

Table S1. Concentration of volatile compounds (mg/L) found in Grašac wines produced with different IYD treatments after 3- and 6-month aging period – with standard deviation and statistical differences

Compound	Aroma	OTL, mg/L	Time	C	YD treatment							
					NO		OL		OW		OE	
					20 g/L	40 g/L	20 g/L	40 g/L	20 g/L	40 g/L	20 g/L	40 g/L
Alcohols												
3-Methyl-1-butanol	Whisky, alcohol**	30.00**	3	28.32a±0.23	24.13b±0.32	33.64c±0.58	40.48d±0.64	37.44c±1.22	39.97d±0.86	39.74d±0.45	37.84c±0.92	39.80d±0.81
			6	23.1a±0.81	22.30a±0.51	12.59b±0.01	13.70c±0.23	18.59d±0.34	13.85c±0.46	29.28c±1.02	37.82c±0.92	39.82f±0.48
2-Methyl-1-propanol	Vinous, solvent-like, bitter	30.00**	3	15.68a±0.33	6.08b±0.03	11.33c±0.12	14.20d±0.96	8.15e±0.44	9.80f±0.76	15.00ad±0.43	8.99ef±0.83	14.95d±0.02
			6	19.21ab±0.23	5.22c±0.02	18.55a±0.56	19.87b±0.57	14.31d±0.23	10.28c±0.59	18.69ab±0.77	8.69f±0.22	16.39g±0.73
n-Hexanol	Green grass*	8.000*	3	4.52a±0.34	5.51b±0.22	5.88bc±0.16	6.49d±0.38	6.9e±0.168	5.16b±0.53	6.02cd±0.32	5.97±0.45bcd	4.96a±0.67
			6	4.10a±0.05	5.25bc±0.29	5.71c±0.42	6.32d±0.44	6.11d±0.40	4.99b±0.31	5.88d±0.38	5.11b±0.12	4.83b±0.49
Phenyl ethyl alcohol	Flower, pollen*	14.000*	3	15.21a±0.88	14.54a±0.29	18.68b±0.43	16.26c±0.09	22.95d±0.33	24.53e±0.92	22.35d±0.29	13.13f±0.07	19.39g±0.24
			6	15.55a±0.28	19.30b±0.39	26.26c±0.41	22.73d±0.71	23.72e±0.49	38.94e±0.95	35.00f±0.22	20.81g±0.64±	25.10h±0.09
Total alcohols			3	63.73	50.26	69.53	77.43	75.52	79.46	84.11	65.93	79.1
			6	61.96	52.07	63.11	62.62	62.73	68.06	88.85	70.43	86.14
Esters												
Ethyl acetate	Fruity, sweet*	7.500*	3	17.98ab±0.73	16.73c±0.23	28.55d±0.58	17.31a±0.22	19.67e±0.26	18.58b±0.44	21.60f±0.65	19.81ef±0.93	20.73f±0.47
			6	12.02a±0.02	14.25b±0.27	18.30c±0.66	21.79d±0.36	16.59e±0.75	19.39f±0.25	14.11b±0.48	20.63g±0.27	16.25c±0.42
Ethyl hexanoate	Fruity, anis*	0.005*	3	1.11a±0.04	1.19ab±0.09	1.21b±0.03	1.13ab±0.08	1.38c±0.01	1.70d±0.03	1.39c±0.06	1.06e±0.00	1.23b±0.06
			6	1.85a±0.02	1.52b±0.05	3.25c±0.04	4.41d±0.08	3.45e±0.07	1.96f±0.04	1.45b±0.07	1.34g±0.07	1.58b±0.09
Ethyl octanoate	Pineapple, pear, floral*	0.002*	3	3.21a±0.08	4.37b±0.10	4.88c±0.07	4.65d±0.09	4.03e±0.02	4.05e±0.09	4.71d±0.16	4.28b±0.06	4.75d±0.12
			6		3.67a±0.21	2.86bc±0.17	2.57b±0.34	3.69a±0.15	3.36d±0.06	3.01ce±0.15	3.19e±0.05	3.85a±0.04
Methyl octanoate	Orange	0.017				1.67a±0.03	3.06bc±0.16	2.86b±0.19	2.02d±0.02	3.30c±0.14	3.80e±0.13	3.26c±0.05
						1.11a±0.02	2.89b±0.09	2.53c±0.16	1.86d±0.08	3.05be±0.15	3.68f±0.14	3.18e±0.07
Ethyl decanoate	Fruity, pleasant*	0.200*	3	7.53a±0.28	5.66b±0.03	6.20c±0.12	6.75de±0.14	6.56cd±0.20	6.97e±0.11	6.10c±0.02	6.38cd±0.06	6.13c±0.09
			6	6.23a±0.09	6.72b±0.15	6.02c±0.01	6.15ac±0.19	6.18ac±0.14	7.08d±0.26	6.64b±0.03	6.96d±0.37	6.56b±0.22
Ethyl dodecanoate	Floral, fruity*	1.500*	3	10.98a±0.87	6.03b±0.43	5.41c±0.21	6.04b±0.20	4.08d±0.33	6.16be±0.31	6.64e±0.27	5.11f±0.03	4.01d±0.14
			6	9.88a±0.73	4.03b±0.03	4.05b±0.13	4.86c±0.27	3.80d±0.02	4.65c±0.13	3.42e±0.26	3.56e±0.33	3.05f±0.03
3-Methyl-1-butanol-acetate	Fruity, pear	0.030	3	0.40a±0.00		0.91b±0.01	0.10c±0.00	0.10c±0.00	0.91b±0.02	0.36d±0.00	0.40a±0.02	0.43a±0.05
			6	0.31a±0.00		0.79b±0.04	0.15c±0.00	0.11d±0.01	0.97e±0.03	0.78b±0.01	0.80b±0.02	0.84b±0.05

3-Methyl- butyl - octanoate	Fruity, pineapple, banana	0.125	3	7.18a±0.06	4.44b±0.28	5.38c±0.09	5.65cd±0.23	6.08e±0.18	5.82d±0.22	5.53cd±0.13	5.37c±0.12	5.74d±0.15
			6	6.98a±0.48	5.44b±0.05	5.51b±0.17	4.81c±0.22	5.01bc±0.46	6.20d±0.17	5.34b±0.13	5.57b±0.04	5.49b±0.16
3-methyl- butyl - pentanoate	Fruity, pineapple, mango		3	0.29a±0.02	0.14b±0.01	0.19c±0.01	0.24d±0.01	0.22d±0.03	0.24d±0.02	0.20cd±0.01	0.26a±0.01	0.20±0.01cd
			6	0.41a±0.03	0.25b±0.01	0.31c±0.02	0.34c±0.02	0.28d±0.01	0.38c±0.05	0.31cd±0.02	0.32c±0.01	0.30cd±0.03
Ethyl-(9)- decenoate	Green, fruity, fatty	0.100	3	3.55a±0.22	3.59a±0.06	3.75ab±0.26	4.18c±0.09	4.03bc±0.15	4.36c±0.19	4.24c±0.03	3.95b±0.02	4.20c±0.12
			6	3.61a±0.03	4.27b±0.16	4.82c±0.04	3.69a±0.17	3.84ad±0.23	4.02d±0.13	3.97d±0.33	4.24bd±0.17	4.48b±0.25
ethyl 9- hexadecenoate	Sweet, fruity, waxy	2.000	3	7.4a±0.53			10.11b±0.78	16.87c±0.83	16.49c±0.26	16.74c±0.62	12.34d±0.16	16.23c±0.44
			6	8.23a±0.43			31.88b±0.44	33.31cd±0.59	27.10e±0.59	32.76d±0.77	29.52e±0.24	33.07c±0.65
2-phenil-ethyl acetate	Pleasant, floral, rose, honey*	0.250*	3	10.39a±0.24	8.91b±0.14	11.84c±0.07	10.94d±0.17	11.92c±0.44	12.69d±0.32	11.94c±0.13	10.54a±0.44	10.4a2±0.27
			6	8.22a±0.35	7.10b±0.06	14.53c±0.35	13.81d±0.42	14.10cd±0.55	15.21e±0.07	14.98ce±0.34	12.78f±0.06	13.11g±0.05
Hexyl acetate	Pleasant, fruity, pear*	0.670*	3	-	0.56a±0.02	0.16bc±0.01	0.15b±0.01	0.18c±0.02	0.18c±0.00		0.14b±0.00	0.16bc±0.00
			6	-	tr	tr						
Total esters			3	70.02	51.07	69.98	70.16	77.81	79.99	82.76	73.31	77.34
			6	57.74	47.25	61.55	97.35	92.88	92.16	89.83	92.59	91.76
Acids												
Octanoic acid	Unpleasant, cheese, fatty acid*	0.500*	3	2.13a±0.03	0.98b±0.01	2.23ac±0.12	2.81d±0.05	2.78d±0.17	3.55e±0.07	3.08f±0.01	2.09a±0.02	2.31c±0.03
			6	2.23a±0.02	3.29b±0.09	5.27c±0.28	4.71d±0.18	4.19e±0.33	4.55e±0.13	4.21e±0.56	4.13e±0.34	2.61f±0.02
Decanoic acid	Fatty, unpleasant*	15.000*	3	1.47a±0.03	0.49b±0.02	1.18c±0.03	1.70d±0.05	1.67d±0.06	2.31e±0.01	2.01f±0.04	1.67d±0.08	1.36g±0.01
			6	1.98a±0.02	2.29b±0.09	3.84c±0.26	3.82c±0.13	3.02d±0.24	3.02d±0.09	3.32e±0.04	3.12d±0.06	1.78f±0.02
Dodecanoic acid	Soapy, waxy	10.000	3	10.13a±0.57	-	-	9.07b±0.26	10.40a±0.32	13.44c±0.14	12.06d±0.55	9.52e±0.14	7.72f±0.03
			6	10.99a±0.36			13.97b±0.57	16.99c±0.75	19.07d±0.77	15.05e±0.26	12.80f±0.07	11.84g±0.43
Total acids			3	13.73	1.47	3.41	13.58	14.85	19.3	17.15	13.28	11.39
			6	15.2	5.59	9.12	22.50	24.20	26.64	22.58	20.05	16.23

*IYD treatments: NO20 Nobless™ 20 g/L, NO40: Nobless™ 40 g/L, OL20: Opty Less™ 20 g/L, OL40: Opty Less™ 40 g/L, OW20: Optimum White™ 20 g/L, OW40: Optimum White™ 40 g/L, OE20: Oennolees™ 20 g/L, OE40: Oennolees™ 40 g/L;

**The values in the table represent the mean value of three replications.

***tr- trace;

****Different letters indicate statistically significant differences in the same column (p < 0.05).