

Seedless Fruit Chemistry Changes with Low Temperature Storage

Penelope Perkins-Veazie¹, Mark Hoffman², and Guoying Ma¹

North Carolina State University, ¹PHHI, Kannapolis NC and ²Department of Horticultural Science, Raleigh, NC penelope_perkins@ncsu.edu

Introduction

Muscadine grapes, unique to the southern United States, can last about 4 weeks in storage. Fresh market muscadines traditionally are seeded but seedless genotypes are now available. Muscadines contain a number of phytochemicals, with the largest concentration in the peel. The seeds contain large amounts of tannins, especially ellagitannins. There is some concern that seedless genotypes may have less phytochemical concentration without the presence of seeds. Additionally, the maintenance of phytochemicals with storage is of concern. This study was done to follow fresh market muscadine changes in phytochemicals with cold storage.

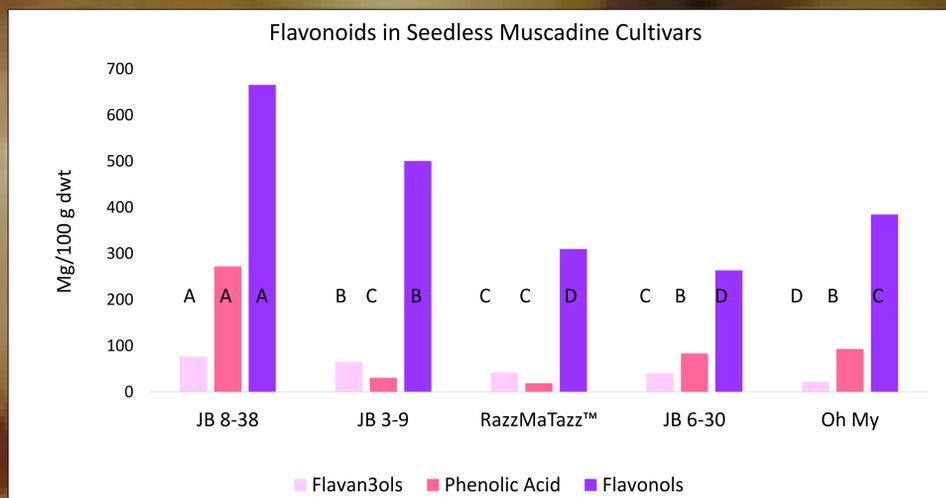


Figure 2. Differences in peel flavonoids among seedless muscadines. Letters indicate differences across selections for each compound.

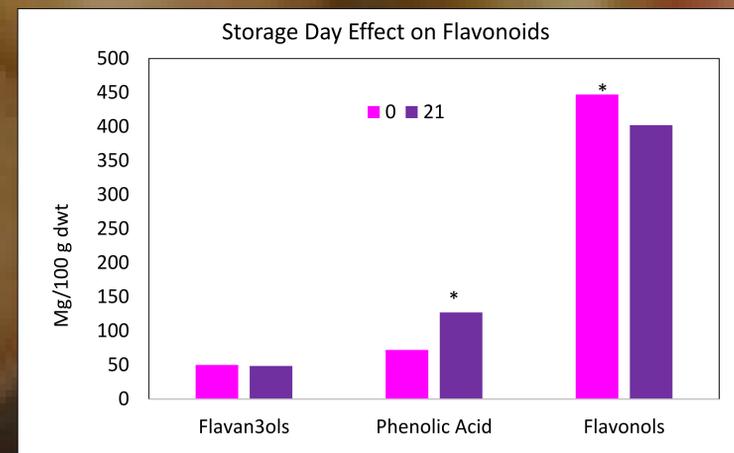
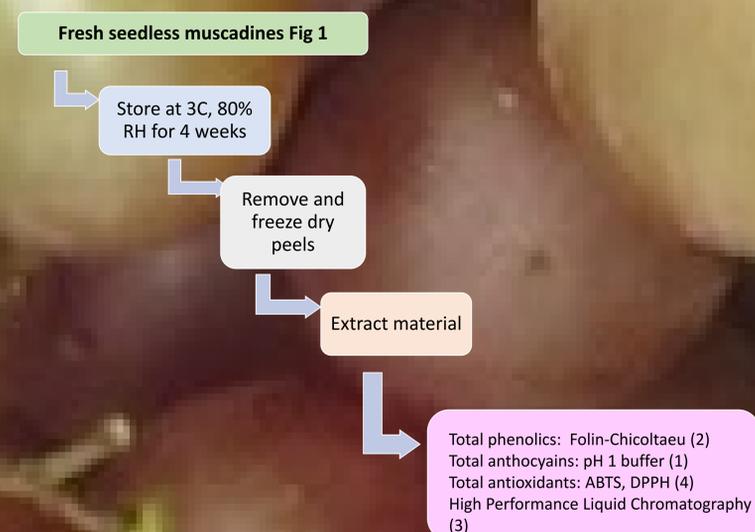


Figure 4. Flavonoid differences with days storage in seedless muscadines. Significance between days indicated by *

Materials and Methods



- References
1. Lee et al. 2005. J. AOAC International 88 : 1269-1278
 2. Singleton et al. 1965. Am. J. Enol Vitic. 16 :144-158.
 3. Wei et al. 2017. Intl. J. Intermolecular Sci. 18 :631.
 4. Xu et al. 2010. Food Chem. 122 :688-694

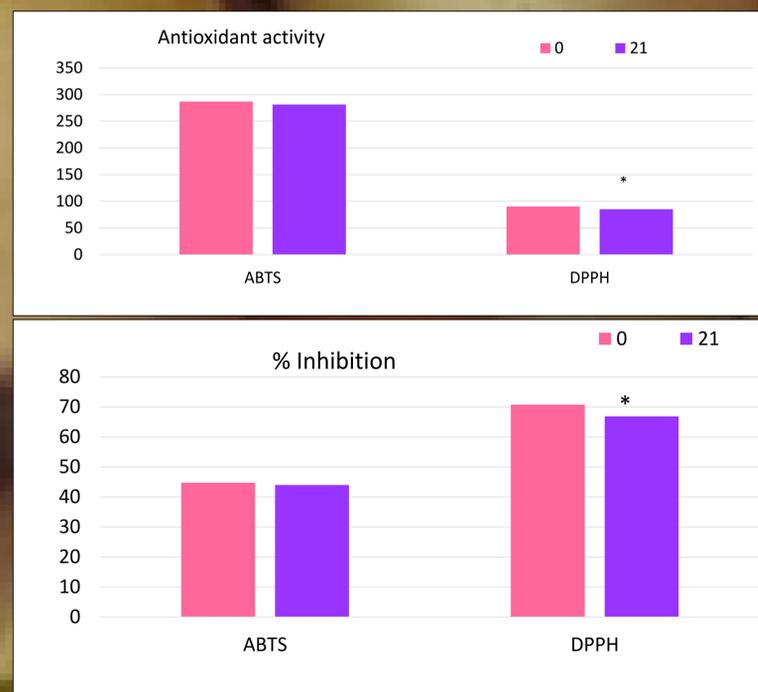


Figure 3. Antioxidant activity measured by ABTS and DPPH tests (uM Trolox equiv. and % inhibition) in muscadines after 0 and 21 days storage. Significance between days indicated by *.

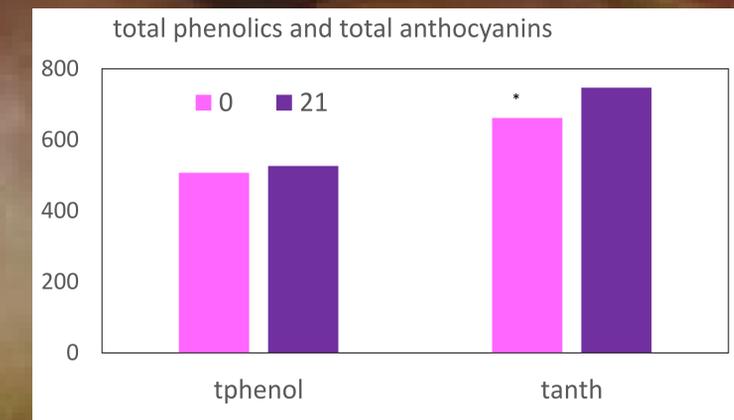


Figure 5. Total phenolics and anthocyanins across seedless selections stored for 0 or 21 days. Significance between days indicated by *

Results

- Flavonoids were highest in the purple selection Fig 2
- Antioxidant activity (DPPH) as total and % inhibition increased with storage Fig 3
- Flavonols decreased while phenolic acids increased with storage Fig 4
- Peel anthocyanin increased slightly with storage Fig 5

Conclusions

Overall, small differences were found in some flavonoids in seedless grapes after storage. More differences were found between selections than with storage.

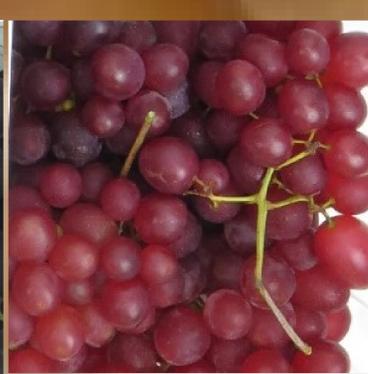
JB09-15-3-9 (JB 3-9)

Oh My

JB06-30-2-20 (JB 6-30)

JB08-38-1-10 (JB 8-38)

RazzMaTazz



Acknowledgements

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