

SUPPLEMENTARY DATA

Nicolle, P., Gerzhova, A., Roland, A., Dagan, L., Delpech, S., Gagné, F., & Pedneault, K. (2022). Thiol precursors and amino acids profile of white interspecific hybrid *Vitis* varieties and impact of foliar urea and sulfur supplementation on the concentration of thiol precursors in *Vitis sp.* Vidal berries. *OENO One*, 56(3).
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Supplemental Material

TABLE S1. Total soluble solids (°Brix), pH, monosaccharide and organic acid content (g/L) of grape berry juices from seven white interspecific hybrid varieties (Frontenac blanc, n = 5; Saint-Pepin, n = 5; Seyval blanc, n = 4; Vidal, n = 6, Adalmiina, n = 1; L’Acadie blanc, n = 1; and Louise Swenson, n = 1) grown in the province of Quebec, Canada, during the season 2016.

Variety	Total soluble solids (°Brix)	pH	Monosaccharides (g/L)		Organic acids (g/L)		
			Glucose	Fructose	Tartaric acid	Malic acid	Citric acid
Frontenac blanc	22.9 ± 1.9 a ¹	3.2 ± 0.1 a	105.5 ± 12.1 a	100.2 ± 11.1 a	4.4 ± 0.3 a	7.8 ± 1.1 b	0.68 ± 0.10 b
Saint-Pepin	20.4 ± 2.1 a	3.5 ± 0.2 a	89.8 ± 11.6 a	92.6 ± 11.2 a	3.3 ± 3.3 a	5.3 ± 1.7 ab	0.51 ± 0.51 a
Seyval blanc	19.4 ± 2.6 a	3.4 ± 0.2 a	81.7 ± 12.2 a	92.0 ± 13.4 a	4.4 ± 0.9 a	4.2 ± 1.2 a	0.40 ± 0.06 a
Vidal	20.3 ± 2.3 a	3.4 ± 0.2 a	86.9 ± 14.5 a	93.7 ± 13.8 a	4.6 ± 0.8 a	5.6 ± 2.1 ab	0.36 ± 0.07 a
Adalmiina	17.9	3.5	76.3	85.9	3.5	4.4	0.38
L’Acadie blanc	16.7	3.4	68.1	75.0	3.8	4.8	0.31
Louise Swenson	18.8	3.7	71.9	89.9	2.7	3.4	0.56

¹ For varieties Frontenac blanc, Saint-Pepin, Seyval blanc and Vidal, data represent mean values of n samples ± standard deviations. For a given variable, values followed by different letters are significantly different from each other according to Tukey’s HSD test at p ≤ 0.05.

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TABLE S2. Concentrations ($\mu\text{g}/\text{kg}$ berry fresh weight) of thiol precursors (cysteine-3MH, glutathione-3MH, cysteinyl-glycine-3MH, γ -glutamyl-cysteine-3MH) in grape berry juices from 7 white interspecific hybrid varieties (Adalmiina, n = 1; Frontenac blanc, n = 5; L'Acadie blanc, n = 1; Louise Swenson, n = 1; Saint Pepin, n = 5; Seyval blanc, n = 4; and Vidal, n = 6) from 10 growers located in 4 regions of the province of Quebec (Montérégie-Est, Montérégie-Ouest, Laurentides, and Québec), Canada, during the season 2016.

Grape variety	Cys-3MH ²			G-3MH			CysGly-3MH			γ -GluCys-3MH		
	$(\mu\text{g}/\text{kg}$ berry fresh weight)			$(\mu\text{g}/\text{kg}$ berry fresh weight)			$(\mu\text{g}/\text{kg}$ berry fresh weight)			$(\mu\text{g}/\text{kg}$ berry fresh weight)		
Frontenac blanc	2.11	±	2.41 a ¹	137.86	±	147.18 a	0.81	±	1.66 a	1.36	±	2.41 a
Saint Pepin	2.39	±	1.90 a	299.20	±	192.02 a	0.48	±	0.65 a	2.25	±	2.16 a
Seyval blanc	2.12	±	1.57 a	251.75	±	74.47 a	0.20	±	0.37 a	3.75	±	2.05 a
Vidal	1.56	±	0.87 a	313.50	±	208.70 a	0.00	±	0.01 a	0.64	±	1.39 a
Adalmiina	1.44			133.79			nd ³			0.34		
L'Acadie blanc	0.61			90.06			nd			0.45		
Louise Swenson	0.51			213.44			nd			0.55		

¹ Data represent mean values \pm standard deviations. For a given variable, values followed by different lower-case letters within a column are significantly different from each other according to Tukey's HSD test at $p \leq 0.05$. ² Abbreviations: cysteine-3MH, Cys-3MH; glutathione-3MH, G-3MH; cysteinyl-glycine-3MH, CysGly-3MH; γ -glutamyl-cysteine-3MH, γ -GluCys-3MH. ³ nd, not detected.

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TABLE S3. Physiological parameters (yield, in kg/ha; yield, in kg/plant, number of clusters per plant, weight, in kg; external leaf area, in m² leaf per m² soil surface; ratio of external leaf area to fruit yield (SECV/PR), in m² leaf/kg fruit) for Vidal grown on two sites (Dunham, Saint-Remi) and treated with foliar supplementation of urea (0, 10, 20 kg/ha) and sulfur (0, 5 kg/ha), repeated on three block per site (Block 1, 2 and 3) during the season 2017. Values are the mean ± standard deviation of three plants per experimental unit, except for berry weight that was estimated from a hundred berries picked from 15 representative clusters).

Site	Urea (kg/ha)	Sulfur (kg/ha)	Block	Berry weight (g)	Yield (kg/ha)			Yield (kg/plant)			# Cluster per plant			Cluster weight (g)			SECV (m ² leaf per m ² soil surface)			SECV/PR (m ² leaf/kg fruit)		
						±			±			±			±			±			±	
Dunham	0	0	1	2.26	18 504	±	2 958	2.89	±	0.46	24.7	±	2.08	118.6	±	27.62	4.52	±	0.32	2.47	±	0.26
			2	1.89	12 500	±	4 072	1.95	±	0.64	12.3	±	3.51	157.2	±	8.24	4.63	±	0.25	3.92	±	1.01
			3	2.07	12 308	±	1 516	1.92	±	0.24	13.7	±	1.53	141.6	±	21.71	4.49	±	0.12	3.69	±	0.48
		5	1	1.89	15 662	±	4 360	2.44	±	0.68	21.3	±	9.29	120.0	±	27.13	4.58	±	0.29	3.12	±	1.12
			2	1.84	12 371	±	3 898	1.93	±	0.61	16.0	±	5.66	121.5	±	4.95	4.70	±	0.19	4.03	±	1.43
			3	2.21	6 966	±	1 958	1.09	±	0.31	8.67	±	1.53	132.0	±	61.61	4.61	±	0.16	6.99	±	1.99
	10	0	1	1.93	12 500	±	4 707	1.95	±	0.73	15.7	±	7.77	133.0	±	27.94	4.35	±	0.38	4.03	±	2.21
			2	1.99	16 816	±	9 868	2.62	±	1.54	17.0	±	7.00	148.0	±	25.23	4.28	±	0.16	3.09	±	1.40
			3	2.00	11 838	±	5 725	1.85	±	0.89	14.0	±	6.24	130.1	±	17.89	4.68	±	0.27	4.70	±	2.51
		5	1	1.87	11 709	±	5 533	1.83	±	0.86	15.3	±	7.64	120.4	±	15.88	4.23	±	0.08	4.57	±	3.06
			2	1.99	12 671	±	3 538	1.98	±	0.55	13.7	±	3.79	147.1	±	40.11	4.77	±	0.29	3.96	±	1.05
			3	2.11	8 462	±	1 456	1.32	±	0.23	11.3	±	1.53	116.3	±	11.74	4.42	±	0.19	5.35	±	1.14
	20	0	1	1.97	12 373	±	7 096	1.93	±	1.11	14.0	±	6.93	134.8	±	15.53	4.31	±	0.07	4.20	±	1.93
			2	2.24	15 085	±	8 905	2.35	±	1.39	18.3	±	6.03	120.5	±	36.35	3.96	±	0.29	3.41	±	2.19
			3	1.92	10 919	±	8 811	1.70	±	1.37	15.3	±	7.57	100.4	±	33.46	4.84	±	0.09	6.60	±	4.34
		5	1	2.00	14 509	±	8 590	2.26	±	1.34	16.7	±	6.43	129.9	±	27.67	3.78	±	0.91	3.36	±	1.93
			2	1.98	18 889	±	7 210	2.95	±	1.12	20.7	±	6.11	141.5	±	20.38	4.87	±	0.06	2.83	±	0.99
			3	2.06	11 944	±	6 763	1.86	±	1.06	14.7	±	11.0 6	166.9	±	86.44	4.11	±	0.22	4.63	±	3.29
Saint-Remi	0	0	1	2.33	7 100	±	4 653	1.32	±	0.87	9.67	±	4.93	144.6	±	57.35	4.57	±	0.16	8.14	±	3.97

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			2	2.18	14 226	±	4 830	2.65	±	0.90	16.5	±	7.78	166.0	±	23.80	4.70	±	0.40	3.56	±	1.49	
			3	2.04	17 050	±	8 481	3.17	±	1.58	19.3	±	9.02	163.1	±	8.58	4.92	±	0.22	3.52	±	1.97	
			5	1	1.91	14 163	±	3 185	2.64	±	0.59	13.3	±	2.52	197.1	±	12.39	4.91	±	0.62	3.52	±	0.42
		2		2.32	11 761	±	2 205	2.19	±	0.41	15.0	±	2.65	147.1	±	22.59	4.89	±	0.45	4.25	±	0.82	
		3		1.95	17 480	±	5 199	3.25	±	0.97	21.3	±	7.51	154.6	±	18.56	4.69	±	0.14	2.83	±	0.76	
		10	0	1	2.29	15 293	±	6 723	2.85	±	1.25	13.3	±	7.77	227.5	±	43.94	4.51	±	0.45	3.24	±	1.06
	2			2.21	16 332	±	3 867	3.04	±	0.72	18.3	±	2.52	165.6	±	33.36	4.57	±	0.22	2.90	±	0.63	
	3			2.14	12 657	±	3 604	2.35	±	0.67	15.0	±	2.65	156.4	±	27.41	5.01	±	0.13	4.14	±	0.94	
	5		1	2.20	13 034	±	7 178	2.42	±	1.34	15.7	±	5.77	147.7	±	41.57	4.44	±	0.20	4.41	±	2.82	
			2	2.15	14 002	±	7 280	2.61	±	1.35	18.0	±	13.0 8	158.3	±	44.39	4.89	±	0.23	4.36	±	2.65	
			3	2.20	21 514	±	13 523	4.00	±	2.52	24.3	±	16.2 6	171.1	±	23.40	5.28	±	0.62	4.45	±	4.78	
	20		0	1	2.25	9 385	±	2 396	1.75	±	0.45	12.0	±	1.41	144.3	±	20.1	4.36	±	0.40	4.75	±	0.79
				2	2.18	10 667	±	3 902	1.98	±	0.73	11.3	±	3.21	172.8	±	14.20	4.36	±	0.23	4.39	±	1.25
				3	2.14	20 510	±	3 658	3.82	±	0.68	23.0	±	7.55	171.5	±	25.59	4.93	±	0.21	2.47	±	0.55
		5	1	2.29	13 787	±	8 028	2.57	±	1.49	15.0	±	6.00	164.1	±	32.74	4.83	±	0.12	4.36	±	2.30	
			2	2.27	11 384	±	2 145	2.12	±	0.40	14.3	±	2.52	147.7	±	6.60	5.09	±	0.23	4.59	±	0.93	
			3	2.02	13 303	±	4 080	2.47	±	0.76	15.7	±	2.52	155.4	±	25.96	5.01	±	0.11	4.08	±	1.50	