

## SUPPLEMENTARY Tables

**Supplementary Table S1.** List of the genes targeted in the transcriptomic study.

Function	Gene	Primer Sequences	GenBank or TC TIGR* Accession Number
Reference genes	<i>EF1</i> (EF1- $\alpha$ elongation factor)	5'-GAACTGGGTGCTTGATAGGC-3' 5'-AACCAAAATATCCGGAGTAAAAGA-3'	GU585871
	<i>60SRP</i> (60S ribosomal protein L18)	5'-ATCTACCTCAAGCTCTAGTC-3' 5'-CAATCTTGTCTCCTTCT-3'	XM_002270599
	<i>39SRP</i> (39S ribosomal protein L41)	5'-AACCAAAATATCCGGAGTAAAAGA-3' 5'-GACTGACTTCAAGCTTAAACC-3'	XM_002285709
Phenylpropanoid metabolism	<i>PAL</i> (Phenylalanine ammonia lyase)	5'-TCCTCCCGAAAAACAGCTG-3' 5'-TCCTCCAAATGCCTCAAATCA-3'	X75967
	<i>STS</i> (Stilbene synthase)	5'-AGGAAGCAGCATTGAAGGCTC-3' 5'-TGCACCAAGCATTCTACACC-3'	FJ851185
Defense protein	<i>CHIT4C</i> (Chitinase class V)	5'-TCGAATGGGATGGTGAAA -3' 5'-TCCCTGTGGAACACCAAG -3'	NM_001281244
	<i>GLUC</i> ( $\beta$ -1,3 glucanase)	5'-TCAATGGCTGCAATGGTGC-3' 5'-CGGTCGATGTTGCGAGATTTA-3'	DQ267748
	<i>PR1</i> (pathogenesis-related protein 1)	5'- GGAGTCCATTAGCACTCCTTG -3' 5'- CATAATTCTGGGCGTAGGCAG -3'	XM_002273752
	<i>PR10</i> (pathogenesis-related protein 10)	5'- CGTTAAGGGCGGCAAGAG -3' 5'- GCATCAGGGTGTGCCAAGA -3'	DQ396809
	<i>GST1</i> (Glutathione s-transferase 1)	5'- TGCATGGAGGAGGAGTTCGT -3' 5'- CAAGGCTATATCCCCATTTTCTTC -3'	NM_001281248
Photosynthesis	<i>PsbP1</i> (oxygen-evolving enhancer <i>PsbP</i> subunit of photosystem I)	5'-TGTCGCCAGCCTGTACCTTG-3' 5'-GCTGACGGAGATGAAGGTGG-3'	XM_002283012.4
	<i>Rbcl</i> ( <i>RuBisCo</i> large sub-unit)	5'-AATTTTCTCCACGGCGATA -3' 5'-ATCTGCGCCCGCCTTTATA -3'	TC57584
Arsenite recovery genes	<i>MSR</i> (Peptide methionine sulfoxide reductase))	5'-GCATTTGGGCGTGTAGATGG-3' 5'-GCTTCAGTGTGGCCTGTTCT -3'	XM_010662104.2
	<i>WRKY</i> (transcription factors)	5'-GGGCAGAAAGACATTCTTGA -3' 5'-AGGGATCTTCATCCGAACGC -3'	XM_002272684.3
	<i>HYD2</i> ( <i>ABA</i> 8' hydroxylase 2)	5'-GAAGCTTGTCTCCGAGCCT -3' 5'-TATTGATCGACCGGCTTCC -3'	NM_001281052.1

\* see <http://www.jcvi.org/cms/research/projects/tdb/overview/>

**Supplementary Table S2: Identified asymptomatic Leaves metabolites from treated and non-treated vines (DAT-1a) versus (DS-1a).** From 16 significant  $m/z$  ( $P$ : ANOVA  $p$  value) discriminating the two conditions DAT and DS asymptomatic leaves (see Volcano in Figure 13A) the 5 annotated metabolites are ranked according to the normalized amount difference between DAT-DS (Diff). Negative or positive differences means that the metabolites are either more accumulated in DS or in DAT, respectively. Annotations names were obtained from Masstrix queries on *Vitis vinifera* database (with 1 ppm error), which assigned theoretical masses (ion and neutral) associated to the corresponding raw formula and predicted structure (MSCC).

ID	$P$	Diff	Th Mass (Ion)	Structure	Formula	Th Mass (Neutral)	Error (ppm)	Names
1581	0.000272	-4.60	338.088130	Ph	C <sub>15</sub> H <sub>17</sub> NO <sub>8</sub>	339.095420	0.441	6-Hydroxy-5-methoxyindole glucuronide (see KEGG C03033); (2S,3S,4S,5R,6S)-3,4,5-trihydroxy-6-[(5-methoxy-1H-indol-6-yl)oxy]oxane-2-carboxylic acid [acetal]
3316	0.004486	-4.16	413.218150	Lp	C <sub>21</sub> H <sub>34</sub> O <sub>8</sub>	414.225589	0,535	methyl 5-hydroperoxy-6,8,9,11-bisepidioxy-12,14-eicosadienoate [Hydroperoxy fatty acids [FA0104]]
3963	0.002901	-3.60	437.436393	Lp	C <sub>29</sub> H <sub>58</sub> O <sub>2</sub>	438.443680	-0,001	Nonacosanoic acid; nonacosanoic acid [carboxylic acid]
189	0.000046	-1.18	219.051039	NM	C <sub>8</sub> H <sub>12</sub> O <sub>7</sub>	220.058305	0,012	(R)-(Homo) 2-citrate; 1-Hydroxypentane-1,2,5-tricarboxylate; (-) threo-iso(homo) 2 citrate; 3-Hydroxy-3-carboxymethyl-adipic acid
2193	0.000682	+0.95	365.064435	NM	C <sub>13</sub> H <sub>19</sub> O <sub>10</sub> P	366.071588	0,013	Salicin 6-phosphate; Salicin-6P

**Supplementary Table S3 : Identified Canes metabolites from treated and non-treated vines (DAT-c) versus (DS-c).** From 113 significant *m/z* (*P*: ANOVA *p* value) discriminating the two conditions DAT and DS canes (*see* Volcano in Figure 13B) the 32 annotated metabolites are ranked according to the normalized amount difference between DAT-DS (Diff). Negative or positive differences means that the metabolites are either more accumulated in DS or in DAT, respectively. Annotations names were obtained from Masstrix queries on *Vitis vinifera* database (with 1 ppm error), which assigned theoretical masses (ion and neutral) associated to the corresponding raw formula and predicted structure (MSCC).

ID	<i>P</i>	Diff	Th Mass (Ion)	Structure	Formula	Th Mass (Neutral)	Error (ppm)	Names
1913	0.010626	-4.21	353.103146	Ph	C <sub>20</sub> H <sub>18</sub> O <sub>6</sub>	354.110340	0.006	Cyclokievitone
212	0.009158	-3.62	223.13398	Lp	C <sub>13</sub> H <sub>20</sub> O <sub>3</sub>	224.141245	0.004	Vomifolioside; (6S,9R)-6-hydroxy-3-oxo- $\beta$ -ionol
9268	0.007012	-3.55	629.172184	Ph	C <sub>27</sub> H <sub>34</sub> O <sub>17</sub>	630.179591	-0.012	Leucodelphinidin 3-O-( $\beta$ -D-glucopyranosyl-(1 $\rightarrow$ 4)- $\beta$ -L-rhamnopyranoside) [Flavans, Flavanols and Leucoanthocyanidins [PK1202]]
4910	1.18E-07	-3.40	471.384416	Lp	C <sub>31</sub> H <sub>52</sub> O <sub>3</sub>	472.391645	-0.000	Soyasapogenol D
9149	0.027266	-3.39	623.161585	Ph	C <sub>28</sub> H <sub>32</sub> O <sub>16</sub>	624.168680	-0.568	Tectorigenin 7-O-gentiobioside [Isoflavonoids [PK1205]]
8162	0.041731	-2.93	575.452665	Lp	C <sub>32</sub> H <sub>64</sub> O <sub>8</sub>	576.460120	0.002	1-(O- $\beta$ -D-glucopyranosyl)-(1,3R,25R)-hexacosanetriol [Fatty acyl glycosides of mono- and disaccharides [FA1301]]
8734	0.015264	-2.76	603.484088	Lp	C <sub>34</sub> H <sub>68</sub> O <sub>8</sub>	604.491420	0.002	1-(O- $\beta$ -D-glucopyranosyl)-(1,3R,27R)-octacosanetriol [Fatty acyl glycosides of mono- and disaccharides [FA1301]]
2470	0.000113	-2.75	377.160518	Ph	C <sub>20</sub> H <sub>26</sub> O <sub>7</sub>	378.167631	-0.587	Chaparrinone
6583	0.022281	-2.72	517.389808	Lp	C <sub>32</sub> H <sub>54</sub> O <sub>5</sub>	518.397125	0.001	7 $\beta$ -acetoxy-gorgostan-3 $\beta$ ,5 $\beta$ ,6 $\beta$ -triol [Gorgosterols and derivatives[ ST0106]]
3850	0.034607	-2.45	433.114036	Ph	C <sub>21</sub> H <sub>22</sub> O <sub>10</sub>	434.121138	-0.365	Naringenin 7-O- $\beta$ -D-glucoside; Prunin
168	0.003001	-2.39	215.032805	Cb	C <sub>5</sub> H <sub>13</sub> O <sub>7</sub> P	216.040068	0.832	2-C-Methyl-D-erythritol 4-phosphate
398	0.017330	-2.29	252.051365	Ph	C <sub>11</sub> H <sub>11</sub> NO <sub>6</sub>	253.058639	0.009	N-Pyruvoyl-5-methoxy-3-hydroxyanthranilate; N-Pyruvoyl-5-methoxy-3-hydroxyanthranilic acid
4275	0.010541	-2.17	449.108874	Ph	C <sub>21</sub> H <sub>22</sub> O <sub>11</sub>	450.116228	0.037	Neoastilbin; (2S,3S)-Taxifolin 3-rhamnoside
3963	0.005772	-2.03	437.436392	Lp	C <sub>29</sub> H <sub>58</sub> O <sub>2</sub>	438.443680	-0.001	Nonacosanoic acid; nonacosanoic acid [carboxylicacid]
9827	0.043267	-2.00	659.416826	Lp	C <sub>38</sub> H <sub>60</sub> O <sub>9</sub>	660.424359	0.949	12-O-Palmitoyl-16-hydroxyphorbol 13-acetate; Crotonfactor F1
3595	0.019732	-1.86	423.420748	Lp	C <sub>28</sub> H <sub>56</sub> O <sub>2</sub>	424.428030	-0.001	Octacosanoic acid; octacosanoic acid [carboxylicacid]
2193	0.019086	-1.70	365.064434	Cb	C <sub>13</sub> H <sub>19</sub> O <sub>10</sub> P	366.071588	0.013	Salicin 6-phosphate; Salicin-6P
4370	0.021845	-1.65	451.452007	Lp	C <sub>30</sub> H <sub>60</sub> O <sub>2</sub>	452.459330	-0.001	Melissic acid; triacontanoic acid [Straight chain fatty acids [FA0101]]
3437	0.041210	-1.65	419.098345	Ph	C <sub>20</sub> H <sub>20</sub> O <sub>10</sub>	420.105480	-0.396	5,3',5'-Trihydroxy-3,6,7,8,4'-pentamethoxyflavone [Flavones and Flavonols [PK1211]]
2711	0.035887	-1.38	387.129652	Lp	C <sub>17</sub> H <sub>24</sub> O <sub>10</sub>	388.136901	-0.117	Secologanin; (-)-Secologanin
1466	0.026006	-1.25	333.061614	Ph	C <sub>16</sub> H <sub>14</sub> O <sub>8</sub>	334.068821	-0.137	6-Methoxytaxifolin
8192	0.041414	-1.24	577.135010	Ph	C <sub>30</sub> H <sub>26</sub> O <sub>12</sub>	578.142443	0.029	Epicatechin-(4 $\rightarrow$ 8)-ent-epicatechin
1341	0.020785	-1.21	327.10854	Ph	C <sub>15</sub> H <sub>20</sub> O <sub>8</sub>	328.115820	0.008	Anisatin
8092	0.034853	-1.01	571.327453	Lp	C <sub>33</sub> H <sub>48</sub> O <sub>8</sub>	572.334750	-0.294	6,8a-Seco-6,8a-deoxy-5-oxoavermectin"2b"a glycone
6493	0.035506	-0.93	515.192200	Pp	C <sub>14</sub> H <sub>33</sub> N <sub>10</sub> O <sub>7</sub> PS	516.199536	0.651	Phaseolotoxin
1699	0.009584	-0.73	343.124559	Cb	C <sub>12</sub> H <sub>24</sub> O <sub>11</sub>	344.131972	0.323	Melibiotol; 6-O- $\beta$ -D-Galactosyl-D-glucitol
476	0.041925	-0.67	263.128880	Ph	C <sub>15</sub> H <sub>20</sub> O <sub>4</sub>	264.136160	0.005	Abcisate; Absciscic acid; (+)-Absciscic acid
1291	0.025648	-0.45	325.114000	Cb	C <sub>12</sub> H <sub>21</sub> O <sub>10</sub> R	326.121300	0.010	R replaced by H in $\beta$ -L-Fucosyl-1,2- $\beta$ -D-galactoside; Glycoprotein $\beta$ -L-fucosyl-(1,2)-D-galactose; Glycolipid $\beta$ -L-fucosyl-1,2- $\beta$ -D-galactose; $\beta$ -L-Fucosyl-(1 $\rightarrow$ 2)-D-galactosyl-R
2044	0.034599	-0.45	359.098344	NM	C <sub>15</sub> H <sub>20</sub> O <sub>10</sub>	360.105488	-0.441	3-Methoxy-4-hydroxyphenylglycol glucuronide (see KEGG C03033); (2S,3S,4S,5R,6R)-3,4,5-trihydroxy-6-[2-hydroxy-2-(4-hydroxy-3-methoxy-phenyl) ethoxy]oxane-2-carboxylic acid [acetal]

4909	1.26E-05	+4.75	471.38413	Lp	C <sub>31</sub> H <sub>52</sub> O <sub>3</sub>	472.391300	-0.732	Soyasapogenol D
5268	0.034407	+0.89	481.135032	Ph	C <sub>22</sub> H <sub>26</sub> O <sub>12</sub>	482.142070	-0.739	Catalposide
5975	0.012284	+0.26	501.145887	Cb	C <sub>18</sub> H <sub>30</sub> O <sub>16</sub>	502.153390	0.011	β-L-Rhamnopyranosyl-(1->2)-β-D-galactopyranosyl-(1->2)-β-D-glucuronopyranoside; β-Fabatriose

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**Supplementary Table S4.** List of fungal species detected in the woody subsamples of vines belonging to the three different conditions analyzed in 2019. *In bold the genera/species associated to GTDs.*

Fungal species	DAT				DS				H			
	c	hw	iw	wr	c	hw	iw	wr	c	hw	iw	wr
<i>Acremonium alcalophilum</i>											Detected	
<i>Acremonium alternatum</i>		Detected	Detected					Detected			Detected	
<i>Acremonium blochii</i>		Detected	Detected									
<i>Acremonium furcatum</i>		Detected	Detected					Detected		Detected		
<i>Acremonium sp.</i>			Detected	Detected				Detected				
<i>Acremonium spinosum</i>				Detected								
<i>Acrostagmus luteoalbus</i>											Detected	Detected
<i>Agaricus arvensis</i>				Detected							Detected	
<i>Agrocybe praecox</i>								Detected		Detected	Detected	
<i>Ajellomyces crescens</i>	Detected											
<i>Alternaria alternata</i>	Detected	Detected	Detected		Detected	Detected			Detected	Detected	Detected	
<i>Alternaria atra</i>						Detected				Detected		
<i>Alternaria solariidae</i>										Detected		
<i>Amycosphaerella africana</i>								Detected				
<i>Antarctomyces psychrotrophicus</i>					Detected	Detected		Detected		Detected	Detected	
<i>Arachnomyces kanei</i>							Detected					
<i>Archaeospora schenckii</i>					Detected							
<i>Armillaria mellea</i>	Detected											
<i>Arthothelium spectabile</i>				Detected								
<i>Articulospora sp.</i>	Detected			Detected	Detected			Detected	Detected		Detected	
<i>Ascochyta hordei</i>				Detected				Detected				
<i>Ascochyta manawaoarae</i>					Detected							
<i>Aspergillus amstelodami</i>	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	
<i>Aspergillus felis</i>					Detected							
<i>Aspergillus halophilicus</i>						Detected						
<i>Aspergillus japonicus</i>					Detected							
<i>Aspergillus penicillioides</i>	Detected			Detected				Detected		Detected	Detected	
<i>Aspergillus piperis</i>	Detected	Detected	Detected		Detected	Detected	Detected		Detected			
<i>Aspergillus sydowii</i>	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected
<i>Aspergillus wentii</i>					Detected							Detected
<i>Astraeus hygrometricus</i>		Detected										
<i>Athelia pyriformis</i>				Detected								
<i>Aureobasidium pullulans</i>	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected	Detected
<i>Auxarthron alboluteum</i>			Detected									
<i>Auxarthron umbrinum</i>				Detected								
<i>Bacidia chlorotricula</i>		Detected	Detected	Detected		Detected		Detected		Detected	Detected	
<i>Bacidia neosquamulosa</i>			Detected	Detected				Detected			Detected	Detected
<i>Bacidina adastrata</i>		Detected	Detected	Detected		Detected		Detected		Detected	Detected	Detected
<i>Baeospora myosura</i>	Detected							Detected				
<i>Basidioascus undulatus</i>					Detected							
<i>Beauveria pseudobassiana</i>												Detected
<i>Bipolaris eleusines</i>	Detected											
<i>Bisporella subpallida</i>				Detected								
<i>Boeremia exigua</i>	Detected	Detected	Detected	Detected	Detected			Detected			Detected	Detected
<b>Botryosphaeria dothidea</b>	Detected											
<b>Botryotinia fuckeliana</b>	Detected	Detected	Detected	Detected	Detected		Detected	Detected	Detected	Detected	Detected	Detected
<i>Brachyphoris oviparasitica</i>					Detected							
<i>Bradomyces alpinus</i>										Detected		
<i>Brettanomyces bruxellensis</i>								Detected				
<i>Brevicellicium olivascens</i>				Detected								
<b>Cadophora luteo-olivacea</b>		Detected	Detected	Detected		Detected		Detected			Detected	Detected
<b>Cadophora melinii</b>			Detected									
<b>Cadophora sp.</b>			Detected									
<i>Calcarisporiella thermophila</i>		Detected	Detected		Detected	Detected	Detected	Detected	Detected	Detected	Detected	
<i>Calocera cornea</i>				Detected								
<i>Caloplaca obscurella</i>								Detected				
<i>Calycina claroflava</i>				Detected				Detected		Detected		Detected
<i>Camarosporium sp.</i>								Detected				
<i>Candida orthopsilosis</i>										Detected		

<i>Candida parapsilosis</i>	Detected									Detected			
<i>Candida subhashii</i>		Detected				Detected							
<i>Candida zeylanoides</i>			Detected										
<i>Capnobotryella</i> sp.		Detected							Detected				
<i>Capronia pilosella</i>			Detected	Detected			Detected		Detected			Detected	Detected
<i>Capronia semi-immersa</i>			Detected	Detected					Detected				Detected
<i>Capronia</i> sp.	Detected		Detected	Detected			Detected	Detected		Detected			
<i>Cephalosporium serrae</i>		Detected			Detected		Detected	Detected					
<i>Ceratocystis</i> sp.			Detected									Detected	
<i>Cercospora apii</i>		Detected											
<i>Chaetomium iraniamum</i>	Detected		Detected									Detected	
<i>Chaetomium</i> sp.	Detected								Detected				
<i>Chaetosphaeria myriocarpa</i>			Detected										
<i>Chaetosphaeria</i> sp.			Detected										
<i>Chalastospora ellipsoidea</i>	Detected				Detected		Detected			Detected			Detected
<i>Chalastospora obclavata</i>	Detected				Detected				Detected			Detected	Detected
<i>Chrysosporium lobatum</i>			Detected								Detected		
<i>Chrysosporium pilosum</i>	Detected		Detected					Detected			Detected	Detected	Detected
<i>Chrysosporium</i> sp.	Detected							Detected			Detected		
<i>Cistella</i> sp.			Detected										
<i>Cladophialophora chaetospora</i>												Detected	
<i>Cladophialophora</i> sp.			Detected	Detected			Detected	Detected	Detected	Detected	Detected		
<i>Cladosporium halotolerans</i>								Detected				Detected	Detected
<i>Cladosporium herbarum</i>	Detected	Detected	Detected	Detected			Detected	Detected	Detected	Detected	Detected	Detected	Detected
<i>Cladosporium ramotenellum</i>	Detected	Detected	Detected				Detected	Detected		Detected			Detected
<i>Cladosporium sphaerospermum</i>		Detected	Detected	Detected				Detected			Detected	Detected	
<i>Clavaria californica</i>													
<i>Claviceps</i> sp.	Detected	Detected	Detected	Detected						Detected		Detected	Detected
<i>Clitocybe rivulosa</i>		Detected											
<i>Clitopilus hobsonii</i>												Detected	
<i>Clonostachys rosea</i>			Detected									Detected	
<i>Cochliobolus geniculatus</i>							Detected						
<i>Coniolariaella hispanica</i>		Detected		Detected				Detected		Detected			
<i>Coniosporium</i> sp.									Detected				
<i>Coniothyrium sidae</i>		Detected	Detected				Detected			Detected		Detected	
<i>Conocybe</i> sp.					Detected								
<i>Coprinellus micaceus</i>	Detected												
<i>Coprinellus radians</i>	Detected											Detected	
<i>Coprinellus sabulicola</i>	Detected		Detected					Detected					
<i>Coprinellus</i> sp.												Detected	
<i>Cortinarius</i> sp.	Detected	Detected					Detected		Detected	Detected	Detected	Detected	
<i>Corynespora smithii</i>		Detected		Detected				Detected		Detected		Detected	Detected
<i>Cosmospora</i> sp.		Detected	Detected	Detected				Detected		Detected		Detected	Detected
<i>Crocicreas</i> sp.					Detected								
<i>Cryptococcus adeliensis</i>	Detected						Detected	Detected	Detected			Detected	
<i>Cryptococcus aerius</i>	Detected	Detected	Detected	Detected			Detected	Detected	Detected	Detected			
<i>Cryptococcus bhutanensis</i>	Detected	Detected	Detected										
<i>Cryptococcus cerealis</i>													
<i>Cryptococcus chernovii</i>	Detected	Detected		Detected			Detected	Detected		Detected		Detected	Detected
<i>Cryptococcus diffluens</i>	Detected	Detected	Detected				Detected	Detected		Detected			
<i>Cryptococcus dimennae</i>			Detected	Detected						Detected			
<i>Cryptococcus friedmannii</i>	Detected	Detected											
<i>Cryptococcus heimaeyensis</i>	Detected												
<i>Cryptococcus laurentii</i>		Detected	Detected	Detected			Detected			Detected			
<i>Cryptococcus magnus</i>	Detected	Detected	Detected				Detected		Detected		Detected	Detected	
<i>Cryptococcus oeirensis</i>	Detected						Detected						
<i>Cryptococcus phenolicus</i>		Detected	Detected	Detected			Detected	Detected			Detected	Detected	Detected
<i>Cryptococcus podzolicus</i>	Detected							Detected			Detected		
<i>Cryptococcus saitoi</i>													Detected
<i>Cryptococcus</i> sp.	Detected	Detected	Detected	Detected			Detected	Detected		Detected		Detected	Detected
<i>Cryptococcus terreus</i>	Detected	Detected	Detected				Detected	Detected					
<i>Cryptococcus terricola</i>	Detected							Detected					
<i>Cryptococcus victoriae</i>	Detected	Detected	Detected	Detected			Detected		Detected	Detected			
<i>Cryptococcus wieringae</i>												Detected	
<i>Cryptodiscus rhopaloides</i>					Detected					Detected			Detected
<i>Cryptosporiopsis actinidiae</i>					Detected					Detected		Detected	
<i>Curreya austroafricana</i>		Detected	Detected	Detected				Detected		Detected		Detected	
<i>Curvibasidium cygneicollum</i>										Detected			

[illegible]









**Supplementary Table S5:** Grape juices enological parameters obtained from the analysis of two distinct grape juices from five distinct vine trunks, for each of the three vine conditions (only 4 vine trunks for the H condition).

Sample	pH <sup>a</sup>		$\alpha$ -amino Nitrogen <sup>b</sup> (mg/L)		Ammoniacal Nitrogen <sup>a</sup> (mg/L)		TA <sup>a</sup> (g/L Sulfuric acid)		Sugars <sup>a</sup> (g/L)	
	Average	STD	Average	STD	Average	STD	Average	STD	Average	STD
DS1	2.74	0.06	90	15	99.55	0.05	8.7	0.7	100	12
DS2	2.91	0.01	84	5	85	3	7.9	0.1	169	4
DS3	2.83	0.03	93	7	86	6	9.1	0.1	133	2
DS4	2.94	0.00	241	17	361	11	11.7	0.4	56	3
DS5	2.81	0.10	55	1	82	3	7.4	0.5	155	14
DAT1	2.85	0.03	61	2	74	2	6.07	0.18	167	6
DAT2	2.83	0.01	79	5	123	7	6.69	0.12	156	3
DAT3	2.87	0.01	78.2	0	93	2	6.6	0.1	171	3
DAT4	2.95	0.01	46	9	45	2	6.96	0.09	145.1	3.0
DAT5	2.82	0.04	81	7	82	6	6.9	0.3	164	9
H1	2.98	0.01	68	4	66.9	0.9	7.6	0.1	176	3
H2	3.06	0.03	210	29	237.1	0.5	6.5	0.0	178	2
H3	2.93	0.01	95	9	88	5	7.54	0.05	175.1	1.8
H5	2.99	0.02	19	3	45	0.4	7.0	0.1	154	5

a. FTIR : Fourier Transformed Infra Red; b. enzymatic kit ; TA :total Acidity ; STD : Standard Deviation