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Resveratrol levels in Missouri red wine

Steve Monson & Ingolf Gruen

Motivation: Moderate consumption of red wine has been linked to reduced rates of cancer and cardiovascular disease. The benefits have been traced back to the polyphenols found in the wine, such as resveratrol. The levels of resveratrol in Missouri wines will determine factors involved in resveratrol content and provide local products for the health conscience wine drinker. Method: Twenty one wines from six wineries and six vintages were tested with one replicate for every four samples. 1 mL of wine was dried under nitrogen, dissolved in 1 mL HPLC medium and was ran in HPLC compared to a .5 mg/mL resveratrol standard. Results: All results fell within typical resveratrol content in red wine, the highest being from Augusta winery's 2003 and 2004 Norton wines with 1.42 mg/mL. Low results were reported from 2003 and 2004 Adam Puchta at .098 mg/mL. Conclusion: Resveratrol is an anti-fungal chemical the vine produces, so levels vary with stress the vine year to year. Resveratrol levels are affected by the wine making process, which could be seen in the data comparing Augusta's to Les Bourgeois' vintages of Norton. The drop in Adam Puchta between 2002 and 2003 may be a result of some change made in the winemaking process. 2003 and 2004 were comparable years regarding climate in Missouri, both being wetter and cooler than average. Results between the vintages from the same winery show comparable resveratrol contents. The levels in 2005 wines are lower than 2003 and 2004; the growing season experienced a drought. The levels were only a bit higher in 2006, a growing season with extreme variation. The high levels in wet years suggest that as the risk for fungus increases, so does resveratrol. More data is required for a correlation to be made, however these may be initial trends.