

MONTE BERNARDI – About Quercetin

As a result of the formation of sediment in our 2005 Chianti Classicos, we set out to determine what this deposit was, why it has formed, and to what extent we can anticipate it's occurrence in past and future vintages.

The sediment was determined to be Quercetin, a Flavonoid found in many plant species. Flavonoids are polyphenolic compounds that are ubiquitous in nature, occurring naturally in fruits, vegetables and beverages (tea, coffee, beer, wine and fruit drinks). Quercetin occurs naturally in certain red grape varieties, and with Sangiovese showing much higher concentrations of Quercetin than say Cabernet or Merlot. In plants, phenolic compounds act as a defense mechanism against pest and fungal attacks. In wine, they contribute mouth-feel, flavor, color and aroma. Flavonoids have aroused considerable interest recently because of their potential beneficial effects on human health – they have been reported to have anti-viral, anti-allergic, anti-inflammatory, anti-tumor, and antioxidant activities.

For more information, see:

<http://www.thewinenews.com/aprmay00/comment.html>

<http://www.winespectator.com/Wine/Features/0,1197,4589,00.html>

http://www.economist.com/science/displaystory.cfm?story_id=11662560&fsrc=RSS

<http://www.winepros.org/wine101/wine-health.htm>

According to ISVEA, the principal laboratory of our zone, this is a recent phenomenon, which is particular to Sangiovese and has occurred in the wines of some famous, high quality estates in both Chianti Classico and Montalcino. Studies conducted by ISVEA have found that several factors increase the concentration of phenols, such as Quercetin, in grapes. These factors, all related to improved grape quality, include such characteristics as lower yields, less fertile soils, south facing vineyards and healthy plants versus disease infested plants. It is also possible that biodynamic farming may further elevate the concentration, as it is known to increase the concentration of other beneficial components in wine.

As part of our information gathering, we had the past eight Sangiovese vintages (1998-2007) analyzed to determine Quercetin levels and the extent of sediment formation. The results indicate that all of our Sangiovese wines show high concentrations of Quercetin and, in most vintages, a presence of Quercetin deposit, which is, generally, present at a level not visible to the eye (see table below)

Vintage	Wine	Sediment Visible at Microscopic Level	Sediment Visible to Naked Eye	When Sediment Became Visible to Eye
1998	Paris Chianti Classico	yes	no	2006
1998	Sa'etta IGT	yes	yes	2006
1999	Paris Chianti Classico	yes	no	n/a
1999	Sa'etta IGT	yes	no	n/a
2000	Paris Chianti Classico	yes	no	2007
2000	Sa'etta IGT	yes	yes	2007
2001	Paris Chianti Classico	yes	no	n/a
2001	Sa'etta IGT	yes	no	n/a
2003	Monte Bernardi CC	yes	no	n/a
2003	Sa'etta IGT	yes	no	n/a
2004	Monte Bernardi CC	yes	no	n/a
2004	Sa'etta Chianti Classico	yes	no	n/a
2005	Monte Bernardi CC	yes	yes	Sept-07
2005	Sa'etta Chianti Classico	yes	yes	Sept-07
2006	Monte Bernardi CC	no	n/a	n/a
2006	Sa'etta Chianti Classico	no	n/a	n/a
2007	Monte Bernardi CC	no	n/a	n/a
2007	Sa'etta Chianti Classico	no	n/a	n/a

It's difficult to predict when sedimentation will occur, and how it will present itself. Our 2005 Sangioveses had a visible precipitation after only one year in bottle and all of our Sangioveses have detectable Quercetin deposit; however, only two other vintages – 2000 and 1998 - have a visible deposit, which formed after many years in bottle. Our 2006/2007 Sangioveses were tested and the results indicate high concentrations of Quercetin, but, as yet, no precipitation. These wines will be bottled in September 2008 and 2009, respectively.

So what now? There are only two solutions which can guarantee that Quercetin will not precipitate in the bottle. Both methods are extreme and, in our opinion, unacceptable if one is committed to making exceptional artisan wines. The first option, micro-filtration (sterile), would remove a significant quantity of Quercetin molecules, but, at the same time, also extract aroma, color and structure molecules. The second option, PVPP clarification, is similarly effective and just as aggressive in stripping color, structure and aroma. Clearly both methods would negate much of our hard work in the vineyards, whose ultimate aim is the expression of Sangiovese and terroir in our wines.

For those who haven't had a chance to try one of our 2005 Sangioveses, note that the presence of Quercetin deposit has not had any impact whatsoever on the nose or palate. As we see it, the sediment is an aesthetic issue which we are committed to confronting. Finding a solution that maintains the quality and integrity of our wines while, at the same time, meets the expectations of our valued consumers is our aim. For this reason we have set up this web forum to share information and encourage an interactive discussion with those interested in us and our wines. We look forward to hearing your opinion.

To post your comment on this topic, email us at comments@montebernardi.com.

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