief heating to above 113 oF will kill them as will several days of sunlight.

Vinegar flies – these are a species of fruit fly. They will eat the vinegar eels. Covering the jar generally prevents them from contacting the vinegar.

Molds – this is also a possibility but it is hard to distinguish undesirable molds from the formation of a mother of vinegar. In general, they are not a problem as the base alcohol or the resulting acid of the vinegar will kill it. May lead to off flavors.

I have not yet experienced either eels or flies and I can't tell if I had undesirable molds that weren't a mother of vinegar.

Where am I in the process?

I am just starting. I am using the easy method above to make my starters. It is my intention to have oak casks eventually and start doing the Orleans process on my vinegars (see the photo above for the cask for that). While I would love to do a balsamic process but I don't know if I have 150 years to dedicate to the process. 😊

What is before you?

As with brewing and cooking, don't use an alcohol that you won't drink. I am using a fairly cheap one though: Rex Goliath Pinot Noir.

You have a Pinot Noir vinegar and the beginnings of my aged vinegar. The aged vinegar is only about 5 months aged at this point.

References

[1] Melitta Weiss Adamson, Food in Medieval Times, p 28

[2] Abu Ali al-Husayn ibn Abd Allah ibn Sina (Avicenna), *al-Qanun fi'l-tibb (Canon of Medicine)*, translated Gruner, Oskar Cameron, 1930 London, reprinted 1973, Ames Press, NY.

[3] <http://www.pinot-noir-wines.com/> with additional verification from <http://www.thewinecellarinsider.com/wine-topics/wine-educational-questions/grapes-for-wine-making-flavor-characteristics-explained/pinot-noir-wine-grapes-flavor-character-history/>

<http://vinepair.com/wine-blog/the-king-of-burgundy-the-surprising-history-of-pinot-noir/>

<http://www.uncork.biz/tidbits13.aspx>

[4] Maggie Oster, *Herbal Vinegar*, p 3-5. However, many other sources make the same claims but none of these sources cite their original reference.

[5] Bettina Malle & Helge Schmickl, *The Artisanal Vinegar Maker's Handbook*, p. 11-12.