

Table 6.1 Colour density average data of 2004 Shiraz, 2005 Shiraz and 2004 Merlot.

Treatment	Colour Density - 2004 Shiraz					Colour density - 2005 Shiraz		Colour density - 2004 Merlot	
	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	19.27 ± 0.51*	13.80 ± 0.26*	10.22 ± 0.10*	7.80 ± 0.08	8.46 ± 0.16	17.54 ± 1.03	11.90 ± 0.49	6.00 ± 0.53	5.05 ± 0.32
Lafase Grand Cru 50	19.73 ± 0.48*	15.44 ± 0.71*	11.43 ± 0.54*	8.63 ± 0.31*	9.40 ± 0.43*	17.77 ± 0.54	12.27 ± 0.15	6.15 ± 0.14	5.26 ± 0.01
Tanenol Rouge 100	18.85 ± 0.76*	13.38 ± 0.87	7.64 ± 0.70	7.85 ± 0.53	8.45 ± 0.59	18.43 ± 0.44	11.82 ± 0.16	6.05 ± 0.07	5.79 ± 0.68
Tanenol Rouge 300	19.22 ± 0.90*	13.16 ± 0.46	7.73 ± 0.56	7.91 ± 0.26	8.41 ± 0.17	18.69 ± 0.25	11.95 ± 0.32	6.22 ± 0.38	6.02 ± 0.18
Oenotan 100	18.79 ± 0.27*	13.22 ± 0.31	7.81 ± 0.34	7.83 ± 0.45	8.36 ± 0.35	17.76 ± 0.83	11.70 ± 0.54	6.21 ± 0.29	6.15 ± 0.33
Oenotan 300	19.12 ± 0.83*	13.17 ± 0.05	8.18 ± 0.26	7.92 ± 0.17	8.47 ± 0.27	17.85 ± 0.25	12.19 ± 0.31	5.97 ± 0.46	5.71 ± 0.52
QCTN 100	18.92 ± 0.63*	13.31 ± 0.13	8.18 ± 0.15	7.64 ± 0.08	8.22 ± 0.09	17.86 ± 0.68	12.00 ± 0.60	5.96 ± 0.41	5.42 ± 0.38
QCTN 300	19.27 ± 0.23*	13.45 ± 0.23	9.06 ± 0.88	7.98 ± 0.36	8.53 ± 0.30	17.57 ± 0.20	11.61 ± 0.29	6.47 ± 0.21	6.23 ± 0.27
Tanin VR Supra 300	18.54 ± 0.53*	13.43 ± 0.48	8.62 ± 0.33	7.84 ± 0.23	8.50 ± 0.32	16.79 ± 0.59	11.14 ± 0.43	5.97 ± 0.32	5.68 ± 0.35
Tanin VR Supra 500	18.56 ± 0.34*	13.20 ± 0.82	8.71 ± 0.69	7.64 ± 0.56	8.42 ± 0.48	17.47 ± 0.47	12.11 ± 0.40	6.27 ± 0.43	6.01 ± 0.34
Tanin VR Supra 1000	19.54 ± 0.93*	13.73 ± 0.36*	8.70 ± 0.37	8.07 ± 0.47	8.60 ± 0.46	17.50 ± 1.08	11.88 ± 1.04	6.56 ± 0.33	6.51 ± 0.39
Tanin VR Supra NF 300	18.11 ± 0.45*	12.74 ± 0.29	8.20 ± 0.28	7.44 ± 0.33	8.20 ± 0.35	15.89 ± 0.24	10.55 ± 0.28*	6.45 ± 0.23	6.80 ± 0.48*
Tanin VR Supra NF 500	18.57 ± 0.49*	13.03 ± 0.22	8.50 ± 0.14	7.83 ± 0.09	8.47 ± 0.18	16.85 ± 0.66	11.40 ± 0.50	6.42 ± 0.38	6.30 ± 0.43
Tanin VR Supra NF 1000	18.42 ± 0.29*	13.42 ± 0.24	8.38 ± 0.11	7.84 ± 0.31	8.46 ± 0.16	17.12 ± 0.58	11.67 ± 0.20	6.66 ± 0.21	6.25 ± 0.41
Control	16.06 ± 0.82	12.30 ± 0.41	8.15 ± 0.19	7.52 ± 0.29	8.21 ± 0.21	17.09 ± 0.45	11.98 ± 0.40	6.27 ± 0.37	5.60 ± 0.38

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.2 Colour density average data of 2005 Merlot and 2004 Cabernet Sauvignon; Modified colour density average data of 2004 Shiraz.

Treatment	Colour density - 2005 Merlot		Colour density - 2004 Cab Sauv		Modified colour density - 2004 Shiraz				
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)
Lafase Grand Cru 30	10.91 ± 0.94	8.26 ± 0.60	6.96 ± 1.38*	3.07 ± 0.21*	18.61 ± 0.61*	14.13 ± 0.25*	10.86 ± 0.08*	8.44 ± 0.06	10.07 ± 0.13
Lafase Grand Cru 50	10.38 ± 0.32	7.60 ± 0.77	6.10 ± 0.58*	3.49 ± 0.24	19.02 ± 0.42*	15.85 ± 0.76*	12.10 ± 0.60*	9.16 ± 0.35*	10.93 ± 0.23*
Tanenol Rouge 100	9.91 ± 0.59	7.37 ± 0.55	6.94 ± 1.05*	3.86 ± 0.22	18.42 ± 0.63*	13.47 ± 0.97	10.36 ± 0.54*	8.76 ± 0.55*	9.97 ± 0.54
Tanenol Rouge 300	9.70 ± 0.70	7.24 ± 0.47	5.85 ± 0.86*	3.69 ± 0.20	18.82 ± 1.02*	13.41 ± 0.48	10.56 ± 0.37*	9.20 ± 0.33*	9.94 ± 0.31
Oenotan 100	10.16 ± 0.51	7.44 ± 0.22	6.68 ± 0.54*	3.69 ± 0.46	18.42 ± 0.24*	13.59 ± 0.53	10.35 ± 0.31*	8.67 ± 0.31*	9.95 ± 0.28
Oenotan 300	9.15 ± 0.45	7.72 ± 0.59	7.38 ± 1.84*	3.82 ± 0.36	18.87 ± 0.89*	13.41 ± 0.08	9.99 ± 0.32	8.98 ± 0.20*	10.03 ± 0.28
QCTN 100	10.06 ± 0.26	7.26 ± 0.76	6.18 ± 0.05*	3.56 ± 0.10	18.68 ± 0.49*	13.49 ± 0.12	9.82 ± 0.08	8.20 ± 0.11	9.81 ± 0.22
QCTN 300	10.38 ± 0.63	7.72 ± 0.40	5.89 ± 0.38*	3.29 ± 0.38	18.72 ± 0.23*	14.08 ± 0.44	10.21 ± 0.50*	8.63 ± 0.17*	10.06 ± 0.16
Tanin VR Supra 300	10.41 ± 0.70	7.94 ± 0.51	6.54 ± 0.67*	3.53 ± 0.13	17.83 ± 0.61*	13.75 ± 0.55	9.79 ± 0.36	8.04 ± 0.18	9.97 ± 0.29
Tanin VR Supra 500	10.67 ± 0.32	7.80 ± 0.28	7.47 ± 0.43*	3.71 ± 0.08	18.10 ± 0.35*	13.63 ± 0.78	9.36 ± 0.68	7.84 ± 0.58	9.99 ± 0.50
Tanin VR Supra 1000	10.45 ± 0.85	7.47 ± 0.51	9.41 ± 0.81	3.78 ± 0.06	19.17 ± 0.92*	14.15 ± 0.30*	9.75 ± 0.31	8.36 ± 0.58	10.07 ± 0.33
Tanin VR Supra NF 300	10.98 ± 0.68	7.62 ± 1.04	7.65 ± 1.48*	3.03 ± 0.28*	17.83 ± 0.49*	13.09 ± 0.37	9.08 ± 0.21	7.62 ± 0.26	9.63 ± 0.21
Tanin VR Supra NF 500	10.50 ± 0.25	7.78 ± 0.30	10.27 ± 1.66	3.66 ± 0.15	18.32 ± 0.42*	13.37 ± 0.24	9.36 ± 0.12	7.95 ± 0.09	9.82 ± 0.08
Tanin VR Supra NF 1000	10.92 ± 0.24	7.87 ± 0.17	11.26 ± 0.98	3.17 ± 0.40	18.21 ± 0.26*	13.82 ± 0.26	9.63 ± 0.98	8.13 ± 0.20	9.90 ± 0.14
Control	10.33 ± 0.45	7.66 ± 0.42	11.90 ± 0.40	4.13 ± 0.67	15.82 ± 0.85	12.62 ± 0.44	8.80 ± 0.24	7.64 ± 0.30	9.52 ± 0.17

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.3 Modified colour density average data of 2005 Shiraz, 2004 Merlot, 2005 Merlot and 2004 Cabernet Sauvignon.

Treatment	Modified colour density - 2005 Shiraz		Modified colour density - 2004 Merlot		Modified colour density - 2005 Merlot		Modified colour density - 2004 Cab Sauv	
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	17.76 ± 0.99	12.13 ± 0.53	6.36 ± 0.49	5.56 ± 0.33	11.11 ± 1.09	7.37 ± 0.71	6.64 ± 0.07*	3.06 ± 0.15*
Lafase Grand Cru 50	18.00 ± 0.44	12.49 ± 0.14	6.50 ± 0.11	5.78 ± 0.04	10.53 ± 0.33	8.09 ± 0.18	6.02 ± 0.55*	3.41 ± 0.27*
Tanenol Rouge 100	18.60 ± 0.54	11.92 ± 0.23	6.39 ± 0.11	6.01 ± 0.20	9.91 ± 0.45	7.57 ± 0.41	6.04 ± 0.26*	3.69 ± 0.16
Tanenol Rouge 300	18.91 ± 0.23	12.13 ± 0.29	6.46 ± 0.41	6.31 ± 0.20	9.76 ± 0.64	7.35 ± 0.45	6.10 ± 0.71*	3.59 ± 0.23*
Oenotan 100	17.99 ± 0.73	12.00 ± 0.52	6.35 ± 0.32	6.34 ± 0.28	10.19 ± 0.51	7.58 ± 0.27	6.64 ± 0.37*	3.45 ± 0.26*
Oenotan 300	18.05 ± 0.22	12.26 ± 0.33	6.17 ± 0.45	6.13 ± 0.58	9.15 ± 0.33	7.35 ± 0.79	6.22 ± 0.41*	3.89 ± 0.35
QCTN 100	18.05 ± 0.71	12.16 ± 0.58	6.24 ± 0.36	5.96 ± 0.32	10.18 ± 0.37	7.74 ± 0.31	6.04 ± 0.13*	3.52 ± 0.09*
QCTN 300	17.79 ± 0.17	11.82 ± 0.24	6.80 ± 0.11	6.72 ± 0.17	10.52 ± 0.67	7.86 ± 0.41	5.92 ± 0.41*	3.37 ± 0.24*
Tanin VR Supra 300	16.73 ± 0.54	11.49 ± 0.41	6.23 ± 0.32	6.23 ± 0.38	10.44 ± 0.72	8.03 ± 0.58	6.49 ± 0.36*	3.51 ± 0.13*
Tanin VR Supra 500	17.58 ± 0.49	12.58 ± 0.33	6.64 ± 0.60	6.48 ± 0.35	10.80 ± 0.35	8.16 ± 0.39	7.35 ± 0.59*	3.71 ± 0.09
Tanin VR Supra 1000	17.53 ± 1.07	12.39 ± 1.23	6.98 ± 0.42	7.03 ± 0.30	10.59 ± 0.91	7.75 ± 0.70	8.37 ± 0.76	3.68 ± 0.08
Tanin VR Supra NF 300	16.02 ± 0.15	10.91 ± 0.13*	6.74 ± 0.28	6.98 ± 0.47	11.04 ± 0.68	8.21 ± 0.51	6.97 ± 0.69*	2.95 ± 0.20*
Tanin VR Supra NF 500	16.91 ± 0.66	11.68 ± 0.51	6.77 ± 0.45	6.68 ± 0.35	10.54 ± 0.26	7.93 ± 0.20	9.66 ± 0.74	3.68 ± 0.14
Tanin VR Supra NF 1000	17.30 ± 0.46	12.13 ± 0.08	7.12 ± 0.09	6.61 ± 0.40	11.05 ± 0.22	8.00 ± 0.14	10.72 ± 0.83	3.06 ± 0.17*
Control	17.23 ± 0.38	12.36 ± 0.31	6.60 ± 0.39	6.14 ± 0.42	10.45 ± 0.48	7.87 ± 0.35	9.70 ± 1.40	4.23 ± 0.18

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.4 Hue average data of 2004 Shiaz, 2005 Shiraz and 2004 Merlot.

Treatment	Hue - 2004 Shiraz					Hue - 2005 Shiraz		Hue - 2004 Merlot	
	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	0.35 ± 0.00*	0.44 ± 0.00	0.65 ± 0.01*	0.78 ± 0.01*	0.73 ± 0.01	0.43 ± 0.01	0.58 ± 0.00	0.46 ± 0.01*	0.52 ± 0.01*
Lafase Grand Cru 50	0.35 ± 0.00*	0.42 ± 0.01*	0.62 ± 0.02*	0.76 ± 0.01*	0.71 ± 0.01*	0.43 ± 0.00	0.57 ± 0.00	0.46 ± 0.00*	0.51 ± 0.01*
Tanenol Rouge 100	0.36 ± 0.00	0.46 ± 0.02	0.73 ± 0.03	0.78 ± 0.02	0.72 ± 0.01	0.42 ± 0.01*	0.57 ± 0.01	0.48 ± 0.01	0.57 ± 0.03*
Tanenol Rouge 300	0.35 ± 0.00*	0.46 ± 0.00	0.73 ± 0.03	0.78 ± 0.01*	0.73 ± 0.01	0.42 ± 0.01*	0.57 ± 0.00	0.50 ± 0.01	0.60 ± 0.01
Oenotan 100	0.35 ± 0.00*	0.45 ± 0.00	0.73 ± 0.01	0.78 ± 0.00	0.73 ± 0.01	0.43 ± 0.00	0.57 ± 0.00	0.52 ± 0.00	0.61 ± 0.03
Oenotan 300	0.36 ± 0.00	0.45 ± 0.00	0.75 ± 0.00	0.79 ± 0.00	0.73 ± 0.01	0.44 ± 0.01	0.58 ± 0.01*	0.53 ± 0.02	0.66 ± 0.03
QCTN 100	0.35 ± 0.00*	0.45 ± 0.02	0.74 ± 0.03	0.78 ± 0.01	0.72 ± 0.01	0.44 ± 0.00	0.58 ± 0.00*	0.51 ± 0.01	0.63 ± 0.01
QCTN 300	0.36 ± 0.00	0.45 ± 0.01	0.72 ± 0.05	0.79 ± 0.02	0.73 ± 0.01	0.43 ± 0.00	0.58 ± 0.00*	0.51 ± 0.01	0.63 ± 0.01
Tanin VR Supra 300	0.35 ± 0.00*	0.46 ± 0.01	0.76 ± 0.01	0.80 ± 0.01	0.74 ± 0.01	0.43 ± 0.00	0.58 ± 0.00*	0.50 ± 0.00	0.60 ± 0.01
Tanin VR Supra 500	0.35 ± 0.00	0.46 ± 0.00	0.76 ± 0.02	0.81 ± 0.01	0.75 ± 0.01	0.43 ± 0.00	0.56 ± 0.01	0.52 ± 0.02	0.62 ± 0.03
Tanin VR Supra 1000	0.36 ± 0.00	0.46 ± 0.00	0.78 ± 0.01	0.81 ± 0.01	0.75 ± 0.01	0.43 ± 0.00	0.56 ± 0.01	0.52 ± 0.02	0.63 ± 0.02
Tanin VR Supra NF 300	0.35 ± 0.00	0.46 ± 0.00	0.79 ± 0.00	0.81 ± 0.01	0.75 ± 0.01	0.43 ± 0.00	0.57 ± 0.00	0.50 ± 0.01	0.60 ± 0.01
Tanin VR Supra NF 500	0.35 ± 0.00*	0.45 ± 0.00	0.77 ± 0.01	0.80 ± 0.01	0.74 ± 0.00	0.43 ± 0.00	0.57 ± 0.00	0.49 ± 0.02	0.62 ± 0.01
Tanin VR Supra NF 1000	0.36 ± 0.00	0.45 ± 0.01	0.76 ± 0.06	0.82 ± 0.01	0.76 ± 0.00	0.43 ± 0.00	0.57 ± 0.01	0.52 ± 0.01	0.63 ± 0.02
Control	0.36 ± 0.01	0.46 ± 0.01	0.78 ± 0.02	0.82 ± 0.01	0.75 ± 0.01	0.43 ± 0.00	0.56 ± 0.00	0.50 ± 0.01	0.63 ± 0.01

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.5 Hue average data of 2005 Merlot and 2004 Cabernet Sauvignon; Sulphur dioxide resistant pigments average data of 2004 Shiraz.

Treatment	Hue - 2005 Merlot		Hue - 2004 Cab Sauv		SO ₂ Resistant Pigments - 2004 Shiraz				
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)
Lafase Grand Cru 30	0.49 ± 0.01	0.64 ± 0.03	0.75 ± 0.05*	0.71 ± 0.03	8.54 ± 0.35	10.21 ± 0.33	1.51 ± 0.02	1.57 ± 0.02	1.79 ± 0.03
Lafase Grand Cru 50	0.49 ± 0.00	0.64 ± 0.01	0.71 ± 0.02*	0.69 ± 0.02*	8.75 ± 0.59*	11.12 ± 0.06*	1.66 ± 0.03	1.75 ± 0.05*	1.95 ± 0.07*
Taninol Rouge 100	0.50 ± 0.00	0.66 ± 0.00	0.73 ± 0.03*	0.74 ± 0.00	7.96 ± 0.44	10.39 ± 0.32*	1.50 ± 0.09	1.60 ± 0.09	1.80 ± 0.12
Taninol Rouge 300	0.51 ± 0.01	0.66 ± 0.02	0.70 ± 0.01*	0.77 ± 0.01	7.81 ± 0.35	10.35 ± 0.44	1.50 ± 0.05	1.65 ± 0.07	1.80 ± 0.06
Oenotan 100	0.50 ± 0.01	0.66 ± 0.00	0.71 ± 0.02*	0.73 ± 0.01	8.20 ± 0.62	10.29 ± 0.17	1.52 ± 0.05	1.60 ± 0.07	1.79 ± 0.06
Oenotan 300	0.51 ± 0.01	0.64 ± 0.01	0.73 ± 0.03*	0.74 ± 0.02	8.13 ± 0.73	10.23 ± 0.10	1.55 ± 0.06	1.64 ± 0.06	1.80 ± 0.05
QCTN 100	0.51 ± 0.01	0.66 ± 0.00	0.74 ± 0.02*	0.72 ± 0.02	8.00 ± 0.30	10.21 ± 0.17	1.53 ± 0.06	1.58 ± 0.05	1.78 ± 0.05
QCTN 300	0.51 ± 0.01	0.66 ± 0.01	0.74 ± 0.03*	0.76 ± 0.03	9.70 ± 0.83*	10.29 ± 0.19	1.57 ± 0.04	1.67 ± 0.01	1.85 ± 0.06
Tanin VR Supra 300	0.51 ± 0.01	0.65 ± 0.01	0.74 ± 0.03*	0.71 ± 0.01	7.89 ± 0.36	10.72 ± 0.18*	1.54 ± 0.01	1.61 ± 0.02	1.82 ± 0.05
Tanin VR Supra 500	0.51 ± 0.01	0.66 ± 0.01	0.76 ± 0.02*	0.71 ± 0.00	7.86 ± 0.27	10.60 ± 0.63*	1.51 ± 0.06	1.58 ± 0.08	1.82 ± 0.07
Tanin VR Supra 1000	0.51 ± 0.01	0.66 ± 0.01	0.78 ± 0.01	0.75 ± 0.03	8.01 ± 0.21	10.94 ± 0.53*	1.55 ± 0.06	1.66 ± 0.07	1.86 ± 0.08
Tanin VR Supra NF 300	0.51 ± 0.01	0.66 ± 0.02	0.81 ± 0.06	0.75 ± 0.04	6.97 ± 0.22	10.16 ± 0.20	1.49 ± 0.01	1.53 ± 0.04	1.77 ± 0.04
Tanin VR Supra NF 500	0.50 ± 0.01	0.65 ± 0.01	0.88 ± 0.07	0.71 ± 0.02*	8.58 ± 0.49	10.25 ± 0.10	1.65 ± 0.06	1.64 ± 0.07	1.87 ± 0.08
Tanin VR Supra NF 1000	0.50 ± 0.00	0.66 ± 0.00	0.87 ± 0.01	0.75 ± 0.02	8.71 ± 0.59	10.30 ± 0.14	1.64 ± 0.05	1.67 ± 0.03	1.87 ± 0.03
Control	0.49 ± 0.01	0.65 ± 0.02	0.86 ± 0.02	0.79 ± 0.04	7.07 ± 0.22	9.44 ± 0.34	1.53 ± 0.04	1.54 ± 0.04	1.75 ± 0.04

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.6 Sulphur dioxide resistant pigments average data of 2005 Shiraz, 2004 Merlot, 2005 Merlot and 2004 Cabernet Sauvignon.

Treatment	SO ₂ resistant pigments - 2005 Shiraz		SO ₂ resistant pigments - 2004 Merlot		SO ₂ resistant pigments - 2005 Merlot		SO ₂ resistant pigments - 2004 Cab Sauv	
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	2.13 ± 0.12	1.88 ± 0.12	0.23 ± 0.02*	0.43 ± 0.03*	1.33 ± 0.14	1.66 ± 0.22	9.69 ± 0.18*	5.64 ± 0.02*
Lafase Grand Cru 50	2.15 ± 0.06	1.93 ± 0.03	0.23 ± 0.01*	0.44 ± 0.01*	1.37 ± 0.04	1.75 ± 0.02	6.75 ± 0.29*	5.84 ± 0.21*
Taninol Rouge 100	2.24 ± 0.02	1.85 ± 0.03	0.31 ± 0.01*	0.57 ± 0.10	1.27 ± 0.07	1.51 ± 0.08	6.88 ± 0.16*	5.61 ± 0.18*
Taninol Rouge 300	2.26 ± 0.04	1.91 ± 0.05	0.31 ± 0.03	0.64 ± 0.03	1.24 ± 0.07	1.49 ± 0.08	7.63 ± 0.99*	5.71 ± 0.40*
Oenotan 100	2.14 ± 0.11	1.86 ± 0.08	0.30 ± 0.03	0.65 ± 0.06	1.32 ± 0.04	1.56 ± 0.03	8.62 ± 0.74*	6.06 ± 0.72*
Oenotan 300	2.17 ± 0.05	1.86 ± 0.03	0.35 ± 0.01	0.68 ± 0.02	1.29 ± 0.11	1.48 ± 0.14	8.06 ± 0.91*	6.47 ± 0.64*
QCTN 100	2.17 ± 0.07	1.87 ± 0.09	0.30 ± 0.03	0.58 ± 0.04	1.35 ± 0.05	1.62 ± 0.06	7.73 ± 0.32*	5.75 ± 0.02*
QCTN 300	2.12 ± 0.03	1.83 ± 0.02	0.36 ± 0.03	0.65 ± 0.04	1.39 ± 0.07	1.64 ± 0.07	7.80 ± 0.87*	5.45 ± 0.29*
Tanin VR Supra 300	2.03 ± 0.05	1.82 ± 0.04	0.36 ± 0.03	0.56 ± 0.03	1.36 ± 0.07	1.62 ± 0.10	8.86 ± 0.06*	5.84 ± 0.32*
Tanin VR Supra 500	2.07 ± 0.03	1.95 ± 0.01	0.41 ± 0.02	0.62 ± 0.02	1.41 ± 0.07	1.71 ± 0.13	11.78 ± 0.88	5.83 ± 0.21*
Tanin VR Supra 1000	2.01 ± 0.11	1.88 ± 0.16	0.45 ± 0.02	0.68 ± 0.03	1.33 ± 0.09	1.57 ± 0.14	14.13 ± 1.43	6.46 ± 0.34*
Tanin VR Supra NF 300	1.88 ± 0.03*	1.70 ± 0.03*	0.39 ± 0.03	0.68 ± 0.05	1.44 ± 0.08	1.60 ± 0.17	9.78 ± 1.15*	5.12 ± 0.24*
Tanin VR Supra NF 500	2.01 ± 0.10	1.82 ± 0.10	0.38 ± 0.02	0.65 ± 0.06	1.36 ± 0.07	1.63 ± 0.08	16.22 ± 2.22	5.95 ± 0.39*
Tanin VR Supra NF 1000	2.08 ± 0.08	1.89 ± 0.03	0.43 ± 0.01	0.65 ± 0.03	1.38 ± 0.06	1.62 ± 0.05	17.80 ± 1.47	5.23 ± 0.55*
Control	2.11 ± 0.05	1.92 ± 0.05	0.42 ± 0.03	0.60 ± 0.04	1.32 ± 0.04	1.61 ± 0.04	14.99 ± 1.47	9.37 ± 0.42

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.7 Total red pigments average data of 2004 Shiraz, 2005 Shiraz and 2004 Merlot.

Treatment	Total Red Pigments - 2004 Shiraz				Total red pigments - 2005 Shiraz		Total red pigments - 2004 Merlot	
	Middle Fermentation (AU)	End Fermentation (AU)	6 Months Maturation (AU)	Year of Maturation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	34.88 ± 0.51*	31.68 ± 1.87	17.20 ± 0.25	16.27 ± 0.24	33.77 ± 2.04	25.51 ± 1.06	16.16 ± 0.81	14.07 ± 0.39
Lafase Grand Cru 50	35.45 ± 0.96*	33.63 ± 0.52	17.57 ± 1.20	16.60 ± 0.40	34.20 ± 0.95	26.12 ± 1.24	16.46 ± 0.27	14.36 ± 0.14
Tanenol Rouge 100	34.27 ± 1.03*	30.70 ± 0.27	16.64 ± 1.28	16.15 ± 0.60	34.15 ± 2.60	25.13 ± 1.41	15.89 ± 0.74	13.27 ± 0.69
Tanenol Rouge 300	34.88 ± 2.07*	29.59 ± 1.32	17.16 ± 0.75	15.66 ± 0.80	33.30 ± 2.18	24.77 ± 2.49	16.56 ± 1.42	14.06 ± 0.48
Oenotan 100	34.85 ± 0.71*	31.07 ± 2.10	16.48 ± 0.57	15.64 ± 0.44	32.71 ± 0.90	24.68 ± 1.33	16.09 ± 0.61	13.94 ± 0.66
Oenotan 300	36.09 ± 1.98*	30.13 ± 1.22	16.82 ± 0.46	15.22 ± 0.41	33.53 ± 1.48	24.44 ± 1.42	14.88 ± 0.41	13.57 ± 0.96
QCTN 100	34.68 ± 1.34*	29.39 ± 0.81	16.61 ± 0.65	15.69 ± 0.68	33.95 ± 2.70	25.80 ± 2.80	15.76 ± 0.27	13.70 ± 0.65
QCTN 300	34.68 ± 0.48*	30.54 ± 1.17	16.63 ± 0.55	15.61 ± 0.71	32.80 ± 0.99	24.78 ± 1.47	15.79 ± 0.15	14.42 ± 0.56
Tanin VR Supra 300	32.72 ± 1.34	30.30 ± 1.31	16.74 ± 0.29	16.44 ± 0.61	32.78 ± 2.77	26.82 ± 2.29	16.03 ± 0.67	14.23 ± 0.34
Tanin VR Supra 500	33.16 ± 1.74	30.27 ± 1.99	17.15 ± 1.29	16.44 ± 1.06	34.88 ± 2.10	26.07 ± 0.32	16.16 ± 1.39	13.96 ± 0.98
Tanin VR Supra 1000	35.25 ± 1.26*	32.15 ± 2.61	17.12 ± 0.58	16.12 ± 0.23	32.68 ± 1.80	27.26 ± 0.89	16.90 ± 1.55	14.32 ± 1.07
Tanin VR Supra NF 300	32.76 ± 0.86	29.69 ± 2.40	16.87 ± 0.91	15.88 ± 0.50	31.73 ± 0.42	25.44 ± 1.30	16.87 ± 0.71	14.43 ± 0.15
Tanin VR Supra NF 500	33.03 ± 0.70	30.03 ± 0.82	15.82 ± 0.94	15.53 ± 0.23	32.74 ± 2.87	25.71 ± 1.85	18.21 ± 3.04	14.38 ± 1.40
Tanin VR Supra NF 1000	32.19 ± 0.66	30.47 ± 1.45	16.51 ± 0.15	15.91 ± 0.57	34.70 ± 2.30	28.19 ± 0.81	16.16 ± 0.80	13.51 ± 1.48
Control	29.74 ± 0.98	29.29 ± 1.59	17.07 ± 0.23	16.41 ± 0.62	34.94 ± 1.55	27.72 ± 1.29	16.29 ± 0.85	13.56 ± 0.50

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.8 Total red pigments average data of 2005 Merlot and 2004 Cabernet Sauvignon; Fraction of colour due to polymeric pigment average data of 2004 Shiraz.

Treatment	Total red pigments - 2005 Merlot		Total red pigments - 2004 Cab Sauv		Fraction of colour due to Polymeric Pigment - 2004 Shiraz				
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)
Lafase Grand Cru 30	23.71 ± 2.28	16.85 ± 1.07	16.40 ± 0.76	10.83 ± 2.41	0.05 ± 0.00	0.07 ± 0.00	0.01 ± 0.00*	0.02 ± 0.00*	0.02 ± 0.00
Lafase Grand Cru 50	23.31 ± 1.02	16.12 ± 1.00	16.46 ± 0.71	8.26 ± 1.51	0.05 ± 0.00	0.07 ± 0.00	0.01 ± 0.00*	0.02 ± 0.00	0.02 ± 0.00
Tanenol Rouge 100	23.44 ± 1.56	16.15 ± 1.11	16.33 ± 0.21	15.30 ± 0.25*	0.04 ± 0.00	0.08 ± 0.00	0.01 ± 0.00*	0.02 ± 0.00*	0.02 ± 0.00
Tanenol Rouge 300	21.52 ± 0.71	16.86 ± 1.02	16.83 ± 0.88	14.84 ± 2.27*	0.04 ± 0.00	0.08 ± 0.00	0.01 ± 0.00*	0.02 ± 0.00*	0.02 ± 0.00
Oenotan 100	22.07 ± 0.31	16.33 ± 0.98	16.83 ± 1.38	13.67 ± 1.94	0.04 ± 0.00	0.08 ± 0.00	0.01 ± 0.00*	0.02 ± 0.00*	0.02 ± 0.00
Oenotan 300	19.88 ± 0.02	16.35 ± 1.98	17.54 ± 0.76	13.78 ± 0.44	0.04 ± 0.00	0.08 ± 0.00	0.02 ± 0.00*	0.02 ± 0.00*	0.02 ± 0.00
QCTN 100	21.97 ± 0.82	15.86 ± 1.09	16.40 ± 0.73	16.86 ± 1.49*	0.04 ± 0.00	0.08 ± 0.00	0.02 ± 0.00*	0.02 ± 0.00	0.02 ± 0.00
QCTN 300	21.89 ± 1.30	16.46 ± 0.40	15.52 ± 1.15	10.26 ± 0.97	0.05 ± 0.00	0.07 ± 0.00	0.02 ± 0.00*	0.02 ± 0.00	0.02 ± 0.00
Tanin VR Supra 300	23.00 ± 2.20	16.51 ± 1.49	16.53 ± 0.71	11.80 ± 1.96	0.04 ± 0.00	0.08 ± 0.00	0.02 ± 0.00*	0.02 ± 0.00	0.02 ± 0.00
Tanin VR Supra 500	23.56 ± 0.74	16.37 ± 1.09	16.53 ± 1.04	7.53 ± 0.64	0.04 ± 0.00	0.08 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Tanin VR Supra 1000	23.49 ± 1.20	16.21 ± 1.54	17.84 ± 0.31	5.27 ± 0.48	0.04 ± 0.00	0.08 ± 0.00	0.02 ± 0.00*	0.02 ± 0.00	0.02 ± 0.00
Tanin VR Supra NF 300	24.40 ± 0.03	16.65 ± 0.74	14.95 ± 1.01	5.64 ± 0.14	0.04 ± 0.00*	0.08 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Tanin VR Supra NF 500	24.35 ± 0.58	16.22 ± 1.07	17.88 ± 1.66	13.02 ± 1.13	0.05 ± 0.00	0.08 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Tanin VR Supra NF 1000	22.72 ± 1.38	15.98 ± 1.09	15.45 ± 1.99	5.69 ± 0.22	0.05 ± 0.00	0.07 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Control	23.00 ± 1.63	16.34 ± 1.35	16.54 ± 0.86	8.54 ± 1.72	0.05 ± 0.01	0.07 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.9 Fraction of colour due to polymeric pigments average data of 2005 Shiraz, 2004 Merlot, 2005 Merlot and 2004 Cabernet Sauvignon.

Treatment	Fraction of colour due to polymeric pigments - 2005 Shiraz		Fraction of colour due to polymeric pigments - 2004 Merlot		Fraction of colour due to polymeric pigments - 2005 Merlot		Fraction of colour due to polymeric pigments - 2004 Cab Sauv	
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	0.12 ± 0.00	0.16 ± 0.00	0.00 ± 0.00*	0.08 ± 0.00*	0.01 ± 0.00	0.02 ± 0.00	0.14 ± 0.01*	0.18 ± 0.01
Lafase Grand Cru 50	0.12 ± 0.00	0.15 ± 0.00	0.00 ± 0.00*	0.08 ± 0.00*	0.01 ± 0.00	0.02 ± 0.00*	0.11 ± 0.01*	0.17 ± 0.01
Tanenol Rouge 100	0.12 ± 0.00	0.16 ± 0.00	0.00 ± 0.00	0.10 ± 0.01	0.01 ± 0.00	0.02 ± 0.00	0.12 ± 0.01*	0.15 ± 0.00*
Tanenol Rouge 300	0.12 ± 0.00	0.16 ± 0.00	0.00 ± 0.00*	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.12 ± 0.00*	0.16 ± 0.00*
Oenotan 100	0.12 ± 0.00	0.16 ± 0.00	0.00 ± 0.00	0.10 ± 0.01	0.01 ± 0.00	0.02 ± 0.00	0.13 ± 0.01*	0.17 ± 0.00*
Oenotan 300	0.12 ± 0.00	0.15 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.13 ± 0.01*	0.17 ± 0.01*
QCTN 100	0.12 ± 0.00	0.15 ± 0.00	0.00 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.13 ± 0.00*	0.16 ± 0.00*
QCTN 300	0.12 ± 0.00	0.16 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.13 ± 0.01*	0.17 ± 0.01*
Tanin VR Supra 300	0.12 ± 0.00	0.16 ± 0.00	0.01 ± 0.00	0.09 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.14 ± 0.01*	0.17 ± 0.01*
Tanin VR Supra 500	0.12 ± 0.00*	0.15 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.15 ± 0.01	0.16 ± 0.00*
Tanin VR Supra 1000	0.11 ± 0.00*	0.15 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.17 ± 0.00	0.18 ± 0.01
Tanin VR Supra NF 300	0.12 ± 0.00*	0.16 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.15 ± 0.01	0.17 ± 0.01
Tanin VR Supra NF 500	0.12 ± 0.00	0.16 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.17 ± 0.01	0.16 ± 0.01*
Tanin VR Supra NF 1000	0.12 ± 0.00	0.16 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.19 ± 0.01	0.17 ± 0.01*
Control	0.12 ± 0.00	0.16 ± 0.00	0.01 ± 0.00	0.10 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.17 ± 0.01	0.20 ± 0.02

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.10 Fraction of colour due to copigmentation average data of 2004 Shiraz, 2005 Shiraz and 2004 Merlot.

Treatment	Fraction of colour due to copigmentation - 2004 Shiraz					Fraction of colour due to copigmentation - 2005 Shiraz		Fraction of colour due to copigmentation - 2004 Merlot	
	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	0.73 ± 0.00	0.67 ± 0.02	0.61 ± 0.01	0.58 ± 0.03	0.59 ± 0.05	0.64 ± 0.01	0.59 ± 0.03	0.68 ± 0.01	0.62 ± 0.03
Lafase Grand Cru 50	0.73 ± 0.01	0.70 ± 0.03	0.64 ± 0.01*	0.57 ± 0.01	0.57 ± 0.01	0.65 ± 0.03	0.62 ± 0.02	0.67 ± 0.01	0.62 ± 0.02
Tanenol Rouge 100	0.73 ± 0.00	0.63 ± 0.01	0.73 ± 0.02*	0.62 ± 0.02	0.58 ± 0.04	0.67 ± 0.02	0.64 ± 0.01	0.44 ± 0.01*	0.83 ± 0.02*
Tanenol Rouge 300	0.74 ± 0.00	0.64 ± 0.02	0.62 ± 0.03*	0.66 ± 0.06*	0.52 ± 0.04	0.66 ± 0.04	0.63 ± 0.01	0.62 ± 0.01	0.62 ± 0.02
Oenotan 100	0.76 ± 0.05	0.64 ± 0.01	0.61 ± 0.01	0.68 ± 0.05*	0.56 ± 0.02	0.65 ± 0.01	0.63 ± 0.02	0.64 ± 0.02	0.63 ± 0.01
Oenotan 300	0.73 ± 0.01	0.64 ± 0.01	0.61 ± 0.03	0.62 ± 0.02	0.57 ± 0.01	0.64 ± 0.02	0.60 ± 0.04	0.64 ± 0.02	0.65 ± 0.02
QCTN 100	0.74 ± 0.00	0.62 ± 0.03	0.60 ± 0.02	0.59 ± 0.03	0.56 ± 0.01	0.63 ± 0.02	0.62 ± 0.02	0.65 ± 0.00	0.64 ± 0.01
QCTN 300	0.73 ± 0.01	0.72 ± 0.05	0.59 ± 0.02	0.57 ± 0.02	0.56 ± 0.01	0.64 ± 0.02	0.60 ± 0.01	0.66 ± 0.01	0.66 ± 0.00
Tanin VR Supra 300	0.73 ± 0.01	0.64 ± 0.01	0.58 ± 0.01	0.61 ± 0.04	0.55 ± 0.02	0.61 ± 0.02	0.61 ± 0.02	0.43 ± 0.07*	0.66 ± 0.00
Tanin VR Supra 500	0.74 ± 0.01	0.67 ± 0.02	0.57 ± 0.02	0.56 ± 0.01	0.56 ± 0.02	0.66 ± 0.02	0.64 ± 0.02	0.61 ± 0.04	0.64 ± 0.03
Tanin VR Supra 1000	0.73 ± 0.01	0.63 ± 0.03	0.61 ± 0.01	0.59 ± 0.03	0.55 ± 0.03	0.63 ± 0.03	0.63 ± 0.03	0.65 ± 0.01	0.66 ± 0.01
Tanin VR Supra NF 300	0.73 ± 0.01	0.65 ± 0.02	0.61 ± 0.00	0.56 ± 0.02	0.57 ± 0.00	0.63 ± 0.04	0.63 ± 0.05	0.64 ± 0.02	0.66 ± 0.02
Tanin VR Supra NF 500	0.74 ± 0.01	0.65 ± 0.01	0.60 ± 0.02	0.61 ± 0.02	0.56 ± 0.02	0.61 ± 0.02	0.62 ± 0.05	0.68 ± 0.01	0.64 ± 0.01
Tanin VR Supra NF 1000	0.73 ± 0.01	0.67 ± 0.00	0.58 ± 0.01	0.57 ± 0.02	0.58 ± 0.02	0.63 ± 0.01	0.62 ± 0.02	0.66 ± 0.01	0.65 ± 0.02
Control	0.72 ± 0.01	0.66 ± 0.01	0.57 ± 0.03	0.55 ± 0.01	0.59 ± 0.04	0.62 ± 0.03	0.61 ± 0.03	0.65 ± 0.01	0.63 ± 0.02

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.11 Fraction of colour due to copigmentation average data of 2005 Merlot, 2004 Cabernet Sauvignon; Fraction of colour due to free anthocyanins average data of 2004 Shiraz.

Treatment	Fraction of colour due to copigmentation - 2005 Merlot		Fraction of colour due to copigmentation - 2004 Cab Sauv		Fraction of colour due to Free Anthocyanins - 2004 Shiraz				
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months maturation (AU)	Year of Maturation (AU)
Lafase Grand Cru 30	0.53 ± 0.03	0.76 ± 0.04*	0.75 ± 0.02	0.61 ± 0.03	0.22 ± 0.01	0.26 ± 0.02	0.38 ± 0.01	0.40 ± 0.03	0.42 ± 0.01
Lafase Grand Cru 50	0.61 ± 0.04	0.72 ± 0.09*	0.70 ± 0.02*	0.66 ± 0.04	0.22 ± 0.00	0.21 ± 0.01	0.35 ± 0.01*	0.41 ± 0.01	0.41 ± 0.01
Tanenol Rouge 100	0.60 ± 0.04	0.57 ± 0.06	0.72 ± 0.03*	0.64 ± 0.01	0.23 ± 0.00	0.29 ± 0.01	0.25 ± 0.02*	0.37 ± 0.02	0.41 ± 0.04
Tanenol Rouge 300	0.64 ± 0.02	0.66 ± 0.01	0.71 ± 0.04*	0.63 ± 0.01	0.22 ± 0.01	0.28 ± 0.01	0.36 ± 0.03*	0.29 ± 0.02*	0.46 ± 0.04
Oenotan 100	0.72 ± 0.07*	0.60 ± 0.04	0.68 ± 0.02*	0.67 ± 0.04	0.23 ± 0.00	0.29 ± 0.01	0.37 ± 0.01	0.31 ± 0.05*	0.42 ± 0.02
Oenotan 300	0.71 ± 0.04*	0.53 ± 0.03	0.69 ± 0.02*	0.64 ± 0.02	0.23 ± 0.01	0.29 ± 0.01	0.38 ± 0.03	0.37 ± 0.02	0.41 ± 0.01
QCTN 100	0.74 ± 0.04*	0.65 ± 0.00	0.70 ± 0.01*	0.66 ± 0.03	0.21 ± 0.01	0.30 ± 0.03	0.38 ± 0.02	0.39 ± 0.03	0.42 ± 0.01
QCTN 300	0.74 ± 0.04*	0.60 ± 0.04	0.74 ± 0.02*	0.69 ± 0.03	0.22 ± 0.01	0.17 ± 0.02*	0.39 ± 0.01	0.41 ± 0.02	0.42 ± 0.01
Tanin VR Supra 300	0.62 ± 0.01	0.60 ± 0.01	0.74 ± 0.05*	0.62 ± 0.02	0.23 ± 0.01	0.28 ± 0.01	0.40 ± 0.01	0.37 ± 0.04	0.43 ± 0.02
Tanin VR Supra 500	0.67 ± 0.06	0.61 ± 0.01	0.73 ± 0.07*	0.68 ± 0.02	0.22 ± 0.01	0.25 ± 0.02	0.41 ± 0.02	0.42 ± 0.01	0.42 ± 0.02
Tanin VR Supra 1000	0.67 ± 0.06	0.62 ± 0.01	0.77 ± 0.03	0.66 ± 0.02	0.22 ± 0.02	0.27 ± 0.01	0.38 ± 0.01	0.39 ± 0.03	0.43 ± 0.03
Tanin VR Supra NF 300	0.61 ± 0.04	0.61 ± 0.02	0.77 ± 0.03	0.68 ± 0.04	0.23 ± 0.01	0.28 ± 0.02	0.38 ± 0.00	0.42 ± 0.02	0.41 ± 0.00
Tanin VR Supra NF 500	0.63 ± 0.04	0.60 ± 0.01	0.80 ± 0.02	0.67 ± 0.05	0.23 ± 0.02	0.27 ± 0.01	0.39 ± 0.01	0.37 ± 0.02	0.42 ± 0.02
Tanin VR Supra NF 1000	0.63 ± 0.03	0.61 ± 0.00	0.82 ± 0.01	0.65 ± 0.03	0.22 ± 0.01	0.25 ± 0.00	0.40 ± 0.01	0.41 ± 0.02	0.40 ± 0.02
Control	0.59 ± 0.01	0.60 ± 0.01	0.86 ± 0.08	0.70 ± 0.04	0.25 ± 0.04	0.26 ± 0.01	0.43 ± 0.03	0.43 ± 0.01	0.39 ± 0.04

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.12 Fraction of colour due to free anthocyanins average data of 2005 Shiraz, 2004 Merlot, 2005 Merlot and 2004 Cabernet Sauvignon.

Treatment	Fraction of colour due to free anthocyanins - 2005 Shiraz		Fraction of colour due to free anthocyanins - 2004 Merlot		Fraction of colour due to free anthocyanins - 2005 Merlot		Fraction of colour due to free anthocyanins - 2004 Cab Sauv	
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	0.24 ± 0.01	0.26 ± 0.03	0.32 ± 0.01	0.30 ± 0.03	0.45 ± 0.03	0.23 ± 0.03*	0.10 ± 0.01	0.18 ± 0.01
Lafase Grand Cru 50	0.25 ± 0.01	0.23 ± 0.02	0.33 ± 0.01	0.31 ± 0.02	0.37 ± 0.04	0.21 ± 0.03*	0.19 ± 0.02	0.16 ± 0.03
Tanenol Rouge 100	0.21 ± 0.02	0.21 ± 0.02	0.56 ± 0.01*	0.05 ± 0.02*	0.38 ± 0.04	0.44 ± 0.00	0.16 ± 0.04	0.20 ± 0.01
Tanenol Rouge 300	0.24 ± 0.00	0.21 ± 0.01	0.37 ± 0.01	0.28 ± 0.03	0.35 ± 0.02	0.32 ± 0.01	0.14 ± 0.01	0.22 ± 0.01
Oenotan 100	0.23 ± 0.01	0.22 ± 0.02	0.36 ± 0.02	0.26 ± 0.01	0.30 ± 0.02	0.38 ± 0.04	0.19 ± 0.02	0.19 ± 0.02
Oenotan 300	0.24 ± 0.02	0.23 ± 0.02	0.35 ± 0.02	0.25 ± 0.01	0.27 ± 0.04*	0.45 ± 0.03*	0.19 ± 0.02	0.19 ± 0.01
QCTN 100	0.25 ± 0.02	0.22 ± 0.02	0.35 ± 0.00	0.27 ± 0.01	0.24 ± 0.04*	0.33 ± 0.00	0.18 ± 0.01	0.18 ± 0.03
QCTN 300	0.24 ± 0.02	0.25 ± 0.01	0.33 ± 0.01	0.24 ± 0.00	0.22 ± 0.01*	0.38 ± 0.04	0.13 ± 0.03	0.16 ± 0.02
Tanin VR Supra 300	0.27 ± 0.02	0.23 ± 0.02	0.56 ± 0.07*	0.25 ± 0.00	0.37 ± 0.01	0.38 ± 0.01	0.07 ± 0.03*	0.23 ± 0.02
Tanin VR Supra 500	0.23 ± 0.02	0.21 ± 0.02	0.38 ± 0.04	0.26 ± 0.02	0.35 ± 0.01	0.37 ± 0.01	0.08 ± 0.00	0.17 ± 0.01
Tanin VR Supra 1000	0.27 ± 0.01	0.24 ± 0.01	0.34 ± 0.01	0.24 ± 0.01	0.29 ± 0.04	0.36 ± 0.01	0.04 ± 0.01*	0.16 ± 0.00
Tanin VR Supra NF 300	0.28 ± 0.00	0.24 ± 0.01	0.36 ± 0.02	0.25 ± 0.02	0.38 ± 0.04	0.37 ± 0.02	0.10 ± 0.02	0.14 ± 0.05
Tanin VR Supra NF 500	0.27 ± 0.02	0.20 ± 0.02	0.32 ± 0.02	0.26 ± 0.01	0.35 ± 0.04	0.38 ± 0.01	0.04 ± 0.01*	0.19 ± 0.02
Tanin VR Supra NF 1000	0.25 ± 0.01	0.24 ± 0.00	0.33 ± 0.01	0.25 ± 0.02	0.36 ± 0.03	0.37 ± 0.00	0.19	0.18 ± 0.02
Control	0.26 ± 0.03	0.24 ± 0.02	0.35 ± 0.01	0.27 ± 0.02	0.40 ± 0.01	0.38 ± 0.01	0.17 ± 0.01	0.14 ± 0.04

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.13 Total anthocyanins average data of 2004 Shiraz, 2005 Shiraz and 2004 Merlot.

Treatment	Total Anthocyanins - 2004 Shiraz					Total Anthocyanins - 2005 Shiraz		Total Anthocyanins - 2004 Merlot	
	Middle Fermentation (mg/L)	End Fermentation (mg/L)	After MLF (mg/L)	6 Months Maturation (mg/L)	Year of Maturation (mg/L)	End Fermentation (mg/L)	After MLF (mg/L)	Middle Fermentation (mg/L)	End Fermentation (mg/L)
Lafase Grand Cru 30	967.17 ± 19.06*	826.00 ± 85.54	510.71 ± 29.13	431.75 ± 3.28	342.59 ± 7.92	821.39 ± 79.35	601.88 ± 36.29	192.06 ± 10.52	352.04 ± 23.02
Lafase Grand Cru 50	1026.11 ± 58.28*	866.25 ± 69.39	565.54 ± 16.26	437.03 ± 16.57	367.18 ± 15.41	793.13 ± 38.37	590.89 ± 15.44	202.56 ± 14.23	338.63 ± 16.21
Tanenol Rouge 100	825.04 ± 6.06	755.13 ± 68.67	514.21 ± 27.89	410.46 ± 27.98	331.84 ± 10.95	803.72 ± 26.99	584.47 ± 18.98	132.56 ± 20.42*	330.46 ± 21.39
Tanenol Rouge 300	973.26 ± 21.58*	742.88 ± 30.96	531.13 ± 14.85	368.84 ± 30.43	342.77 ± 12.30	765.98 ± 21.31	577.82 ± 7.76	194.25 ± 4.95	339.50 ± 17.87
Oenotan 100	922.98 ± 48.00	745.50 ± 59.98	510.71 ± 36.31	437.21 ± 22.88	361.14 ± 9.88	776.33 ± 37.07	582.60 ± 14.89	262.50 ± 28.46	356.42 ± 5.27
Oenotan 300	926.10 ± 63.02	743.17 ± 29.37	498.75 ± 9.22	392.20 ± 15.16	352.63 ± 13.37	809.03 ± 30.52	589.08 ± 8.06	238.00 ± 0.00	328.71 ± 17.72
QCTN 100	936.95 ± 36.27	771.75 ± 42.44	494.96 ± 10.55	393.93 ± 3.59	337.78 ± 22.93	797.94 ± 44.95	608.53 ± 43.85	223.56 ± 20.42	314.42 ± 12.38
QCTN 300	961.65 ± 41.87*	754.83 ± 42.19	481.54 ± 42.00	392.50 ± 31.31	344.95 ± 17.57	746.70 ± 19.95	601.42 ± 21.91	133.88 ± 57.56*	338.63 ± 10.32
Tanin VR Supra 300	877.74 ± 34.09	843.79 ± 48.34	519.17 ± 29.93	371.85 ± 21.01	359.19 ± 18.25	697.93 ± 22.28*	574.90 ± 9.05	163.92 ± 17.96	335.42 ± 14.96
Tanin VR Supra 500	879.17 ± 54.66	753.96 ± 68.26	510.13 ± 31.84	420.12 ± 23.33	357.79 ± 26.87	804.30 ± 47.08	612.12 ± 5.08	225.46 ± 5.83	353.21 ± 8.08
Tanin VR Supra 1000	975.63 ± 129.16*	796.54 ± 68.62	523.83 ± 30.19	405.59 ± 16.22	369.19 ± 25.47	790.27 ± 55.02	596.69 ± 30.40	192.94 ± 12.99	321.13 ± 9.09
Tanin VR Supra NF 300	925.20 ± 27.53	761.25 ± 56.12	506.04 ± 20.88	411.37 ± 8.90	346.06 ± 10.39	746.75 ± 13.37	553.35 ± 20.35	141.75 ± 3.71*	358.17 ± 6.57
Tanin VR Supra NF 500	872.67 ± 21.19	733.25 ± 48.43	487.96 ± 13.56	382.03 ± 14.82	367.82 ± 19.35	814.33 ± 17.32	593.72 ± 4.84	267.75 ± 14.85	349.13 ± 13.75
Tanin VR Supra NF 1000	815.76 ± 59.64	772.33 ± 24.52	524.13 ± 17.48	393.60 ± 13.54	336.12 ± 15.03	813.52 ± 50.21	613.38 ± 11.15	280.44 ± 8.04	315.29 ± 22.76
Control	797.26 ± 51.35	767.38 ± 71.49	518.66 ± 10.70	422.28 ± 24.97	347.64 ± 11.36	827.71 ± 17.78	603.55 ± 16.97	235.59 ± 13.67	321.78 ± 18.87

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.14 Total anthocyanins average data of 2005 Merlot and 2004 Cabernet Sauvignon; Total phenol average data of 2004 Shiraz.

Treatment	Total Anthocyanins - 2005 Merlot		Total Anthocyanins - 2004 Cab Sauv		Total Phenols - 2004 Shiraz				
	End Fermentation (mg/L)	After MLF (mg/L)	Middle Fermentation (mg/L)	End Fermentation (mg/L)	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)
Lafase Grand Cru 30	607.69 ± 42.20	342.15 ± 41.24	355.83 ± 28.34	347.11 ± 19.33	43.80 ± 0.46*	42.93 ± 2.93	39.36 ± 2.84	35.00 ± 1.02	36.37 ± 0.56
Lafase Grand Cru 50	576.13 ± 23.71*	334.60 ± 5.92	367.21 ± 14.23	350.41 ± 18.27	44.88 ± 1.60*	46.83 ± 0.42*	44.91 ± 3.31	35.71 ± 2.67	39.12 ± 1.50*
Tanenol Rouge 100	555.63 ± 30.67*	355.37 ± 41.79	381.21 ± 18.57	327.31 ± 7.84	42.89 ± 1.30	44.61 ± 0.31	52.77 ± 0.07*	34.91 ± 2.88	36.84 ± 1.90
Tanenol Rouge 300	522.67 ± 39.43*	309.78 ± 25.56	367.21 ± 5.96	325.38 ± 5.78	45.82 ± 1.72*	45.32 ± 1.88*	56.46 ± 0.43*	36.94 ± 1.62	38.54 ± 1.69*
Oenotan 100	564.64 ± 19.22*	326.84 ± 13.93	394.33 ± 29.31	337.46 ± 13.39	44.20 ± 2.42*	44.00 ± 3.11	52.72 ± 0.71*	33.63 ± 0.96	35.59 ± 0.43
Oenotan 300	532.20 ± 56.46*	315.41 ± 33.65	396.38 ± 19.07	345.74 ± 28.01	49.12 ± 2.53*	44.98 ± 2.53	42.87 ± 4.93	35.62 ± 1.11	36.36 ± 0.62
QCTN 100	556.76 ± 15.88*	332.09 ± 9.89	375.08 ± 22.16	333.23 ± 17.70	45.01 ± 1.50*	40.84 ± 0.96	40.96 ± 3.07	34.33 ± 1.64	35.14 ± 1.22
QCTN 300	571.05 ± 38.32*	318.50 ± 20.19	369.25 ± 16.09	329.50 ± 28.03	48.14 ± 0.59*	44.57 ± 1.45	41.58 ± 3.31	35.71 ± 1.04	37.43 ± 1.18
Tanin VR Supra 300	651.88 ± 39.85	326.73 ± 29.29	357.88 ± 22.50	349.71 ± 8.93	44.64 ± 1.29*	43.09 ± 1.67	37.42 ± 2.07	35.65 ± 0.76	36.47 ± 1.14
Tanin VR Supra 500	688.51 ± 54.59	303.80 ± 8.67	382.96 ± 9.19	349.85 ± 23.45	47.00 ± 1.98*	44.20 ± 2.60	46.01 ± 2.64	37.86 ± 2.20*	37.46 ± 2.13
Tanin VR Supra 1000	684.92 ± 58.20	285.89 ± 33.81	389.08 ± 14.75	345.48 ± 23.61	55.79 ± 1.22*	51.88 ± 3.47*	48.24 ± 4.94*	40.96 ± 0.70*	41.83 ± 0.57*
Tanin VR Supra NF 300	560.09 ± 6.19*	311.53 ± 33.17	317.63 ± 26.78	313.31 ± 19.91	44.41 ± 1.11*	40.70 ± 3.13	39.66 ± 1.03	35.31 ± 1.71	33.42 ± 2.01
Tanin VR Supra NF 500	516.38 ± 22.58*	296.39 ± 14.83	381.50 ± 8.66	380.89 ± 5.82	46.73 ± 0.65*	42.89 ± 1.14	42.89 ± 2.03	34.67 ± 1.68	35.70 ± 0.56
Tanin VR Supra NF 1000	673.58 ± 38.96	299.60 ± 10.16	319.38 ± 11.14	312.03 ± 43.14	50.53 ± 0.91*	47.54 ± 2.57*	42.96 ± 5.51	39.08 ± 0.83*	40.14 ± 2.57*
Control	729.07 ± 40.80	319.31 ± 26.68	352.84 ± 4.48	344.86 ± 19.01	39.21 ± 1.06	37.98 ± 1.42	38.23 ± 1.28	32.71 ± 0.40	33.57 ± 1.80

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.15 Total phenol average data of 2005 Shiraz, 2004 Merlot, 2005 Merlot and 2004 Cabernet Sauvignon.

Treatment	Total Phenols - 2005 Shiraz		Total Phenols - 2004 Merlot		Total Phenols - 2005 Merlot		Total Phenols - 2004 Cab Sauv	
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)
Lafase Grand Cru 30	57.69 ± 2.97	50.34 ± 1.88	31.85 ± 1.27	31.79 ± 0.87	37.85 ± 2.47	41.02 ± 2.74	27.03 ± 0.91	23.48 ± 1.48
Lafase Grand Cru 50	57.34 ± 1.92	51.03 ± 2.73	33.46 ± 0.62	32.88 ± 0.21	43.63 ± 1.28	40.56 ± 1.18	25.45 ± 0.96	24.49 ± 1.23
Tanenol Rouge 100	58.60 ± 4.73	49.75 ± 3.01	31.95 ± 0.82	30.25 ± 0.94	45.26 ± 2.72	38.86 ± 3.28	26.73 ± 0.56	25.37 ± 1.17
Tanenol Rouge 300	59.93 ± 4.42	55.56 ± 1.50	37.07 ± 3.28	32.87 ± 1.61	41.05 ± 1.24	40.69 ± 2.15	30.23 ± 1.43*	27.54 ± 1.05
Oenotan 100	56.53 ± 1.58	49.55 ± 1.57	33.53 ± 1.49	30.94 ± 1.73	39.94 ± 0.47	38.76 ± 1.27	27.44 ± 0.71	24.77 ± 0.69
Oenotan 300	59.56 ± 3.09	50.06 ± 2.59	34.88 ± 0.65	32.64 ± 2.30	38.23 ± 0.54	38.26 ± 2.50	28.85 ± 0.94	26.67 ± 0.90
QCTN 100	58.32 ± 4.41	51.43 ± 5.30	33.80 ± 0.31	31.31 ± 1.05	40.96 ± 1.28	39.87 ± 3.32	26.87 ± 0.10	24.65 ± 1.67
QCTN 300	57.97 ± 1.71	50.24 ± 3.17	37.84 ± 0.46	36.10 ± 1.16	42.78 ± 2.44	43.10 ± 1.94	28.82 ± 2.08	24.92 ± 2.35
Tanin VR Supra 300	55.07 ± 4.28	51.62 ± 4.15	37.24 ± 1.38	34.48 ± 0.29	44.27 ± 4.43	39.82 ± 4.42	27.78 ± 0.87	25.68 ± 1.45
Tanin VR Supra 500	59.72 ± 4.35	51.42 ± 1.36	41.65 ± 4.32	37.22 ± 2.13	49.11 ± 3.15*	43.14 ± 3.53	28.01 ± 2.01	27.82 ± 2.26
Tanin VR Supra 1000	63.21 ± 7.31	57.11 ± 1.52	45.92 ± 5.46*	43.33 ± 2.09*	52.31 ± 2.79*	45.50 ± 3.89	34.64 ± 0.80*	29.40 ± 2.55
Tanin VR Supra NF 300	52.90 ± 0.93	49.93 ± 2.10	38.21 ± 1.21	36.40 ± 0.61	47.02 ± 0.89	41.46 ± 1.35	25.42 ± 2.00	23.86 ± 1.82
Tanin VR Supra NF 500	55.94 ± 4.89	51.85 ± 3.40	41.41 ± 8.00	37.78 ± 2.58	47.98 ± 1.25	42.35 ± 1.56	30.60 ± 2.84*	29.29 ± 0.21
Tanin VR Supra NF 1000	62.91 ± 4.23	59.21 ± 3.26	44.27 ± 2.24	40.68 ± 4.18*	50.42 ± 0.81*	44.79 ± 2.31	33.08 ± 0.50*	25.06 ± 0.06
Control	56.36 ± 2.36	51.46 ± 3.05	36.03 ± 3.64	32.51 ± 1.55	41.39 ± 3.06	38.25 ± 2.67	25.73 ± 0.82	25.02 ± 1.36

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.16 Total tannin average data of 2004 Shiraz, 2005 Shiraz and 2004 Merlot.

Treatment	Total Tannins - 2004 Shiraz				Total Tannins - 2005 Shiraz		Total Tannins - 2004 Merlot	
	Middle Fermentation (g/L)	After MLF (g/L)	6 Months Maturation (g/L)	Year of Maturation (g/L)	End Fermentation (g/L)	After MLF (g/L)	Middle Fermentation (g/L)	End Fermentation (g/L)
Lafase Grand Cru 30	4.64 ± 0.36	1.64 ± 0.26	1.29 ± 0.11	0.78 ± 0.05	1.32 ± 0.08*	1.36 ± 0.05	3.05 ± 0.08	1.62 ± 0.16
Lafase Grand Cru 50	2.24 ± 0.22	2.23 ± 0.15	1.34 ± 0.20	0.78 ± 0.07	1.46 ± 0.11	1.50 ± 0.20	3.34 ± 0.07	2.12 ± 0.19*
Tanenol Rouge 100	1.97 ± 0.10	2.12 ± 0.15	1.10 ± 0.03	0.54 ± 0.12	1.32 ± 0.11*	1.31 ± 0.12	3.31 ± 0.22	1.44 ± 0.17
Tanenol Rouge 300	2.65 ± 0.01	1.85 ± 0.09	1.33 ± 0.04	0.66 ± 0.01	1.43 ± 0.05	1.44 ± 0.09	3.13 ± 0.14	1.53 ± 0.05
Oenotan 100	4.30 ± 0.21	1.80 ± 0.18	1.06 ± 0.24	0.84 ± 0.06	1.35 ± 0.08*	1.35 ± 0.16	3.36 ± 0.18	1.38 ± 0.15
Oenotan 300	2.84 ± 0.10	1.95 ± 0.38	1.29 ± 0.20	0.69 ± 0.05	1.36 ± 0.10*	1.48 ± 0.31	3.11 ± 0.02	1.40 ± 0.16
QCTN 100	2.56 ± 0.32	2.10 ± 0.12	0.88 ± 0.00	0.80 ± 0.04	1.40 ± 0.13	1.52 ± 0.20	2.98 ± 0.09	1.39 ± 0.07
QCTN 300	2.73 ± 0.08	1.55 ± 0.03	1.35 ± 0.11	0.73 ± 0.05	1.25 ± 0.05*	1.29 ± 0.02	3.45 ± 0.01	1.53 ± 0.17
Tanin VR Supra 300	2.82 ± 0.13	2.16 ± 0.17	1.23 ± 0.06	0.99 ± 0.09	1.99 ± 0.03	1.37 ± 0.20	3.31 ± 0.07	1.62 ± 0.05
Tanin VR Supra 500	5.73 ± 0.27	1.58 ± 0.16	1.50 ± 0.52	1.05 ± 0.08	2.04 ± 0.08	1.47 ± 0.06	3.33 ± 0.15	1.56 ± 0.01
Tanin VR Supra 1000	2.97 ± 0.28	1.82 ± 0.18	1.22 ± 0.06	1.17 ± 0.10*	1.87 ± 0.20	1.53 ± 0.20	3.86 ± 0.19*	1.88 ± 0.19*
Tanin VR Supra NF 300	2.77 ± 0.13	1.44 ± 0.09	1.17 ± 0.03	0.90 ± 0.10	1.64 ± 0.14	1.07 ± 0.13	3.46 ± 0.05	1.65 ± 0.20
Tanin VR Supra NF 500	4.45	1.65 ± 0.15	1.19 ± 0.08	0.84 ± 0.10	1.70 ± 0.08	1.55 ± 0.25	3.56 ± 0.30*	1.61 ± 0.11
Tanin VR Supra NF 1000	3.06 ± 0.07	1.41 ± 0.38	1.53 ± 0.10	1.25 ± 0.09*	1.81 ± 0.15	1.53 ± 0.03	3.81 ± 0.22*	1.51 ± 0.11
Control	2.49 ± 0.13	1.76 ± 0.09	0.94 ± 0.05	0.82 ± 0.10	1.72 ± 0.09	1.36 ± 0.19	3.07 ± 0.09	1.45 ± 0.08

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.17 Total tannin average data of 2005 Merlot and 2004 Cabernet Sauvignon; Gelatine index average data of 2004 Shiraz.

Treatment	Total Tannins - 2005 Merlot		Total Tannins - 2004 Cab Sauv		Gelatine Index - 2004 Shiraz				
	End Fermentation (g/L)	After MLF (g/L)	Middle Fermentation (g/L)	End Fermentation (g/L)	Middle Fermentation (AU)	End Fermentation (AU)	After MLF (AU)	6 Months Maturation (AU)	Year of Maturation (AU)
Lafase Grand Cru 30	1.50 ± 0.36	1.31 ± 0.06	1.53 ± 0.14	1.13 ± 0.34*	29.52 ± 1.08	54.9 ± 00.93	53.79 ± 1.32	46.56 ± 2.02	33.26 ± 2.21
Lafase Grand Cru 50	1.62 ± 0.16	1.28 ± 0.05	1.35 ± 0.11	1.48 ± 0.03	26.45 ± 1.00	84.43 ± 3.70	40.56 ± 5.77	47.59 ± 8.30	33.43 ± 1.07
Taninol Rouge 100	1.37 ± 0.06	1.23 ± 0.03	1.36 ± 0.10	0.76 ± 0.07*	29.61 ± 2.02	24.56 ± 2.98	37.90 ± 8.43	29.52 ± 4.50	26.01 ± 0.01
Taninol Rouge 300	1.43 ± 0.07	1.22 ± 0.15	1.31 ± 0.05	0.91 ± 0.02*	28.47 ± 2.74	77.53	53.15 ± 5.80	42.57 ± 2.70	19.55 ± 4.65
Oenotan 100	1.33 ± 0.09	1.25 ± 0.03	0.94 ± 0.11*	0.82 ± 0.02*	11.90 ± 6.55	67.93 ± 9.99	43.75 ± 7.50	44.61 ± 2.34	36.04 ± 2.83
Oenotan 300	1.30 ± 0.02	1.09 ± 0.07	1.17 ± 0.10	0.87 ± 0.14*	7.34 ± 4.18	52.12 ± 29.63	65.13 ± 12.37	37.60 ± 0.44	21.30 ± 5.31
QCTN 100	1.35 ± 0.07	1.25 ± 0.14	1.11 ± 0.04*	0.92 ± 0.01*	13.74 ± 1.33	115.81 ± 53.40	82.28 ± 62.72	54.63 ± 4.56*	23.58 ± 0.03
QCTN 300	1.56 ± 0.02	1.32 ± 0.03	1.14 ± 0.05	0.89 ± 0.04*	23.68 ± 1.06	44.04 ± 0.91	36.19 ± 1.85	35.24 ± 2.57	28.33 ± 5.18
Tanin VR Supra 300	1.38 ± 0.09	1.15 ± 0.12	2.07 ± 0.38	0.70 ± 0.22*	38.42 ± 6.38	94.84 ± 5.75	34.15 ± 11.53	24.33 ± 5.43	25.32 ± 3.34
Tanin VR Supra 500	1.76 ± 0.19	1.34 ± 0.12	1.43 ± 0.16	0.86 ± 0.01*	13.02 ± 3.92	82.76 ± 8.92	31.65 ± 4.01	49.17 ± 3.19*	35.88 ± 8.93
Tanin VR Supra 1000	1.56 ± 0.13	1.48 ± 0.16	2.55 ± 0.08*	1.26 ± 0.10	17.05	83.83 ± 13.36	37.65 ± 3.61	32.48 ± 3.31	33.60 ± 0.54
Tanin VR Supra NF 300	1.36 ± 0.18	1.18 ± 0.14	1.68 ± 0.20	0.86 ± 0.02*	26.35 ± 0.93	226.19 ± 144.79	41.68 ± 1.23	53.75 ± 3.52*	29.93 ± 0.94
Tanin VR Supra NF 500	1.48 ± 0.04	1.31 ± 0.11	1.89 ± 0.13	1.13 ± 0.30*	36.62 ± 4.14	56.95 ± 12.27	31.00 ± 12.73	32.18 ± 3.97	32.33 ± 3.78
Tanin VR Supra NF 1000	1.88 ± 0.15*	1.44 ± 0.11	2.35 ± 0.24*	1.23 ± 0.29	34.76 ± 6.64	67.51 ± 2.26	46.36 ± 4.69	42.41 ± 2.21	35.37 ± 3.33
Control	1.30 ± 0.11	1.17 ± 0.10	1.70 ± 0.07	1.86 ± 0.27	19.97 ± 16.31	91.48 ± 17.30	59.60 ± 26.78	32.73 ± 4.09	29.71 ± 1.86

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units; Cab Sauv Cabernet Sauvignon)

Table 6.18 Gelatine index average data of 2005 Shiraz, 2004 Merlot and 2005 Merlot.

Treatment	Gelatine Index - 2005 Shiraz		Gelatine Index - 2004 Merlot		Gelatine Index - 2005 Merlot	
	End Fermentation (AU)	After MLF (AU)	Middle Fermentation (AU)	End Fermentation (AU)	End Fermentation (AU)	After MLF (AU)
Lafase Grand Cru 30	60.61 ± 8.92	62.92 ± 7.46	21.58 ± 17.92	74.064.46	77.06 ± 4.92*	53.35 ± 5.23
Lafase Grand Cru 50	61.76 ± 10.01	51.26 ± 2.96	28.23 ± 9.61	45.30 ± 0.66	66.02 ± 4.52	50.69 ± 1.16
Taninol Rouge 100	65.14 ± 1.41	55.81 ± 3.77	31.94 ± 1.18	75.55 ± 11.85	63.07 ± 6.24	48.36 ± 1.75
Taninol Rouge 300	67.94 ± 5.32	58.19 ± 2.77	159.91 ± 199.43	66.43 ± 0.33	77.36 ± 11.22*	54.83 ± 1.20
Oenotan 100	61.55 ± 11.24	59.16 ± 0.79	31.87 ± 0.26	67.29 ± 1.73	82.44 ± 6.05*	46.42 ± 3.64
Oenotan 300	67.19 ± 23.88	58.23 ± 4.63	25.38 ± 16.70	72.98 ± 8.14	81.54 ± 9.06*	49.86 ± 3.05
QCTN 100	66.70 ± 5.43	59.67 ± 8.13	25.38 ± 3.76	50.91 ± 0.05	72.96 ± 8.49*	52.32 ± 3.78
QCTN 300	61.29 ± 0.02	74.43 ± 4.03	27.17 ± 5.44	48.21 ± 19.81	77.28 ± 6.48*	46.95 ± 2.28
Tanin VR Supra 300	58.94 ± 6.58	51.87 ± 4.16	27.76 ± 10.58	64.33 ± 6.87	47.61 ± 8.48	48.93 ± 4.05
Tanin VR Supra 500	62.03 ± 3.90	48.98 ± 2.69	123.09 ± 169.53	59.55 ± 20.46	49.69 ± 1.47	53.44 ± 4.69
Tanin VR Supra 1000	54.57 ± 2.44	57.71 ± 5.50	25.71 ± 2.37	79.78 ± 9.31	16.16 ± 2.37	26.66 ± 4.48*
Tanin VR Supra NF 300	41.94 ± 6.41	56.45 ± 4.09	20.87 ± 9.77	76.69 ± 7.40	43.35 ± 1.57	48.15 ± 3.31
Tanin VR Supra NF 500	57.31 ± 2.78	56.95 ± 8.16	205.22 ± 104.65	65.52 ± 7.84	49.70 ± 7.47	43.94 ± 5.58
Tanin VR Supra NF 1000	59.85 ± 7.01	59.19 ± 3.05	33.96	69.48 ± 6.18	47.92 ± 7.38	51.73 ± 10.90
Control	54.13 ± 7.26	57.03 ± 8.89	36.54	60.86 ± 1.68	39.12 ± 13.48	52.00 ± 13.61

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L; AU absorbance units)

Table 6.19 Non-flavonoid concentrations which consist of benzoic acids (gallic acid and unknown benzoic acids) and cinnamic acids (caftaric acid, caffeic acid, *p*-coumaric acid and unknown cinnamic acids) of 2004 Shiraz at the end of fermentation.

2004 Shiraz – End Fermentation									
Treatment	Non Flavonoids (mg/L)	Benzoic acid (mg/L)	Gallic acid (mg/L)	Unknown Benzoic acids (mg/L)	Cinnamic acids (mg/L)	Caftaric acid (mg/L)	Caffeic acid (mg/L)	<i>p</i> -Coumaric acid (mg/L)	Unknown Cinnamic acids (mg/L)
Lafase Grand Cru 30	60.91 ± 6.65*	37.39 ± 5.66*	13.48 ± 1.91*	23.92 ± 5.14*	23.52 ± 1.07	11.32 ± 0.69	6.62 ± 0.42	1.43 ± 0.12	4.14 ± 0.42
Lafase Grand Cru 50	63.01 ± 2.94*	37.70 ± 1.11*	14.09 ± 1.06*	23.60 ± 0.30*	25.32 ± 1.88*	12.16 ± 1.05*	7.50 ± 0.63*	1.58 ± 0.04*	4.08 ± 0.21
Tanenol Rouge 100	56.44 ± 4.05	36.03 ± 2.28*	18.70 ± 0.74*	17.33 ± 1.57	20.41 ± 1.93	9.74 ± 1.08	5.91 ± 0.61	1.27 ± 0.03	3.49 ± 0.23
Tanenol Rouge 300	67.41 ± 2.22*	46.50 ± 0.65*	29.50 ± 0.45*	17.00 ± 0.94	20.92 ± 1.63	10.13 ± 0.87	6.04 ± 0.57	1.23 ± 0.08	3.51 ± 0.16
Oenotan 100	52.19 ± 1.88	30.81 ± 0.48	12.99 ± 0.15*	17.82 ± 0.40	21.37 ± 1.55	10.38 ± 0.80	6.13 ± 0.49	1.30 ± 0.08	3.56 ± 0.23
Oenotan 300	52.84 ± 1.19	31.03 ± 0.60	14.33 ± 0.24*	16.70 ± 0.37	21.82 ± 0.60	10.66 ± 0.26	6.18 ± 0.20	1.30 ± 0.01	3.68 ± 0.13
QCTN 100	55.57 ± 0.84	34.99 ± 1.21*	18.29 ± 1.08*	16.70 ± 0.14	20.58 ± 1.96	10.01 ± 1.16	5.83 ± 0.62	1.28 ± 0.10	3.46 ± 0.10
QCTN 300	66.80 ± 1.91*	46.64 ± 1.54*	31.14 ± 0.59*	15.51 ± 0.97	20.15 ± 1.26	10.15 ± 0.51	5.90 ± 0.43	1.20 ± 0.04	2.91 ± 0.85*
Tanin VR Supra 300	53.33 ± 1.65	32.28 ± 1.14	15.52 ± 0.27*	16.76 ± 1.40	21.04 ± 0.57	9.98 ± 0.29	6.06 ± 0.23	1.36 ± 0.07	3.65 ± 0.07
Tanin VR Supra 500	50.82 ± 2.02	31.48 ± 1.73	15.90 ± 1.18*	15.58 ± 0.64	19.34 ± 0.33	9.15 ± 0.20	5.50 ± 0.08	1.19 ± 0.09	3.49 ± 0.08
Tanin VR Supra 1000	55.60 ± 1.36	34.27 ± 1.28*	20.25 ± 0.97*	14.02 ± 0.45	21.33 ± 1.85	10.33 ± 1.13	6.02 ± 0.63	1.22 ± 0.04	3.76 ± 0.12
Tanin VR Supra NF 300	48.37 ± 1.45	28.98 ± 1.84	12.67 ± 0.50	16.31 ± 1.40	19.39 ± 0.42	9.26 ± 0.24	5.57 ± 0.18	1.23 ± 0.01	3.74 ± 0.13
Tanin VR Supra NF 500	50.3	28.38	13.14	15.24	21.92	10.36	6.36	1.22	3.99
Tanin VR Supra NF 1000	49.65 ± 1.34	29.45 ± 0.41	14.96 ± 0.14*	14.49 ± 0.30	20.21 ± 0.93	9.57 ± 0.45	5.65 ± 0.40	1.14 ± 0.02	3.85 ± 0.08
Control	48.64 ± 1.62	27.52 ± 0.81	10.46 ± 0.04	17.06 ± 0.81	21.12 ± 0.82	9.74 ± 0.44	6.01 ± 0.36	1.25 ± 0.01	4.12 ± 0.10

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.20 Non-flavonoid concentrations which consist of benzoic acids (gallic acid and unknown benzoic acids) and cinnamic acids (caftaric acid, caffeic acid, *p*-coumaric acid and unknown cinnamic acids) of 2004 Shiraz after a year of maturation.

2004 Shiraz – After a year of maturation									
Treatment	Non Flavonoids (mg/L)	Benzoic acid (mg/L)	Gallic acid (mg/L)	Unknown Benzoic acids (mg/L)	Cinnamic acids (mg/L)	Caftaric acid (mg/L)	Caffeic acid (mg/L)	<i>p</i> -Coumaric acid (mg/L)	Unknown Cinnamic acids (mg/L)
Lafase Grand Cru 30	58.61 ± 1.70	31.29 ± 0.50	17.98 ± 0.57	13.31 ± 0.46	27.32 ± 1.29	10.89 ± 0.95	7.53 ± 0.49	1.61 ± 0.02	7.28 ± 0.36*
Lafase Grand Cru 50	61.25 ± 5.56*	33.22 ± 0.94	19.53 ± 1.18*	13.69 ± 0.24	28.03 ± 4.75	12.57 ± 0.98	7.89 ± 0.83	1.90 ± 0.06*	8.31 ± 0.26*
Tanenol Rouge 100	62.31 ± 3.87*	39.34 ± 2.01*	27.10 ± 1.54*	12.24 ± 0.80	22.97 ± 2.17	10.06 ± 1.18	6.41 ± 0.71	1.19 ± 0.07	5.32 ± 0.26
Tanenol Rouge 300	73.69 ± 5.19*	50.41 ± 3.14*	42.34 ± 1.22*	8.07 ± 4.24*	23.28 ± 2.05	10.64 ± 0.97	6.13 ± 1.01	1.18 ± 0.03	5.33 ± 0.17
Oenotan 100	44.43 ± 2.91	24.48 ± 0.46	18.97 ± 0.46*	5.50 ± 0.08*	19.95 ± 2.92	8.87 ± 1.81	5.02 ± 0.92*	1.16 ± 0.04	4.90 ± 0.23
Oenotan 300	47.32 ± 2.26	26.08 ± 0.62	20.59 ± 0.65*	5.50 ± 0.06*	21.24 ± 1.65	9.36 ± 1.07	5.16 ± 0.52	1.19 ± 0.03	5.54 ± 0.49
QCTN 100	56.25 ± 5.93	33.76 ± 3.01*	25.00 ± 2.40*	8.77 ± 4.66	22.49 ± 3.05	10.17 ± 1.42	5.74 ± 0.99	1.47 ± 0.51	5.12 ± 0.62
QCTN 300	74.32 ± 2.35*	51.23 ± 1.53*	38.30 ± 1.34*	12.92 ± 0.50	23.09 ± 1.03	10.04 ± 0.80	6.94 ± 0.43	1.22 ± 0.00	4.89 ± 0.21
Tanin VR Supra 300	50.99 ± 4.94	33.04 ± 2.08	20.69 ± 1.79*	12.35 ± 0.43	17.95 ± 3.42	10.15 ± 1.15	2.28 ± 1.93*	1.33 ± 0.40	4.95 ± 0.08
Tanin VR Supra 500	57.37 ± 0.53	36.23 ± 0.41*	23.40 ± 0.17*	12.83 ± 0.44	21.14 ± 0.93	9.69 ± 0.16	5.54 ± 0.24	1.22 ± 0.01	5.10 ± 0.11
Tanin VR Supra 1000	63.31 ± 1.44*	40.73 ± 0.74*	29.03 ± 0.70*	11.69 ± 0.14	22.59 ± 1.53	7.56 ± 0.89	7.99 ± 0.82	1.36 ± 0.03	5.68 ± 0.31
Tanin VR Supra NF 300	55.92 ± 2.15	30.21 ± 1.13	17.35 ± 0.85	12.86 ± 0.32	25.72 ± 1.83	10.09 ± 0.12	6.74 ± 0.63	1.20 ± 0.13	7.68 ± 1.48*
Tanin VR Supra NF 500	54.60 ± 2.81	31.64 ± 0.76	19.12 ± 0.21*	12.52 ± 0.71	22.96 ± 2.28	8.63 ± 2.09	7.33 ± 0.81	1.24 ± 0.05	5.76 ± 0.98
Tanin VR Supra NF 1000	56.62 ± 1.18	34.15 ± 0.25*	22.39 ± 0.82*	11.76 ± 0.63	22.46 ± 1.10	6.00 ± 0.64	8.65 ± 0.68	1.28 ± 0.06	6.53 ± 0.56*
Control	49.43 ± 5.53	28.70 ± 1.59	15.06 ± 0.59	13.64 ± 1.07	20.73 ± 3.97	7.72 ± 4.56	7.83 ± 1.35	1.06 ± 0.07	4.12 ± 0.68

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.21 Non-flavonoid concentrations which consist of benzoic acids (gallic acid, salicylic acid and unknown benzoic acids) and cinnamic acids (caftaric acid, caffeic acid, *p*-coumaric acid and unknown cinnamic acids) of 2005 Shiraz at the end of fermentation.

2005 Shiraz – End Fermentation										
Treatment	Non Flavonoids (mg/L)	Benzoic acid (mg/L)	Gallic acid (mg/L)	Salicylic acid (mg/L)	Unknown Benzoic acids (mg/L)	Cinnamic acids (mg/L)	Caftaric acid (mg/L)	Caffeic acid (mg/L)	<i>p</i> -Coumaric acid (mg/L)	Unknown Cinnamic acids (mg/L)
Lafase Grand Cru 30	82.82 ± 4.22	42.14 ± 2.15	17.75 ± 0.71	7.15 ± 0.32	17.25 ± 1.12*	40.68 ± 2.19	19.32 ± 1.09	11.20 ± 0.79	2.00 ± 0.11	8.16 ± 0.23
Lafase Grand Cru 50	82.79 ± 1.12	41.31 ± 0.67*	17.46 ± 0.95	6.79 ± 0.38	17.05 ± 0.62*	41.48 ± 1.38	19.79 ± 0.77	11.61 ± 0.79	1.95 ± 0.13	8.13 ± 0.19
Tanénol Rouge 100	86.41 ± 4.10	46.14 ± 1.06	24.69 ± 0.79*	6.10 ± 0.56	15.35 ± 0.72*	40.27 ± 3.53	19.07 ± 2.06	10.63 ± 1.44	1.96 ± 0.03	8.61 ± 0.09
Tanénol Rouge 300	101.37 ± 2.6*	60.05 ± 1.59*	37.93 ± 1.46*	6.81 ± 0.30	15.32 ± 0.14*	41.32 ± 1.35	19.67 ± 0.42	11.22 ± 0.74	1.93 ± 0.06	8.50 ± 0.21
Oenotan 100	86.74 ± 3.17	41.47 ± 2.09*	18.28 ± 0.91	6.81 ± 0.66	16.37 ± 0.59*	45.27 ± 1.24	21.40 ± 0.33	12.87 ± 0.83	2.03 ± 0.13	8.97 ± 0.58
Oenotan 300	80.19 ± 3.57	40.00 ± 1.12*	18.85 ± 0.36	6.90 ± 0.53	14.25 ± 0.26*	40.19 ± 2.45	18.66 ± 1.42	10.90 ± 0.91	2.00 ± 0.13	8.64 ± 0.01
QCTN 100	85.20 ± 2.85	46.59 ± 1.89	23.93 ± 0.59*	7.24 ± 0.48	15.42 ± 1.42*	38.61 ± 1.12	18.34 ± 0.41	10.10 ± 0.39	1.97 ± 0.05	8.20 ± 0.31
QCTN 300	96.74 ± 5.05	55.92 ± 1.32*	34.22 ± 0.18*	6.51 ± 0.60	15.20 ± 0.64*	40.82 ± 3.73	19.51 ± 1.80	11.27 ± 1.80	1.91 ± 0.07	8.13 ± 0.17
Tanin VR Supra 300	85.90 ± 2.93	46.98 ± 2.70	19.46 ± 0.17	5.82 ± 0.38	21.70 ± 2.47	38.92 ± 0.26	18.68 ± 0.09	10.69 ± 0.11	1.67 ± 0.05	7.88 ± 0.15
Tanin VR Supra 500	95.91 ± 2.13	49.66 ± 1.51	21.31 ± 0.21*	6.67 ± 0.24	21.68 ± 1.65	46.25 ± 2.20	22.40 ± 1.32	13.24 ± 0.77	1.85 ± 0.07	8.76 ± 0.44
Tanin VR Supra 1000	98.37 ± 10.7	51.85 ± 3.76	24.81 ± 1.68*	6.11 ± 0.70	20.93 ± 1.45	46.52 ± 6.98	22.81 ± 3.69	13.20 ± 2.43	1.83 ± 0.16	8.67 ± 0.80
Tanin VR Supra NF 300	80.24 ± 0.74	42.05 ± 1.54	17.10 ± 0.37	5.32 ± 0.34	19.63 ± 0.85*	38.19 ± 1.29	18.43 ± 0.65	10.56 ± 0.72	1.54 ± 0.05	7.66 ± 0.16
Tanin VR Supra NF 500	87.58 ± 2.51	45.71 ± 1.26	18.49 ± 0.34	6.01 ± 0.58	21.21 ± 0.55	41.87 ± 2.50	20.12 ± 1.02	11.54 ± 1.15	1.73 ± 0.09	8.47 ± 0.58
Tanin VR Supra NF 1000	86.50 ± 2.34	45.22 ± 1.10	19.92 ± 0.31*	5.87 ± 0.44	19.44 ± 1.23*	41.28 ± 2.52	20.20 ± 1.27	11.61 ± 1.20	1.60 ± 0.05	7.87 ± 0.13
Control	86.94 ± 1.92	47.17 ± 1.47	17.49 ± 0.46	6.62 ± 0.45	23.06 ± 1.08	39.77 ± 2.08	19.18 ± 1.39	10.85 ± 0.78	1.77 ± 0.05	7.96 ± 0.08

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.22 Non-flavonoid concentrations which consist of benzoic acids (gallic acid, ellagic acid and unknown benzoic acids) and cinnamic acids (caftaric acid, caffeic acid and unknown cinnamic acids) of 2005 Merlot at the end of fermentation.

2005 Merlot – End Fermentation										
Treatment	Non Flavonoids (mg/L)	Benzoic acid (mg/L)	Gallic acid (mg/L)	Ellagic acid (mg/L)	Unknown Benzoic acids (mg/L)	Cinnamic acids (mg/L)	Caftaric acid (mg/L)	Caffeic acid (mg/L)	Unknown Cinnamic acids (mg/L)	
Lafase Grand Cru 30	48.07 ± 8.10	25.66 ± 4.98	14.04 ± 3.22	5.25 ± 0.68	6.37 ± 1.18*	22.41 ± 3.12	13.44 ± 1.67	3.64 ± 0.48	5.34 ± 1.18	
Lafase Grand Cru 50	46.99 ± 1.31	25.34 ± 0.31	14.24 ± 0.21	5.06 ± 0.59	6.03 ± 0.56*	21.65 ± 1.39	12.74 ± 0.85	3.23 ± 0.12	5.68 ± 0.43	
Tanénol Rouge 100	52.64 ± 2.92	29.14 ± 1.54	17.66 ± 0.80*	5.62 ± 0.26	5.87 ± 0.71*	23.50 ± 1.62	13.27 ± 1.20	3.68 ± 0.33	6.54 ± 0.14*	
Tanénol Rouge 300	59.32 ± 3.62	36.57 ± 1.02*	26.06 ± 0.41*	5.54 ± 0.20	4.97 ± 0.54*	22.75 ± 2.71	13.15 ± 1.72	3.60 ± 0.50	6.00 ± 0.49	
Oenotan 100	46.25 ± 2.03	23.81 ± 0.89	12.54 ± 0.44	5.89 ± 0.20	5.38 ± 0.42*	22.45 ± 1.15	12.79 ± 0.84	3.50 ± 0.33	6.16 ± 0.10	
Oenotan 300	40.24 ± 1.79	18.64 ± 2.14*	12.44 ± 1.57	6.20 ± 0.57	Not detected	21.60 ± 0.35	12.99 ± 0.15	3.30 ± 0.26	5.31 ± 0.21	
QCTN 100	53.59 ± 5.81	29.56 ± 1.89	18.25 ± 1.49*	6.18 ± 0.39	5.13 ± 0.54*	24.04 ± 3.94	13.04 ± 1.11	4.46 ± 1.84	6.54 ± 1.21	
QCTN 300	65.06 ± 3.55*	42.19 ± 2.78*	29.90 ± 1.06*	7.45 ± 0.68*	4.84 ± 1.03*	22.86 ± 0.77	13.26 ± 0.36	3.62 ± 0.12	5.99 ± 0.30	
Tanin VR Supra 300	50.67 ± 4.93	27.97 ± 2.43	15.20 ± 1.14	5.47 ± 0.56	7.29 ± 0.79	22.70 ± 2.51	13.56 ± 1.64	3.47 ± 0.57	5.66 ± 0.34	
Tanin VR Supra 500	54.32 ± 5.78	31.77 ± 4.16	19.31 ± 2.89*	5.89 ± 0.79	6.57 ± 0.53*	22.55 ± 2.17	13.39 ± 1.45	3.28 ± 0.34	5.89 ± 0.39	
Tanin VR Supra 1000	54.27 ± 7.05	32.03 ± 5.34	20.36 ± 2.71*	5.76 ± 1.11	5.90 ± 1.66*	22.24 ± 1.86	13.25 ± 1.25	3.22 ± 0.31	5.77 ± 0.36	
Tanin VR Supra NF 300	43.61 ± 2.65	23.82 ± 2.59	13.27 ± 1.33	4.51 ± 0.51	6.04 ± 0.76*	19.79 ± 0.25	12.04 ± 0.34	3.29 ± 0.24	4.47 ± 0.43	
Tanin VR Supra NF 500	47.06 ± 1.48	25.79 ± 0.97	14.33 ± 1.20	4.80 ± 0.11	6.66 ± 0.90	21.27 ± 0.93	13.12 ± 0.59	3.58 ± 0.20	4.57 ± 0.14	
Tanin VR Supra NF 1000	49.28 ± 1.03	27.93 ± 0.61	16.03 ± 0.51	5.43 ± 0.07	6.47 ± 0.17	21.35 ± 0.43	13.45 ± 0.18	3.59 ± 0.18	4.31 ± 0.06	
Control	48.49 ± 3.41	27.29 ± 1.87	12.43 ± 0.67	5.04 ± 0.32	9.83 ± 2.33	21.20 ± 1.66	12.90 ± 0.88	3.39 ± 0.46	4.91 ± 0.40	

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.23 Non-flavonoid concentrations which consist of benzoic acids (gallic acid, unknown benzoic acids) and cinnamic acids (caftaric acid) of 2004 Cabernet Sauvignon at the end of fermentation.

2004 Cabernet Sauvignon – End Fermentation						
Treatment	Non Flavonoids (mg/L)	Benzoic acid (mg/L)	Gallic acid (mg/L)	Unknown Benzoic acids (mg/L)	Cinnamic acids (mg/L)	Caffeic acid (mg/L)
Lafase Grand Cru 30	25.82 ± 1.32	23.52 ± 1.43	14.75 ± 1.24	8.76 ± 0.22	2.30 ± 0.13	2.30 ± 0.13
Lafase Grand Cru 50	28.95 ± 0.29	26.56 ± 0.34	17.25 ± 0.39	9.31 ± 0.52	2.39 ± 0.18	2.39 ± 0.18
Tanenol Rouge 100	30.46 ± 3.34	28.50 ± 3.50	22.17 ± 1.66*	6.33 ± 5.16	1.96 ± 0.28	1.96 ± 0.28
Tanenol Rouge 300	47.31 ± 2.78*	45.29 ± 2.60*	35.61 ± 2.47*	9.67 ± 0.14	2.02 ± 0.26	2.02 ± 0.26
Oenotan 100	27.93 ± 1.39	25.89 ± 1.18	16.63 ± 1.02	9.26 ± 0.40	2.04 ± 0.48	2.04 ± 0.48
Oenotan 300	28.73 ± 1.41	26.64 ± 1.64	17.37 ± 1.28	9.27 ± 0.45	2.09 ± 0.35	2.09 ± 0.35
QCTN 100	32.82 ± 1.50*	30.67 ± 1.40*	21.38 ± 1.26	9.29 ± 0.17	2.16 ± 0.12	2.16 ± 0.12
QCTN 300	41.33 ± 3.27*	39.32 ± 3.22*	30.28 ± 2.57*	9.03 ± 0.68	2.01 ± 0.07	2.01 ± 0.07
Tanin VR Supra 300	29.27 ± 1.80	27.93 ± 0.80	19.03 ± 0.64	8.90 ± 0.17	2.01 ± 0.31	2.01 ± 0.31
Tanin VR Supra 500	32.86 ± 1.87*	30.68 ± 1.90*	21.40 ± 1.69	9.28 ± 0.22	2.18 ± 0.03	2.18 ± 0.03
Tanin VR Supra 1000	36.45 ± 1.23*	34.65 ± 1.33*	25.47 ± 1.17*	9.17 ± 0.16	1.80 ± 0.25	1.80 ± 0.25
Control	26.11 ± 2.70	24.02 ± 2.73	17.06 ± 2.43	9.28 ± 0.26	2.08 ± 0.18	2.08 ± 0.18

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.24 Flavonoid concentration which consist of flavonols (quercetin-3-glucoside, quercetin-3-rutinoside, quercetin and unknown flavonols), flavan-3-ols (catechin, epicatechin and oligomers) and anthocyanins of 2004 Shiraz at the end of fermentation.

2004 Shiraz – End Fermentation									
Treatment	Flavonoids (mg/L)	Flavonols (mg/L)	Quercetin-3- glucoside (mg/L)	Quercetin-3- rutinoside (mg/L)	Quercetin (mg/L)	Unknown Flavonols (mg/L)	Flavan-3-ols (mg/L)	Catechin (mg/L)	Epicatechin (mg/L)
Lafase Grand Cru 30	512.01 ± 43.2*	40.94 ± 3.49	21.91 ± 2.27	5.92 ± 0.29	4.69 ± 0.71*	8.41 ± 0.78	179.62 ± 10.9*	16.95 ± 2.05*	41.30 ± 3.68
Lafase Grand Cru 50	536.08 ± 27.9*	43.26 ± 6.31	22.15 ± 4.18	6.31 ± 0.20	5.11 ± 0.14*	9.69 ± 2.04*	192.37 ± 10.4*	17.48 ± 1.37*	37.70 ± 6.25
Tanenol Rouge 100	467.43 ± 24.47	29.48 ± 1.54	14.75 ± 1.31	5.09 ± 0.49	4.21 ± 0.25	5.43 ± 0.62	172.53 ± 7.17	14.83 ± 1.10	37.48 ± 2.50
Tanenol Rouge 300	458.01 ± 13.50	31.86 ± 3.82	16.41 ± 2.81	5.77 ± 0.20	4.13 ± 0.28	5.55 ± 1.46	166.08 ± 2.59	14.38 ± 0.10	31.80 ± 8.12
Oenotan 100	459.35 ± 9.34	31.07 ± 2.52	15.07 ± 2.03	5.93 ± 0.18	4.16 ± 0.25	5.91 ± 0.57	170.30 ± 1.31	14.58 ± 0.16	30.56 ± 2.56
Oenotan 300	457.04 ± 2.32	29.58 ± 0.59	14.54 ± 0.58	5.63 ± 0.18	3.91 ± 0.06	5.49 ± 0.15	169.27 ± 3.75	15.01 ± 0.55	25.82 ± 0.65
QCTN 100	451.77 ± 9.70	30.74 ± 5.51	15.75 ± 3.69	5.19 ± 0.88	3.96 ± 0.33	5.83 ± 1.56	163.45 ± 4.52	13.73 ± 1.10	28.55 ± 4.78
QCTN 300	444.59 ± 14.97	29.28 ± 1.74	14.38 ± 0.76	5.47 ± 0.65	3.98 ± 0.03	5.45 ± 0.43	161.66 ± 7.15	14.23 ± 0.88	33.24 ± 5.94
Tanin VR Supra 300	460.05 ± 20.97	22.53 ± 16.43	15.81 ± 1.69	5.85 ± 0.22	4.00 ± 0.25	6.14 ± 1.04	173.76 ± 1.99*	15.66 ± 0.37	38.23 ± 1.83
Tanin VR Supra 500	456.43 ± 21.06	32.62 ± 2.54	16.67 ± 1.78	5.50 ± 0.36	4.09 ± 0.42	6.35 ± 0.72	161.44 ± 8.77	14.34 ± 0.97	34.44 ± 5.85
Tanin VR Supra 1000	443.03 ± 5.26	41.76 ± 9.60	22.80 ± 6.64	7.79 ± 3.30	3.60 ± 0.35	7.58 ± 0.53	154.84 ± 5.83	14.52 ± 0.63	33.34 ± 3.79
Tanin VR Supra NF 300	451.02 ± 8.79	33.21 ± 1.66	16.30 ± 0.09	6.90 ± 1.71	3.67 ± 0.07	6.34 ± 0.07	160.58 ± 2.88	14.40 ± 0.37	33.83 ± 1.41
Tanin VR Supra NF 500	445.35	32.93	16.11	6.14	4.15	6.53	158.66	13.96	31.55
Tanin VR Supra NF 1000	439.59 ± 3.05	33.88 ± 1.64	17.89 ± 1.66	5.31 ± 0.66	3.79 ± 0.27	6.88 ± 0.57	154.26 ± 3.61	13.92 ± 0.04	30.71 ± 0.88
Control	438.75 ± 11.58	33.61 ± 3.18	16.89 ± 1.60	6.47 ± 1.29	3.75 ± 0.14	6.50 ± 0.86	154.19 ± 7.73	13.49 ± 0.37	30.02 ± 1.80

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.25 Flavonoid concentrations (oligomers, dimers (B₁ and B₂), unknown flavanoids and anthocyanins) of the 2004 Shiraz at the end of fermentation.

Treatment	2004 Shiraz – End Fermentation			
	Oligomers (mg/L)	Dimers (B ₁ and B ₂) (mg/L)	Unknown Oligomers (mg/L)	Anthocyanins (mg/L)
Lafase Grand Cru 30	121.37 ± 5.81	14.75 ± 2.23*	106.62 ± 4.79	291.45 ± 31.8*
Lafase Grand Cru 50	137.18 ± 11.8	16.25 ± 1.68*	120.94 ± 10.3*	300.45 ± 12.7*
Tanénol Rouge 100	120.21 ± 3.96*	14.70 ± 0.79*	105.51 ± 3.52	265.42 ± 15.93
Tanénol Rouge 300	119.90 ± 8.35	13.70 ± 0.22	106.21 ± 8.35	260.08 ± 7.24
Oenotan 100	125.16 ± 3.27	14.47 ± 0.19*	110.69 ± 3.44	257.98 ± 6.22
Oenotan 300	128.44 ± 3.84*	15.34 ± 0.77*	113.10 ± 3.07	258.19 ± 2.23
QCTN 100	121.17 ± 8.10	12.93 ± 1.06	108.24 ± 7.11	257.58 ± 4.20
QCTN 300	114.19 ± 3.44	12.57 ± 0.53	101.62 ± 2.95	253.64 ± 6.56
Tanin VR Supra 300	119.87 ± 2.93	14.03 ± 0.14*	105.83 ± 2.85	263.76 ± 4.62
Tanin VR Supra 500	112.66 ± 2.50	11.94 ± 1.19	100.71 ± 1.92	262.37 ± 10.35
Tanin VR Supra 1000	106.98 ± 1.49	11.79 ± 0.72	95.19 ± 0.77	246.43 ± 7.44
Tanin VR Supra NF 300	112.36 ± 3.12	12.10 ± 0.66	100.26 ± 3.47	257.22 ± 6.86
Tanin VR Supra NF 500	113.15	11.73	101.42	253.76
Tanin VR Supra NF 1000	109.63 ± 2.73	11.01 ± 0.26	98.62 ± 2.48	251.46 ± 0.72
Control	110.68 ± 5.66	10.72 ± 0.22	102.64 ± 0.66	250.95 ± 3.42

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.26 Flavonoid concentration which consist of flavonols (quercetin-3-glucoside, quercetin and unknown flavonols), flavan-3-ols (catechin, epicatechin and oligomers) and anthocyanins of 2004 Shiraz after a year of maturation.

Treatment	2004 Shiraz – After a year of maturation								
	Flavonoids (mg/L)	Flavonols (mg/L)	Quercetin-3- glucoside (mg/L)	Quercetin (mg/L)	Unknown Flavonols (mg/L)	Flavan-3-ols (mg/L)	Catechin (mg/L)	Epicatechin (mg/L)	Oligomers (mg/L)
Lafase Grand Cru 30	309.89 ± 8.02	26.48 ± 0.83	13.72 ± 0.55	6.72 ± 0.43	6.04 ± 0.40	163.66 ± 4.89	12.99 ± 0.33	18.59 ± 2.24	132.08 ± 2.97
Lafase Grand Cru 50	326.66 ± 7.39	30.46 ± 4.06	15.87 ± 2.02*	7.33 ± 0.53	7.27 ± 1.56*	176.24 ± 2.73	14.05 ± 1.01	19.83 ± 0.30	142.35 ± 2.07
Tanénol Rouge 100	308.26 ± 9.19	19.92 ± 3.16	11.08 ± 0.76	7.68 ± 0.58	3.48	159.92 ± 7.42	12.87 ± 0.72	15.81 ± 2.71	131.24 ± 4.91
Tanénol Rouge 300	304.23 ± 15.88	20.60 ± 4.13	10.79 ± 0.69	7.32 ± 1.33	3.74 ± 0.40	157.40 ± 3.64	12.54 ± 0.07	16.92 ± 0.90	127.94 ± 2.83
Oenotan 100	310.43 ± 12.47	20.80 ± 2.38	10.34 ± 1.11	7.17 ± 1.03	3.29 ± 0.44	159.58 ± 2.39	13.07 ± 0.53	18.58 ± 2.03	127.93 ± 3.79
Oenotan 300	298.69 ± 8.02	19.58 ± 4.28	10.51 ± 1.36	6.47 ± 0.80	3.90 ± 0.81	156.43 ± 2.98	13.12 ± 0.56	18.45 ± 0.76	124.86 ± 2.18
QCTN 100	305.68 ± 46.53	16.04 ± 8.31	10.75 ± 1.86	7.69 ± 1.04	3.56	157.77 ± 17.79	12.22 ± 1.93	17.20 ± 1.81	128.35 ± 14.99
QCTN 300	292.83 ± 10.94	20.12 ± 0.79	10.35 ± 0.33	6.50 ± 0.37	3.27 ± 0.12	156.55 ± 4.37	12.87 ± 1.08	17.51 ± 1.75	126.16 ± 2.85
Tanin VR Supra 300	310.01 ± 21.75	19.46 ± 2.17	10.50 ± 0.23	7.83 ± 0.06	3.37	157.49 ± 14.90	12.99 ± 1.90	19.32 ± 3.75	125.18 ± 9.25
Tanin VR Supra 500	317.98 ± 9.96	22.64 ± 2.02	11.33 ± 0.89	7.70 ± 1.24	3.61 ± 0.39	156.16 ± 2.55	11.95 ± 0.70	17.50 ± 2.79	126.70 ± 1.25
Tanin VR Supra 1000	314.23 ± 9.94	26.18 ± 1.42	12.59 ± 0.66	8.91 ± 0.55	4.68 ± 0.33	152.37 ± 1.37	11.98 ± 0.42	16.95 ± 0.64	123.44 ± 1.10
Tanin VR Supra NF 300	291.70 ± 34.49	16.71 ± 1.14	8.97 ± 4.40	8.18	3.65 ± 0.25	147.66 ± 39.01	13.51 ± 2.91	18.33 ± 2.39	121.93 ± 27.11
Tanin VR Supra NF 500	297.62 ± 9.34	23.77 ± 0.91	11.60 ± 0.69	8.46 ± 0.34	3.71 ± 0.33	149.81 ± 2.63	11.75 ± 0.79	17.06 ± 1.50	121.00 ± 4.92
Tanin VR Supra NF 1000	304.44 ± 4.04	25.59 ± 1.16	12.43 ± 0.38	9.17 ± 0.48	3.99 ± 0.90	150.63 ± 2.51	11.95 ± 1.26	17.66 ± 0.64	121.03 ± 1.69
Control	299.98 ± 3.43	20.06 ± 2.68	10.37 ± 0.54	8.47 ± 0.90	3.65	148.46 ± 3.56	11.98 ± 0.63	18.55 ± 1.06	117.93 ± 3.49

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.27 Flavonoid concentrations (dimers (B₁ and B₂), unknown flavanoids and anthocyanins) of the 2004 Shiraz after a year of maturation.

Treatment	2004 Shiraz – After a year of maturation		
	Dimers (B ₁ and B ₂) (mg/L)	Unknown Oligomers (mg/L)	Anthocyanins (mg/L)
Lafase Grand Cru 30	18.57 ± 0.61	113.51 ± 2.81	119.75 ± 2.70
Lafase Grand Cru 50	21.12 ± 1.52	121.23 ± 0.76	119.96 ± 10.00
Tanenol Rouge 100	17.93 ± 1.37	113.30 ± 5.07	128.42 ± 1.67
Tanenol Rouge 300	17.55 ± 0.30	110.39 ± 2.71	126.23 ± 8.71
Oenotan 100	18.54 ± 0.40	109.38 ± 3.43	130.05 ± 8.23
Oenotan 300	19.17 ± 0.70	105.69 ± 1.48	122.68 ± 2.13
QCTN 100	16.22 ± 4.48	112.13 ± 11.77	131.87 ± 20.83
QCTN 300	18.23 ± 2.24	107.94 ± 0.61	116.16 ± 7.11
Tanin VR Supra 300	16.64 ± 1.76	108.54 ± 9.16	133.06 ± 9.31
Tanin VR Supra 500	16.79 ± 1.18	109.91 ± 2.30	139.18 ± 7.40
Tanin VR Supra 1000	16.73 ± 0.18	106.71 ± 1.00	135.68 ± 8.32
Tanin VR Supra NF 300	20.14 ± 3.74	101.78 ± 23.37	132.90 ± 5.18
Tanin VR Supra NF 500	16.14 ± 0.46	104.86 ± 5.24	124.04 ± 7.00
Tanin VR Supra NF 1000	17.05 ± 1.28	103.98 ± 0.91	128.21 ± 2.12
Control	16.66 ± 1.55	101.28 ± 3.94	131.47 ± 4.39

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.28 Flavonoid concentration which consist of flavonols (quercetin-3-glucoside, quercetin-3-rutinoside, quercetin and unknown flavonols), flavan-3-ols (catechin, epicatechin, epicatechingallate and oligomers) and anthocyanins of 2005 Shiraz at the end of fermentation.

Treatment	2005 Shiraz – End Fermentation								
	Flavonoids (mg/L)	Flavonols (mg/L)	Quercetin-3-glucoside (mg/L)	Quercetin-3-rutinoside (mg/L)	Quercetin (mg/L)	Unknown Flavonols (mg/L)	Flavan-3-ols (mg/L)	Catechin (mg/L)	Epicatechin (mg/L)
Lafase Grand Cru 30	590.09 ± 25.29	43.66 ± 3.43	19.94 ± 1.60	7.55 ± 0.39	8.61 ± 0.79	7.56 ± 0.72	221.17 ± 7.94	18.93 ± 0.49	45.90 ± 1.69
Lafase Grand Cru 50	587.92 ± 14.00	45.73 ± 2.25	21.17 ± 1.37	7.67 ± 0.24	9.01 ± 0.58	7.88 ± 1.20	213.68 ± 7.71	18.26 ± 0.23	45.85 ± 0.43
Tanenol Rouge 100	590.64 ± 3.82	41.27 ± 1.21	18.31 ± 0.61	7.05 ± 0.23	9.79 ± 0.39	6.12 ± 0.49	224.23 ± 2.34	19.95 ± 0.46*	48.25 ± 1.76
Tanenol Rouge 300	595.07 ± 4.02	42.52 ± 1.91	18.45 ± 1.44	7.38 ± 0.27	9.86 ± 0.45	6.83 ± 0.59	225.24 ± 1.70	20.25 ± 0.35*	48.07 ± 1.17
Oenotan 100	601.58 ± 26.54	43.15 ± 1.61	18.84 ± 0.61	7.75 ± 0.33	9.56 ± 0.47	7.00 ± 0.26	226.13 ± 9.70	19.40 ± 0.74*	46.67 ± 1.59
Oenotan 300	574.68 ± 21.84	40.75 ± 1.94	18.63 ± 0.66	7.33 ± 0.44	8.66 ± 0.70	6.12 ± 0.49	220.54 ± 1.82	18.85 ± 0.40	44.38 ± 0.36
QCTN 100	584.08 ± 19.93	39.05 ± 1.94	17.21 ± 1.10	7.28 ± 0.13	8.64 ± 0.49	5.92 ± 0.45	235.97 ± 22.78	19.16 ± 0.44*	46.70 ± 2.27
QCTN 300	557.79 ± 14.71	38.34 ± 1.98	17.35 ± 1.14	6.85 ± 0.12	8.26 ± 0.28	5.87 ± 0.62	217.17 ± 5.57	18.28 ± 0.39	43.70 ± 1.56
Tanin VR Supra 300	572.90 ± 9.53	41.03 ± 1.46	18.65 ± 0.55	7.09 ± 0.44	9.12 ± 0.38	6.18 ± 0.29	215.13 ± 2.35	17.43 ± 0.37	43.03 ± 0.95
Tanin VR Supra 500	606.30 ± 13.05	45.48 ± 0.06	20.73 ± 0.46	7.29 ± 0.22	9.54 ± 0.78	7.92 ± 0.53	218.29 ± 4.49	17.81 ± 0.12	43.43 ± 0.64
Tanin VR Supra 1000	605.10 ± 44.77	45.97 ± 5.47	21.00 ± 1.84	7.09 ± 0.59	9.58 ± 1.69	8.30 ± 1.68	215.80 ± 16.73	17.98 ± 0.81	43.48 ± 3.30
Tanin VR Supra NF 300	550.97 ± 3.24	38.84 ± 1.03	17.94 ± 0.70	6.64 ± 0.15	8.07 ± 0.09	6.19 ± 0.32	205.38 ± 1.31	17.14 ± 0.30	40.48 ± 0.61*
Tanin VR Supra NF 500	593.97 ± 11.94	43.21 ± 1.70	19.81 ± 0.95	6.93 ± 0.44	9.20 ± 0.07	7.27 ± 0.45	212.70 ± 3.55	17.59 ± 0.43	43.55 ± 1.44
Tanin VR Supra NF 1000	575.22 ± 7.15	43.24 ± 2.36	20.49 ± 1.42	7.00 ± 0.08	8.25 ± 0.28	7.50 ± 0.74	210.43 ± 4.30	17.39 ± 0.19	42.08 ± 0.35*
Control	582.30 ± 16.79	40.73 ± 4.38	18.59 ± 1.99	6.81 ± 1.50	8.40 ± 0.81	6.93 ± 0.46	220.46 ± 10.05	17.55 ± 1.02	48.07 ± 3.28

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.29 Flavonoid concentrations (epicatechingallate, oligomers, dimers (B₁ and B₂), unknown flavanoids and anthocyanins) of the 2005 Shiraz at the end of fermentation.

2005 Shiraz – End Fermentation					
Treatment	Epicatechingallate (mg/L)	Oligomers (mg/L)	Dimers (B ₁ and B ₂) (mg/L)	Unknown Oligomers (mg/L)	Anthocyanins (mg/L)
Lafase Grand Cru 30	14.20 ± 1.64	142.14 ± 4.47	20.26 ± 0.68	121.88 ± 3.93	325.26 ± 14.48
Lafase Grand Cru 50	7.48 ± 6.51	142.10 ± 1.66	20.03 ± 0.74	122.06 ± 0.91	328.51 ± 4.58
Tanenol Rouge 100	13.77 ± 0.93	142.27 ± 1.21	20.47 ± 0.78	121.80 ± 0.72	325.14 ± 3.71
Tanenol Rouge 300	15.16 ± 0.57	141.76 ± 1.62	21.30 ± 0.58	120.46 ± 1.70	327.31 ± 3.87
Oenotan 100	12.66 ± 1.57	147.41 ± 6.61	20.66 ± 1.07	126.75 ± 5.54	332.30 ± 15.27
Oenotan 300	13.33 ± 0.66	143.98 ± 2.12	20.43 ± 0.62	123.55 ± 2.20	313.39 ± 21.50
QCTN 100	12.96 ± 0.20	157.15 ± 24.60	20.26 ± 0.59	136.89 ± 24.36	309.05 ± 7.16
QCTN 300	14.19 ± 0.90	140.99 ± 4.12	19.77 ± 0.80	121.22 ± 3.88	302.29 ± 8.70
Tanin VR Supra 300	12.02 ± 1.07	142.66 ± 2.37	19.12 ± 0.80	123.54 ± 1.87	316.73 ± 9.43
Tanin VR Supra 500	14.40 ± 0.28	142.64 ± 4.63	20.44 ± 0.47	122.20 ± 4.47	342.54 ± 8.54
Tanin VR Supra 1000	13.68 ± 3.41	140.66 ± 9.62	20.62 ± 1.27	120.03 ± 8.37	343.33 ± 22.64
Tanin VR Supra NF 300	12.21 ± 0.51	135.55 ± 2.08	18.76 ± 0.52	116.79 ± 1.90	306.75 ± 3.79
Tanin VR Supra NF 500	12.51 ± 0.84	139.05 ± 2.64	19.33 ± 0.04	119.72 ± 2.61	338.06 ± 10.03
Tanin VR Supra NF 1000	13.02 ± 1.39	137.94 ± 2.86	19.66 ± 0.65	118.28 ± 2.47	321.55 ± 4.11
Control	12.83 ± 2.47	145.22 ± 3.36	18.44 ± 2.55	126.78 ± 2.51	321.11 ± 6.34

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.30 Flavonoid concentration which consist of flavonols (quercetin-3-glucoside, quercetin-3-rutinoside and unknown flavonols), flavan-3-ols (catechin, epicatechin, epicatechingallate and oligomers) and anthocyanins of 2005 Merlot at the end of fermentation.

2005 Merlot – End Fermentation									
Treatment	Flavonoids (mg/L)	Flavonols (mg/L)	Quercetin-3- glucoside (mg/L)	Quercetin-3- rutinoside (mg/L)	Unknown Flavonols (mg/L)	Flavan-3-ols (mg/L)	Catechin (mg/L)	Epicatechin (mg/L)	Epicatechingallate (mg/L)
Lafase Grand Cru 30	517.27 ± 70.79	66.15 ± 10.15	42.85 ± 6.20	5.34 ± 1.00	252.13 ± 33.28	17.96 ± 3.10	27.26 ± 7.72	43.41 ± 13.96	15.97 ± 2.70
Lafase Grand Cru 50	514.66 ± 11.03	65.32 ± 2.27	43.07 ± 1.63	5.18 ± 0.40	249.96 ± 8.07	17.07 ± 0.34	28.55 ± 0.96	46.07 ± 3.19	15.90 ± 4.78
Tanenol Rouge 100	519.76 ± 19.35	67.99 ± 2.22	43.59 ± 1.01	5.93 ± 0.37	236.14 ± 9.16	18.47 ± 1.02	24.45 ± 1.85	36.95 ± 2.64	15.75 ± 1.45
Tanenol Rouge 300	483.51 ± 25.98	63.02 ± 2.64	41.16 ± 1.91	4.51 ± 1.82	224.27 ± 10.64	17.35 ± 1.70	21.93 ± 1.05	32.20 ± 2.28	14.21 ± 2.64
Oenotan 100	500.64 ± 12.35	65.67 ± 1.07	42.99 ± 0.90	5.27 ± 0.16	230.25 ± 7.68	17.41 ± 0.94	24.66 ± 1.27	36.81 ± 1.80	14.86 ± 1.09
Oenotan 300	479.09 ± 53.21	61.94 ± 6.56	40.55 ± 3.96	4.74 ± 0.51	229.63 ± 23.47	16.65 ± 2.09	23.10 ± 4.49	34.15 ± 7.02	13.50 ± 2.08
QCTN 100	492.37 ± 7.11	66.32 ± 2.10	43.66 ± 1.78	5.29 ± 0.09	230.61 ± 0.09	17.37 ± 0.35	24.01 ± 0.29	38.32 ± 3.70	13.94 ± 0.57
QCTN 300	498.85 ± 35.19	66.93 ± 6.11	43.84 ± 4.39	5.45 ± 0.06	235.61 ± 12.48	17.64 ± 1.66	25.43 ± 3.97	39.13 ± 5.42	15.08 ± 1.02
Tanin VR Supra 300	510.27 ± 23.55	63.77 ± 3.11	40.60 ± 1.53	5.16 ± 0.42	239.35 ± 5.82	18.01 ± 1.97	24.77 ± 1.32	37.86 ± 2.27	15.43 ± 0.98
Tanin VR Supra 500	523.26 ± 53.61	64.01 ± 15.36	41.61 ± 11.81	4.35 ± 2.21	255.79 ± 21.98	18.05 ± 1.53	29.43 ± 6.27	48.35 ± 10.79	15.09 ± 1.44
Tanin VR Supra 1000	501.83 ± 41.74	64.75 ± 7.65	41.89 ± 4.63	4.85 ± 0.31	241.18 ± 19.12	18.01 ± 3.39	25.49 ± 6.01	38.98 ± 12.41	23.25 ± 13.31
Tanin VR Supra NF 300	483.87 ± 32.06	60.96 ± 5.84	40.05 ± 4.04	5.14 ± 0.69	225.69 ± 13.39	15.77 ± 1.12	26.34 ± 1.59	36.78 ± 6.84	22.91 ± 0.04
Tanin VR Supra NF 500	493.91 ± 11.43	63.47 ± 0.70	41.36 ± 0.42	5.59 ± 0.42	227.68 ± 6.99	16.52 ± 0.72	26.84 ± 3.30	39.78 ± 5.98	7.30 ± 0.20*
Tanin VR Supra NF 1000	520.58 ± 11.00	63.47 ± 1.15	40.98 ± 0.49	5.79 ± 0.26	249.41 ± 4.12	16.70 ± 0.40	25.47 ± 0.87	36.99 ± 1.79	21.71 ± 0.53
Control	531.40 ± 16.58	64.53 ± 2.10	41.91 ± 1.27	5.91 ± 0.16	251.72 ± 7.04	16.71 ± 0.80	26.75 ± 1.18	37.84 ± 1.61	21.64 ± 1.98

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.31 Flavonoid concentrations (oligomers, dimers (B₁ and B₂), unknown flavanoids and anthocyanins) of the 2005 Merlot at the end of fermentation.

Treatment	2005 Merlot – End Fermentation			
	Oligomers (mg/L)	Dimers (B ₁ and B ₂) (mg/L)	Unknown Oligomers (mg/L)	Anthocyanins (mg/L)
Lafase Grand Cru 30	165.50 ± 9.05	25.24 ± 7.61	140.26 ± 2.04	198.99 ± 27.49
Lafase Grand Cru 50	159.45 ± 2.77	26.30 ± 0.50	133.14 ± 2.29	199.38 ± 5.19
Tanenol Rouge 100	158.99 ± 5.12	24.01 ± 2.28	134.99 ± 4.14	215.62 ± 8.82
Tanenol Rouge 300	155.93 ± 5.98	21.99 ± 1.97	133.94 ± 4.09	196.22 ± 14.67
Oenotan 100	153.92 ± 6.91	23.56 ± 1.58	130.36 ± 5.50	204.71 ± 4.04
Oenotan 300	158.87 ± 10.43	23.96 ± 8.04	134.91 ± 2.39	187.53 ± 23.45
QCTN 100	154.34 ± 3.83	22.80 ± 1.04	131.55 ± 2.81	195.43 ± 5.44
QCTN 300	155.97 ± 2.07	24.72 ± 5.17	131.24 ± 3.10	196.31 ± 16.60
Tanin VR Supra 300	161.29 ± 3.98	24.27 ± 1.82	137.03 ± 3.63	207.15 ± 17.24
Tanin VR Supra 500	162.92 ± 8.87	27.27 ± 4.46	135.65 ± 8.68	203.45 ± 18.03
Tanin VR Supra 1000	153.46 ± 4.09	23.38 ± 4.57	130.08 ± 0.53	195.89 ± 16.69
Tanin VR Supra NF 300	147.30 ± 9.35	18.55 ± 11.98	128.75 ± 2.75	197.22 ± 15.81
Tanin VR Supra NF 500	156.19 ± 3.23	25.12 ± 2.31	131.07 ± 2.89	202.76 ± 5.87
Tanin VR Supra NF 1000	165.25 ± 2.00	25.61 ± 0.12	139.64 ± 1.88	207.70 ± 5.73
Control	165.48 ± 5.25	27.63 ± 2.28	137.85 ± 4.20	215.15 ± 8.22

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.32 Flavonoid concentration which consist of flavonols, flava-3-ols (catechin, epicatechin and oligomers) and anthocyanins of 2004 Cabernet Sauvignon at the end of fermentation.

Treatment	2004 Cabernet Sauvignon – End Fermentation							
	Flavonoids (mg/L)	Flavonols (mg/L)	Flavan-3-ols (mg/L)	Catechin (mg/L)	Epicatechin (mg/L)	Oligomers (mg/L)	Unknown Oligomers (mg/L)	Anthocyanins (mg/L)
Lafase Grand Cru 30	348.24 ± 2.14	4.68 ± 0.11	267.64 ± 1.57	20.74 ± 1.31	23.47 ± 1.65	223.42 ± 2.03	223.42 ± 2.03	75.93 ± 2.64
Lafase Grand Cru 50	344.17 ± 11.70	2.75 ± 2.39	270.16 ± 4.55	20.60 ± 3.61	28.15 ± 2.25	221.41 ± 3.37	221.41 ± 3.37	71.26 ± 6.28
Tanenol Rouge 100	353.27 ± 4.24	4.31 ± 0.12	279.71 ± 2.59	25.31 ± 2.07	32.55 ± 2.78	221.85 ± 2.92	221.85 ± 2.92	69.25 ± 1.61
Tanenol Rouge 300	355.30 ± 2.67	4.45 ± 0.28	283.59 ± 2.82*	25.62 ± 2.84	33.25 ± 5.13	224.72 ± 5.40	224.72 ± 5.40	67.26 ± 0.27
Oenotan 100	345.03 ± 4.92	4.69 ± 0.52	274.96 ± 1.84	22.35 ± 1.25	26.65 ± 3.11	225.96 ± 3.78	225.96 ± 3.78	65.38 ± 2.92
Oenotan 300	345.96 ± 4.07	4.85 ± 0.17	275.64 ± 4.67	21.17 ± 1.11	26.05 ± 2.58	228.42 ± 1.36	228.42 ± 1.36	65.48 ± 1.61
QCTN 100	344.65 ± 10.39	4.37 ± 0.05	275.43 ± 3.97	23.52 ± 1.42	29.33 ± 3.14	222.58 ± 1.25	222.58 ± 1.25	64.85 ± 6.39
QCTN 300	335.25 ± 13.46	4.26 ± 0.12	268.33 ± 7.70	20.91 ± 5.18	29.10 ± 5.78	218.32 ± 6.66	218.32 ± 6.66	62.66 ± 8.27
Tanin VR Supra 300	332.22 ± 18.47	3.55 ± 0.45	267.57 ± 11.87	19.23 ± 3.56	28.40 ± 3.09	219.95 ± 11.92	219.95 ± 11.92	62.28 ± 8.40
Tanin VR Supra 500	343.17 ± 9.03	4.58 ± 0.26	273.65 ± 5.75	21.46 ± 0.85	28.96 ± 1.26	223.23 ± 5.13	223.23 ± 5.13	64.95 ± 3.29
Tanin VR Supra 1000	343.19 ± 5.12	4.44 ± 0.27	269.90 ± 6.03	21.82 ± 1.97	29.29 ± 4.13	218.79 ± 0.07	218.79 ± 0.07	68.85 ± 3.13
Control	333.52 ± 16.14	4.14 ± 0.13	261.04 ± 15.53	23.13 ± 1.46	29.64 ± 4.38	208.27 ± 19.82	208.27 ± 19.82	68.34 ± 3.96

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.33 Pigments (Vitisin A) and polymers (polymeric pigments and polymeric phenols) concentration of 2004 Shiraz at the end of fermentation.

2004 Shiraz – End Fermentation					
Treatment	Pigments (mg/L)	Vitisin A (mg/L)	Polymers (mg/L)	Polymeric Pigments (mg/L)	Polymeric Phenols (mg/L)
Lafase Grand Cru 30	6.26 ± 1.34	6.26 ± 1.34	511.39 ± 60.91	6.85 ± 0.66	502.31 ± 57.72
Lafase Grand Cru 50	5.51 ± 0.36	5.51 ± 0.36	526.03 ± 24.10	8.73 ± 0.79	517.30 ± 23.33
Taninol Rouge 100	5.40 ± 0.22	5.40 ± 0.22	534.28 ± 12.85	8.22 ± 0.22	526.06 ± 12.97
Taninol Rouge 300	5.48 ± 0.09	5.48 ± 0.09	553.45 ± 15.99	7.46 ± 0.74	545.99 ± 15.30
Oenotan 100	5.40 ± 0.07	5.40 ± 0.07	536.88 ± 0.95	7.96 ± 0.43	528.93 ± 3.33
Oenotan 300	5.29 ± 0.05	5.29 ± 0.05	530.21 ± 7.31	7.72 ± 0.25	522.49 ± 7.54
QCTN 100	5.90 ± 0.29	5.90 ± 0.29	511.38 ± 26.27	7.78 ± 0.95	503.60 ± 25.35
QCTN 300	5.81 ± 0.31	5.81 ± 0.31	507.58 ± 14.05	7.64 ± 0.60	499.94 ± 14.60
Tanin VR Supra 300	5.95 ± 0.53	5.95 ± 0.53	536.62 ± 15.30	8.85 ± 0.57	528.77 ± 16.14
Tanin VR Supra 500	5.48 ± 0.12	5.48 ± 0.12	543.27 ± 2.49	5.43 ± 0.20	537.74 ± 2.32
Tanin VR Supra 1000	5.31 ± 0.12	5.31 ± 0.12	464.48 ± 3.94	5.08 ± 0.02	459.40 ± 3.92
Tanin VR Supra NF 300	5.50 ± 0.13	5.50 ± 0.13	470.81 ± 18.86	6.03 ± 0.73	464.78 ± 18.12
Tanin VR Supra NF 500	6.11	6.11	452.23	5.78	446.45
Tanin VR Supra NF 1000	5.55 ± 0.33	5.55 ± 0.33	568.87 ± 75.03	5.33	567.09 ± 78.09
Control	6.11 ± 0.37	6.11 ± 0.37	578.37 ± 17.92	5.34 ± 0.25	575.70 ± 14.84

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.34 Polymers (polymeric pigments and polymeric phenols) concentrations of 2004 Shiraz after a year of maturation, 2005 Merlot at the end of fermentation and 2005 Merlot at the end of fermentation.

Treatment	2004 Shiraz – After a year of maturation			2005 Shiraz – End Fermentation			2005 Merlot – End Fermentation
	Polymers (mg/L)	Polymeric Pigments (mg/L)	Polymeric Phenols (mg/L)	Polymers (mg/L)	Polymeric Pigments (mg/L)	Polymeric Phenols (mg/L)	Polymers (mg/L)
Lafase Grand Cru 30	442.04 ± 30.80	14.58 ± 0.80	427.45 ± 30.04	725.54 ± 20.56	20.66 ± 1.31	704.88 ± 19.46	364.86 ± 68.42
Lafase Grand Cru 50	456.77 ± 4.41	16.41 ± 0.66	440.36 ± 4.87	786.60 ± 55.22	20.51 ± 2.04	766.09 ± 53.24	513.40 ± 3.25
Taninol Rouge 100	489.19 ± 16.55	18.61 ± 0.78	470.58 ± 16.38	665.72 ± 78.55	22.90 ± 1.00*	642.82 ± 79.08	504.60 ± 7.91
Taninol Rouge 300	508.83 ± 48.01	16.87 ± 2.39	491.97 ± 46.28	765.65 ± 15.05	24.88 ± 0.88*	740.77 ± 14.89	469.31 ± 35.08
Oenotan 100	500.36 ± 24.03	18.72 ± 5.08	481.64 ± 18.99	770.42 ± 27.21	24.48 ± 2.12*	745.93 ± 25.77	402.00 ± 7.80
Oenotan 300	476.95 ± 13.05	14.95 ± 1.41	462.00 ± 11.65	731.90 ± 55.79	23.10 ± 4.87*	708.80 ± 51.24	411.17 ± 34.71
QCTN 100	507.58 ± 33.56	18.23 ± 2.09	489.35 ± 31.93	678.48 ± 16.92	17.23 ± 1.17	661.25 ± 15.85	385.07 ± 22.07
QCTN 300	476.16 ± 37.57	16.21 ± 1.70	459.96 ± 35.99	600.79 ± 115.27	17.05 ± 1.15	583.74 ± 115.59	366.55 ± 75.46
Tanin VR Supra 300	506.25 ± 25.59	20.13 ± 1.35	486.12 ± 24.71	706.65 ± 14.05	16.48 ± 0.51	690.17 ± 13.64	508.95 ± 27.67
Tanin VR Supra 500	383.69 ± 44.09	19.73 ± 0.80	363.96 ± 43.33	734.73 ± 8.83	18.94 ± 0.39	715.7 ± 98.48	555.60 ± 34.63*
Tanin VR Supra 1000	407.71 ± 36.98	19.65 ± 1.11	388.06 ± 36.11	728.24 ± 21.53	17.47 ± 1.40	710.77 ± 20.31	368.63 ± 123.87
Tanin VR Supra NF 300	440.42 ± 19.59	18.07 ± 1.61	422.35 ± 20.53	574.45 ± 115.10	14.38 ± 0.54	560.07 ± 115.44	363.83 ± 80.36
Tanin VR Supra NF 500	477.65 ± 23.14	18.99 ± 0.21	458.66 ± 23.19	760.72 ± 10.49	17.74 ± 0.95	742.98 ± 9.54	540.50 ± 1.89
Tanin VR Supra NF 1000	478.12 ± 24.07	18.40 ± 0.92	459.34 ± 23.14	760.85 ± 21.27	16.60 ± 1.01	744.25 ± 20.33	549.84 ± 8.17*
Control	527.97 ± 100.37	18.67 ± 0.06	509.30 ± 100.42	708.72 ± 21.20	16.53 ± 0.75	692.19 ± 20.71	312.34 ± 136.34

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

Table 6.35 Polymers (polymeric pigments and polymeric phenols) concentrations of 2004 Cabernet Sauvignon at the end of fermentation.

Treatment	2004 Cabernet Sauvignon – End Fermentation		
	Polymers (mg/L)	Polymeric Pigments (mg/L)	Polymeric Phenols (mg/L)
Lafase Grand Cru 30	1040.89 ± 19.32	8.02 ± 0.95	1032.87 ± 19.70
Lafase Grand Cru 50	692.62 ± 321.46	7.90 ± 0.54	684.72 ± 321.99
Tanenol Rouge 100	873.22 ± 76.07	5.99 ± 1.25	867.23 ± 77.30
Tanenol Rouge 300	853.48 ± 101.09	7.49 ± 0.78	845.99 ± 100.32
Oenotan 100	786.27 ± 29.97	7.67 ± 0.95	778.60 ± 29.11
Oenotan 300	1005.76 ± 199.28	7.64 ± 0.80	998.12 ± 198.49
QCTN 100	1063.14 ± 8.68	7.33 ± 1.93	1055.81 ± 10.60
QCTN 300	1056.03 ± 20.32	7.10 ± 1.09	1048.93 ± 19.60
Tanin VR Supra 300	839.14 ± 50.90	7.22 ± 0.66	831.92 ± 51.25
Tanin VR Supra 500	897.02 ± 6.74	7.20 ± 1.53	889.82 ± 6.16
Tanin VR Supra 1000	541.57 ± 173.08*	4.74 ± 0.81*	536.83 ± 173.35*
Control	983.33 ± 7.96	8.29 ± 1.22	975.04 ± 9.04

(* values differ with 95% assurance ($p \leq 0.05$) from the control; Numbers after treatment denote dosage tannin and enzyme added in mg/L)

