

**Impact of light exposure on fruit composition of white 'Riesling' grape berries (*Vitis vinifera* L.)**

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Supplemental Table 1

List of standards used for calibration of the HPLC method for the determination of grape skin phenolics

Phenolic standard	Used in calibration	Source
280 nm:		
Gallic acid	yes	Fluka, St. Gallen, Switzerland
Procyanidin B1	yes	Extrasynthese, Lyon, France
Tyrosol	yes	Sigma-Aldrich, St.Louis, U.S.
Catechin	yes	Roth, Karlsruhe, Germany
Procyanidin B2	yes	Extrasynthese, Lyon, France
Epicatechin	yes	Fluka, St. Gallen, Switzerland
320 nm:		
Caftaric acid	no	calculated as caffeic acid
GRP	no	calculated as caffeic acid
p-CGT	no	calculated as coumaric acid
Coutaric acid	no	calculated as ferulic acid
Fertaric acid	no	calculated as coumaric acid
Caffeic acid	yes	Roth, Karlsruhe, Germany
Coumaric acid	yes	Fluka, St. Gallen, Switzerland
Ferulic acid	yes	Roth, Karlsruhe, Germany
360 nm:		
Que-3-rutinoside	yes	Roth, Karlsruhe, Germany
Que-3-galactoside	yes	Extrasynthese, Lyon, France
Que-3-glucoside	yes	Extrasynthese, Lyon, France
Que-3-glucuronide	yes	Extrasynthese, Lyon, France
Que-3-xyloside	yes	isolated by Henny Zebner*
Que-3-arabinoside	yes	isolated by Henny Zebner*
Que-3-rhamnoside	yes	Extrasynthese, Lyon, France

\* ZESSNER, H.; PAN, L.; WILL, F.; KLIMO, K.; KNAUFT, J.; NIEWÖHNER, R.; HÜMMER, W.; OWEN, R.; RICHLING, E.; FRANK, N.; SCHREIER, P.; BECKER, H.; GERHÄUSER, C.; 2008: Fractionation of polyphenol-enriched apple juice extracts to identify constituents with cancer chemoprotective potential. *Molecular Nutrition Food Research* 52:28-44.

Supplemental Table 2

Concentration of phenolics given as  $\mu\text{g}\cdot\text{g}^{-1}$  berry skin fresh weight  $\pm$  standard deviation, experimental year 2011. Leaf removal: all leaves in the bunch zone removed; Shade: Complete shading by covering bunches with boxes impermeable to light. E-L numbers given after the treatment indicate the developmental stage in which the treatment was applied. Treatment, year and sampling date effects were evaluated using a generalized linear model (GLM). Treatment and year effects are given in Tab. 4. "n.d." = not detected; "+" = values are between limit of detection and limit of quantification.

GRP = grape reaction product; p-CGT = p-coumaroylglycosyltartrate; Que = quercetin

Date	20.09.2011		17.09.2011	
	Leaf removal E-L 27	Control	Shade E-L 29-31	Control
Flavanols				
Procyanidin B1	0.013 $\pm$ 0.003	0.011 $\pm$ 0.001	0.043 $\pm$ 0.011	0.076 $\pm$ 0.072
Catechin	0.05 $\pm$ 0.004	0.049 $\pm$ 0.005	0.092 $\pm$ 0.036	0.047 $\pm$ 0.024
Procyanidin B2	0.067 $\pm$ 0.002	0.06 $\pm$ 0.007	0.034 $\pm$ 0.015	0.02 $\pm$ 0.022
Epicatechin	0.011 $\pm$ 0	0.016 $\pm$ 0.003	0.013 $\pm$ 0.005	0.013 $\pm$ 0.008
Total Flavanols	0.141 $\pm$ 0.006	0.135 $\pm$ 0.014	0.182 $\pm$ 0.053	0.155 $\pm$ 0.118
Hydroxycinnamic acids				
Coumaroylglucose	0.007 $\pm$ 0.001	0.007 $\pm$ 0.001	0.012 $\pm$ 0.002	0.011 $\pm$ 0.007
Caftaric Acid	0.217 $\pm$ 0.046	0.208 $\pm$ 0.005	0.696 $\pm$ 0.064	0.513 $\pm$ 0.045
GRP	0.004 $\pm$ 0	0.004 $\pm$ 0	0.004 $\pm$ 0.001	0.006 $\pm$ 0.003
p-CGT	0.006 $\pm$ 0.001	0.006 $\pm$ 0.002	0.009 $\pm$ 0.002	0.01 $\pm$ 0.006
Coutaric acid	0.1 $\pm$ 0.022	0.088 $\pm$ 0.007	0.365 $\pm$ 0.044	0.252 $\pm$ 0.033
Fertaric acid	0.025 $\pm$ 0.001	0.019 $\pm$ 0.003	0.021 $\pm$ 0.002	0.018 $\pm$ 0.002
Caffeic acid	0.015 $\pm$ 0.001	0.011 $\pm$ 0.004	0.004 $\pm$ 0.001	0.012 $\pm$ 0.003
Cumaric acid	0.01 $\pm$ 0.002	0.009 $\pm$ 0.002	0.004 $\pm$ 0.003	0.018 $\pm$ 0.005
Total Hydroxycinnamic acids	0.383 $\pm$ 0.067	0.352 $\pm$ 0.007	1.114 $\pm$ 0.11	0.84 $\pm$ 0.086
Flavonols				
Que-3-rutenoside	0.324 $\pm$ 0.02	0.15 $\pm$ 0.067	0.115 $\pm$ 0.061	0.21 $\pm$ 0.051
Que-3-galactoside	0.252 $\pm$ 0.021	0.138 $\pm$ 0.048	0.03 $\pm$ 0.017	0.137 $\pm$ 0.047
Que-3-glucoside	0.751 $\pm$ 0.052	0.454 $\pm$ 0.138	0.06 $\pm$ 0.024	0.452 $\pm$ 0.159
Que-3-glucuronide	0.812 $\pm$ 0.016	0.488 $\pm$ 0.139	0.425 $\pm$ 0.2	0.605 $\pm$ 0.124
Que-3-xyloside	0.017 $\pm$ 0.001	0.01 $\pm$ 0.003	0 $\pm$ 0.001	0.007 $\pm$ 0.005
Que-3-arabinoside	0.256 $\pm$ 0.02	0.114 $\pm$ 0.055	0.016 $\pm$ 0.012	0.159 $\pm$ 0.058
Que-3-rhamnoside	0.512 $\pm$ 0.034	0.258 $\pm$ 0.107	0.004 $\pm$ 0.003	0.299 $\pm$ 0.132
Total Flavonols	2.925 $\pm$ 0.123	1.613 $\pm$ 0.551	0.651 $\pm$ 0.313	1.868 $\pm$ 0.541
Total Phenolics	3.449 $\pm$ 0.075	2.1 $\pm$ 0.558	1.947 $\pm$ 0.44	2.863 $\pm$ 0.553