S1: MPX Manufacturing Process and Chemical Constituents

MPX used in this study was a commercial product, MuscadinePlus, produced and marketed by Muscadine Naturals, Inc. (Clemmons NC). In the procedure for production of MPX, fresh Muscadine Grapes, Noble Variety, grown in NC were dejuiced and processed by the company according to the protocol patented by the company under the company’s former name, Nutragon, LLC (1). While this patent describes a method of drying a variety of fruits and vegetables, the company only produces Muscadine Grapes and no other types of plant or any animal products.

In the production process a series of computerized dryer and sorter conveyors separate the skin fraction identified visually as grape exocarp from visually identifiable pure seeds. The pure exocarp is powdered to USP40 using an Urschel Model 1700 Comitrol (Urschel Laboratories, Chesterton, IN). No chemicals or solvents are used in the production, or excipients added to the pure Muscadine skin powder used for MPX.

MPX used in the present study was all from a single lot of Nobel grapes. This lot was evaluated for composition by ABC Research Laboratories, Gainesville, FL and for antioxidant potential and selected phenolics by Analytical Laboratories in Anaheim, Inc. Brea, CA. MPX was found to conform to detailed published reports for Muscadine Grapes (2-8).

The chemical composition of MPX is shown in Table S1.1. Stability of MPX was demonstrated based on similar results obtained for analyses done one year from the initial analyses (Table S1.2).

Supplementary Table S1.1 Compositional analysis of MPX

|  |  |  |
| --- | --- | --- |
|  | Beginning of the study  Percent by weight | After 12 months  Percent by weight |
| Fat | 4.1% | 3.6% |
| Carbohydrate | 71.9% | 72.3% |
| Protein | 8.7% | 8.6% |
| Moisture | 8.0% | 8.5% |
| Ash | 7.3% | 7.0% |

Supplementary Table S1.2 Phenolic content of MPX

|  |  |  |
| --- | --- | --- |
|  | Beginning of the study | After 12 months |
| ORAC value | 261 micromoles TE/g | 235 micromoles TE/g |
| Ellagic Acid | 2.4 mg/g | 2.7 mg/g |
| Quercetin | 18.4 mcg/g | 17.3 mcg/g |
| Trans-Resveratrol | 8.8 mcg/g | 12.0 mcg/g |

ORAC: Oxygen Radical Absorbance Capacity, TE: Trolox Equivalents.

References

1. Dalton R, inventor; Nutragon LLC, assignee. Method for processing organic plant matter into dry powder, oil and juice products, United States patent US 2006/0277887. 2006 Dec 14.

2. Lee JH, Johnson JV, Talcott ST. Identification of ellagic acid conjugates and other polyphenolics in muscadine grapes by HPLC-ESI-MS. J Agric Food Chem **2005**;53(15):6003-10 doi 10.1021/jf050468r.

3. Pastrana-Bonilla E, Akoh CC, Sellappan S, Krewer G. Phenolic content and antioxidant capacity of muscadine grapes. J Agric Food Chem **2003**;51(18):5497-503 doi 10.1021/jf030113c.

4. Sandhu AK, Gu L. Antioxidant capacity, phenolic content, and profiling of phenolic compounds in the seeds, skin, and pulp of Vitis rotundifolia (Muscadine Grapes) As determined by HPLC-DAD-ESI-MS(n). J Agric Food Chem **2010**;58(8):4681-92 doi 10.1021/jf904211q.

5. Talcott ST, Lee JH. Ellagic acid and flavonoid antioxidant content of muscadine wine and juice. J Agric Food Chem **2002**;50(11):3186-92.

6. Wei Z, Luo J, Huang Y, Guo W, Zhang Y, Guan H*, et al.* Profile of Polyphenol Compounds of Five Muscadine Grapes Cultivated in the United States and in Newly Adapted Locations in China. International journal of molecular sciences **2017**;18(3) doi 10.3390/ijms18030631.

7. You Q, Chen F, Wang X, Sharp JL, You Y. Analysis of phenolic composition of Noble muscadine (Vitis rotundifolia) by HPLC-MS and the relationship to its antioxidant capacity. J Food Sci **2012**;77(10):C1115-23 doi 10.1111/j.1750-3841.2012.02888.x.

8. Zhu L, Zhang Y, Lu J. Phenolic contents and compositions in skins of red wine grape cultivars among various genetic backgrounds and originations. International journal of molecular sciences **2012**;13(3):3492-510 doi 10.3390/ijms13033492.

Figure Legend

Supplementary Figure S4.1 PSADT Change from Baseline in Months by MPX Treatment Group and Prior ADT Treatment