Table S1. Reduction of the concentrations of proteins in Malvazija istarska wines (mean ± standard deviation; n = 3; %) obtained after partial fining with bentonite at different points of fermentation and in final protein stable wines.

Protein	Stage	Treatment				
		CO	JU	BE	MD	EN
RP-HPLC						
TL1	AFerm		52.17 ± 6.97	47.82 ± 20.75	56.08 ± 6.46	67.96 ± 8.96
	ProStab	97.48 ± 0.76	97.13 ± 0.53	97.41 ± 1.09	97.93 ± 1.08	95.80 ± 1.49
TL2	AFerm		32.27 ± 2.85 b	33.56 ± 6.96 b	35.23 ± 2.05 b	52.52 ± 10.34 a
	ProStab	85.85 ± 3.37 a	89.53 ± 3.30 a	89.95 ± 0.90 a	89.50 ± 0.65 a	76.69 ± 7.34 b
TL3	AFerm		21.75 ± 4.45	18.90 ± 13.56	14.44 ± 5.01	32.41 ± 16.37
	ProStab	64.05 ± 8.04 b	84.25 ± 5.57 a	83.85 ± 0.36 a	83.22 ± 2.69 a	65.6 ± 11.46 b
TL4	AFerm		58.87 ± 5.24 c	60.91 ± 6.09 c	87.69 ± 2.15 b	96.61 ± 1.49 a
	ProStab	98.57 ± 0.91 a	97.41 ± 0.23 a	97.80 ± 0.40 a	89.89 ± 3.40 a	59.86 ± 23.03 b
CHI1	AFerm		48.27 ± 13.29	43.34 ± 16.77	44.55 ± 9.23	55.58 ± 8.27
	ProStab	98.7 ± 0.09	98.34 ± 0.31	97.78 ± 0.69	97.72 ± 0.36	97.38 ± 0.49
CHI2	AFerm		47.78 ± 11.36	47.03 ± 15.49	48.86 ± 9.20	61.87 ± 8.46
	ProStab	99.71 ± 0.04	99.38 ± 0.18	99.47 ± 0.19	99.41 ± 0.18	99.23 ± 0.26
total TL	AFerm		48.61 ± 3.91 c	47.86 ± 6.91 c	61.36 ± 2.26 b	73.48 ± 6.76 a
	ProStab	92.39 ± 2.15 a	93.47 ± 1.95 a	93.71 ± 1.54 a	91.13 ± 1.64 a	80.29 ± 6.69 b
total CHI	AFerm		48.06 ± 12.45	44.95 ± 16.20	46.43 ± 9.20	58.33 ± 8.33
	ProStab	99.15 ± 0.03	98.79 ± 0.17	98.49 ± 0.49	98.43 ± 0.25	98.11 ± 0.42
total	AFerm		48.37 ± 7.29	46.57 ± 10.85	54.74 ± 5.34	66.76 ± 7.27
	ProStab	95.37 ± 1.32 a	95.77 ± 1.31 a	95.83 ± 1.24 a	94.92 ± 1.11 a	90.34 ± 2.70 b
total TL / total CHI [1]	AFerm		1.05 ± 0.25	1.14 ± 0.32	1.35 ± 0.20	1.27 ± 0.10
	ProStab	0.93 ± 0.02 a	0.95 ± 0.02 a	0.95 ± 0.01 a	0.93 ± 0.01 a	0.82 ± 0.06 b
SE-HPLC						
P93	AFerm		26.63 ± 0.83	25.06 ± 7.74	18.62 ± 7.39	13.75 ± 4.78
	ProStab	20.68 ± 7.31 a	6.06 ± 4.25 b	4.59 ± 1.95 b	12.96 ± 3.54 ab	6.28 ± 6.24 b
P67	AFerm		44.36 ± 6.95	54.98 ± 7.36	46.11 ± 2.92	53.85 ± 8.49
	ProStab	100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00
PR32	AFerm		100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00
	ProStab	100.00 ± 0.00	-	-	-	-
PR25	AFerm		47.47 ± 4.63	54.48 ± 0.45	52.70 ± 1.44	55.46 ± 7.07
	ProStab	88.49 ± 3.72 c	95.74 ± 1.87 a	95.19 ± 0.33 ab	95.83 ± 1.03 a	91.32 ± 1.87 bc
PR23	AFerm		31.21 ± 6.40 c	46.19 ± 0.54 ab	41.33 ± 0.70 bc	51.89 ± 7.73 a
	ProStab	89.65 ± 4.07 b	96.61 ± 2.02 a	96.75 ± 0.05 a	96.72 ± 0.90 a	90.50 ± 2.56 b
PR22	AFerm		58.50 ± 5.08 c	61.38 ± 4.78 c	73.82 ± 2.04 b	84.90 ± 2.83 a
	ProStab	93.94 ± 2.24 a	96.44 ± 1.75 a	95.97 ± 0.43 a	95.11 ± 1.58 a	85.87 ± 1.91 b
PR20	AFerm		53.55 ± 0.73 c	58.37 ± 1.90 c	67.79 ± 4.39 b	74.34 ± 2.05 a
	ProStab	84.80 ± 0.69 a	79.38 ± 0.78 ab	74.84 ± 3.44 bc	74.74 ± 3.26 bc	69.89 ± 4.44 c
total PR	AFerm		48.99 ± 3.62 c	55.85 ± 1.40 bc	59.01 ± 0.82 b	65.71 ± 5.08 a
	ProStab	89.47 ± 2.61 ab	93.46 ± 1.81 a	92.30 ± 0.47 a	93.04 ± 1.29 a	87.71 ± 2.48 b

CO – control wine without bentonite in fermentation, JU – initial granular sodium-activated bentonite dose (100 g/hL) added into clear juice, BE – initial granular sodium-activated bentonite dose (100 g/hL) added at the beginning of fermentation, MD – initial granular sodium-activated bentonite dose (100 g/hL) added in the middle of fermentation, EN – initial granular sodium-activated bentonite dose (100 g/hL) added near the end of fermentation. AFerm – wines analyzed after fermentation, ProStab – wines analyzed after total protein stabilization by additional post-fermentation fining with granular sodium-activated bentonite. AFerm reductions were calculated in relation to CO wine and ProStab reductions in relation to corresponding AFerm wines. Different lowercase letters in a row represent statistically significant differences among treatments, at $p < 0.05$ obtained by one-way ANOVA and LSD test. [1] ratio of % values.

Table S2. Reduction of the concentrations of proteins in Malvazija istarska wines (mean ± standard deviation; n = 3; %) obtained after partial fining with bentonite and/or the addition of commercial enological tannin preparation during fermentation, and in final protein stable wines.

Protein	Stage	Treatment			
		CO	GSAB	ET	GSAB + ET
RP-HPLC					
TL1	AFerm		78.20 ± 4.49 a	23.82 ± 9.19 b	89.51 ± 3.51 a
	ProStab	96.04 ± 4.98	88.48 ± 8.88	95.21 ± 3.20	92.43 ± 2.89
TL2	AFerm		60.50 ± 2.95 a	18.26 ± 8.16 b	71.36 ± 6.65 a
	ProStab	86.09 ± 5.95 a	65.81 ± 6.45 b	85.25 ± 1.31 a	56.34 ± 10.88 b
TL3	AFerm		31.10 ± 1.83	11.27 ± 14.76	30.02 ± 9.68
	ProStab	72.18 ± 8.23 a	49.08 ± 7.62 b	71.23 ± 7.18 a	56.14 ± 7.82 b
TL4	AFerm		97.59 ± 1.77 a	19.90 ± 5.59 b	99.04 ± 0.62 a
	ProStab	97.53 ± 2.93	100.00 ± 0.00	95.06 ± 3.53	89.07 ± 18.93
CHI1	AFerm		52.45 ± 5.93 a	5.40 ± 15.22 b	71.37 ± 3.46 a
	ProStab	90.13 ± 7.33	73.45 ± 9.64	88.65 ± 5.73	80.05 ± 7.93
CHI2	AFerm		54.08 ± 7.16 a	-0.56 ± 16.86 b	72.82 ± 2.98 a
	ProStab	90.80 ± 5.86 a	70.99 ± 7.17 b	88.34 ± 4.86 a	79.11 ± 7.57 ab
total TL	AFerm		74.90 ± 2.83 b	19.97 ± 3.26 c	81.25 ± 3.37 a
	ProStab	91.58 ± 5.06 ab	67.86 ± 5.65	89.97 ± 2.18 ab	64.82 ± 5.69 b
total CHI	AFerm		53.20 ± 6.48 a	2.65 ± 15.97 b	72.04 ± 3.12 a
	ProStab	90.44 ± 6.65 a	72.35 ± 8.55 b	88.50 ± 5.26 a	79.60 ± 7.61 ab
total	AFerm		65.90 ± 4.29 b	12.78 ± 6.94 c	77.43 ± 3.19 a
	ProStab	91.10 ± 5.72 a	70.40 ± 7.21 b	89.33 ± 3.44 a	72.48 ± 5.48 b
total TL / total CHI [1]	AFerm		1.42 ± 0.12	0.90 ± 2.03	1.13 ± 0.02
	ProStab	1.01 ± 0.02 a	0.94 ± 0.04 a	1.02 ± 0.04 a	0.82 ± 0.08 b
SE-HPLC					
P93	AFerm		3.94 ± 0.34	15.05 ± 13.26	13.38 ± 15.78
	ProStab	-6.41 ± 10.96	2.41 ± 2.81	-29.95 ± 29.80	-25.67 ± 24.76
P67	AFerm		38.57 ± 1.52	35.69 ± 6.04	60.24 ± 21.02
	ProStab	88.57 ± 9.82	80.79 ± 7.15	93.74 ± 10.84	100.00 ± 0.00
PR32	AFerm		100.00 ± 0.00 a	29.29 ± 8.81 b	100.00 ± 0.00 a
	ProStab	100.00 ± 0.00	-	100.00 ± 0.00	-
PR25	AFerm		52.52 ± 5.80 b	24.43 ± 1.32 c	73.59 ± 2.73 a
	ProStab	88.55 ± 7.08 a	71.95 ± 4.63 b	89.94 ± 2.80 a	70.75 ± 7.46 b
PR23	AFerm		61.31 ± 5.36 b	29.87 ± 3.20 c	81.36 ± 4.73 a
	ProStab	91.16 ± 5.54 a	79.96 ± 4.06 b	92.81 ± 3.17 a	75.32 ± 8.73 b
PR22	AFerm		82.18 ± 2.71 b	16.96 ± 5.58 c	92.76 ± 2.69 a
	ProStab	92.05 ± 4.61 ab	84.34 ± 4.71 b	98.94 ± 1.30 a	93.80 ± 6.18 a
PR20	AFerm		75.72 ± 1.19 a	22.06 ± 4.00 b	79.89 ± 4.07 a
	ProStab	81.62 ± 1.43 a	51.50 ± 0.74 b	83.67 ± 1.28 a	19.65 ± 13.65 c
total PR	AFerm		65.50 ± 3.99 b	23.96 ± 2.09 c	80.37 ± 3.34 a
	ProStab	88.33 ± 4.90 a	71.61 ± 3.42 b	90.84 ± 1.59 a	61.06 ± 6.65 c

CO – control wine without bentonite or commercial enological tannin preparation added during fermentation, GSAB – initial dose (95 g/hL) of granular sodium-activated bentonite added near the end of fermentation, ET – commercial enological tannin preparation (25 g/hL divided in three portions) added during fermentation, GSAB + ET – initial dose (95 g/hL) of granular sodium-activated bentonite added near the end of fermentation and commercial enological tannin preparation (25 g/hL divided in three portions) added during fermentation. AFerm – wines analyzed after fermentation, ProStab – wines analyzed after total protein stabilization by additional post-fermentation fining with bentonite. AFerm reductions were calculated in relation to CO wine and ProStab reductions in relation to corresponding AFerm wines. Different lowercase letters in a row represent statistically significant differences among treatments, at $p < 0.05$ obtained by one-way ANOVA and LSD test. [1] ratio of % values.

Table S3. Reduction of the concentrations of proteins in Malvazija istarska wines (mean ± standard deviation; n = 3; %) obtained after partial fining with different types of bentonite in fermentation, and in final protein stable wines.

Protein	Stage	Treatment				
		CO	GSAB	PEN	MVN	PUR
RP-HPLC						
TL1	AFerm		66.94 ± 2.24 c	74.72 ± 3.30 b	73.25 ± 1.86 b	94.16 ± 1.10 a
	ProStab	95.76 ± 0.92 a	88.65 ± 0.41 bc	86.09 ± 1.44 bc	89.47 ± 0.93 b	84.58 ± 3.56 c
TL2	AFerm		49.70 ± 3.21 b	48.83 ± 2.26 b	46.55 ± 2.87 b	73.95 ± 2.08 a
	ProStab	93.18 ± 0.39 a	87.07 ± 1.03 b	80.94 ± 3.79 c	84.61 ± 2.03 bc	74.11 ± 2.7 d
TL3	AFerm		28.64 ± 5.21 b	13.35 ± 5.27 c	10.70 ± 4.31 c	49.28 ± 2.45 a
	ProStab	88.43 ± 0.99 a	84.23 ± 1.47 ab	77.30 ± 5.15 b	80.74 ± 4.27 b	64.66 ± 2.45 c
TL4	AFerm		77.38 ± 1.20 b	96.83 ± 1.94 a	97.76 ± 0.34 a	98.49 ± 0.17 a
	ProStab	97.27 ± 1.16	91.46 ± 0.57	91.49 ± 1.49	93.44 ± 1.59	95.54 ± 5.30
CHI1	AFerm		62.84 ± 3.22 c	70.30 ± 3.11 b	61.80 ± 3.30 c	83.41 ± 1.77 a
	ProStab	94.97 ± 0.21 a	88.70 ± 0.62 b	85.54 ± 1.85 b	88.52 ± 0.47 b	76.74 ± 3.62 c
CHI2	AFerm		63.13 ± 3.37 c	74.78 ± 3.09 b	66.61 ± 2.78 c	85.78 ± 1.44 a
	ProStab	95.34 ± 0.30 a	88.91 ± 0.74 b	85.18 ± 2.04 b	87.87 ± 0.47 b	77.69 ± 4.21 c
total TL	AFerm		64.87 ± 1.48 c	73.39 ± 2.32 b	72.52 ± 1.55 b	89.09 ± 1.00 a
	ProStab	95.29 ± 0.77 a	88.16 ± 0.66 b	82.45 ± 3.10 c	85.85 ± 1.80 bc	73.56 ± 2.9 d
total CHI	AFerm		62.97 ± 3.29 c	72.30 ± 3.09 b	63.96 ± 3.07 c	84.47 ± 1.62 a
	ProStab	95.14 ± 0.24 a	88.79 ± 0.67 b	85.39 ± 1.90 b	88.25 ± 0.39 b	77.13 ± 3.86 c
total	AFerm		63.94 ± 2.36 c	72.86 ± 2.70 b	68.34 ± 2.14 c	86.84 ± 1.30 a
	ProStab	95.22 ± 0.52 a	88.48 ± 0.67 b	83.91 ± 2.47 c	87.18 ± 0.91 bc	75.61 ± 3.39 d
total TL / total CHI [1]	AFerm		1.03 ± 0.03 b	1.02 ± 0.01 b	1.14 ± 0.04 a	1.05 ± 0.01 b
	ProStab	1.00 ± 0.01	0.99 ± 0.00	0.97 ± 0.02	0.97 ± 0.02	0.95 ± 0.02
SE-HPLC						
P93	AFerm		20.00 ± 4.92	21.53 ± 11.26	24.96 ± 1.36	30.11 ± 5.22
	ProStab	11.45 ± 17.63	4.28 ± 14.61	6.07 ± 10.06	5.47 ± 6.51	3.35 ± 9.35
P67	AFerm		10.23 ± 6.27 b	2.14 ± 6.70 b	-2.16 ± 8.44 b	41.29 ± 3.74 a
	ProStab	89.02 ± 0.36 a	86.31 ± 0.05 a	81.33 ± 1.87 a	83.27 ± 3.82 a	68.53 ± 11.63 b
PR32	AFerm		100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00	100.00 ± 0.00
	ProStab	100.00 ± 0.00	-	-	-	-
PR25	AFerm		52.71 ± 1.53 c	61.30 ± 4.12 b	58.52 ± 0.77 b	81.76 ± 1.21 a
	ProStab	94.59 ± 0.66 a	90.64 ± 1.52 ab	86.10 ± 2.52 b	88.11 ± 1.23 b	75.06 ± 4.12 c
PR23	AFerm		61.07 ± 1.14 c	71.96 ± 2.96 b	71.21 ± 1.05 b	88.71 ± 0.57 a
	ProStab	95.24 ± 0.01 a	90.66 ± 1.54 a	87.46 ± 1.33 ab	89.06 ± 1.33 a	80.45 ± 7.59 b
PR22	AFerm		68.60 ± 1.72 c	82.96 ± 3.33 b	82.99 ± 1.39 b	93.76 ± 0.47 a
	ProStab	96.15 ± 0.58	89.18 ± 1.06	86.75 ± 1.82	89.45 ± 1.52	82.43 ± 8.46
PR20	AFerm		61.38 ± 2.45 d	71.46 ± 2.46 c	81.96 ± 0.15 b	93.57 ± 0.31 a
	ProStab	96.15 ± 0.25 a	91.18 ± 0.03 a	87.54 ± 1.85 a	86.37 ± 2.09 a	59.01 ± 10.96 b
total PR	AFerm		59.20 ± 0.29 c	69.44 ± 3.23 b	69.87 ± 0.70 b	87.57 ± 0.72 a
	ProStab	95.32 ± 0.18 a	90.58 ± 1.24 ab	86.73 ± 2.02 b	88.31 ± 1.31 b	75.65 ± 4.89 c

CO – control wine without bentonite in fermentation, GSAB – initial dose (95 g/hL) of granular sodium-activated CX Special Grain bentonite added near the end of fermentation, PEN – initial dose (95 g/hL) of Pentagel bentonite added near the end of fermentation, MVN – initial dose (143 g/hL) of Mastervin Compact bentonite added near the end of fermentation, PUR – initial dose (238 g/hL) of Siha Puranit bentonite added near the end of fermentation. AFerm – wines analyzed after fermentation, ProStab – wines analyzed after total protein stabilization by additional post-fermentation fining with granular sodium-activated CX Special Grain bentonite. AFerm reductions were calculated in relation to CO wine and ProStab reductions in relation to corresponding AFerm wines. Different lowercase letters in a row represent statistically significant differences among treatments, at $p < 0.05$ obtained by one-way ANOVA and LSD test. [1] ratio of % values.

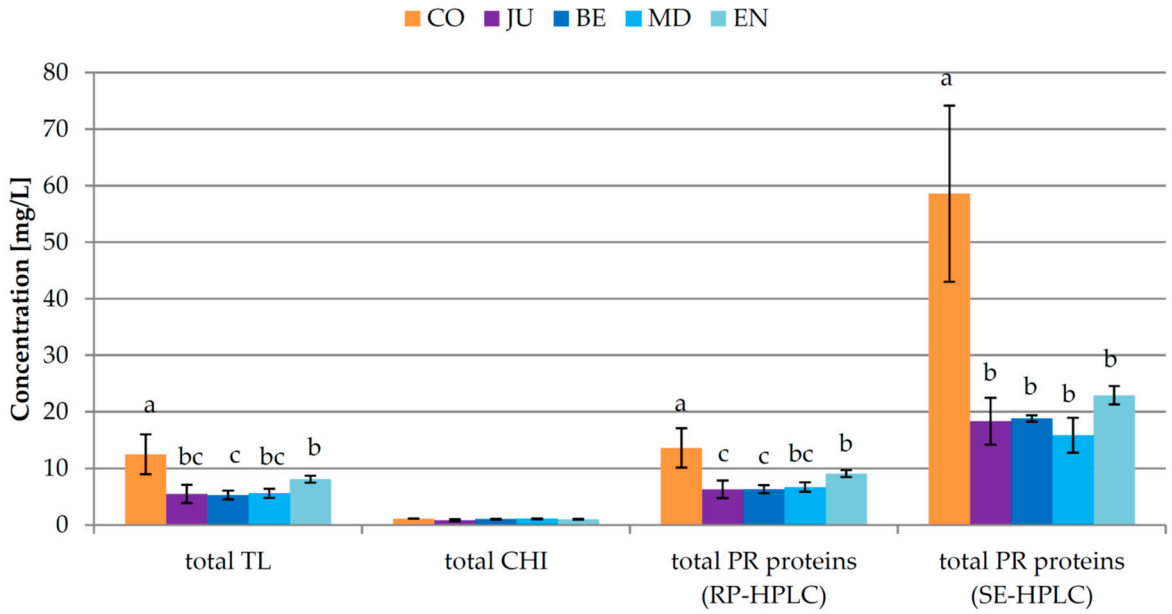

Figure S1. Total residual concentrations of pathogenesis-related (PR) proteins in protein stable Malvazija istarska wines (mean ± standard deviation; n = 3) obtained after partial fining with bentonite at different points of fermentation followed by additional fining by a required dose of granular sodium-activated bentonite after fermentation. CO – control wine without bentonite in fermentation, JU – initial granular sodium-activated bentonite dose added into clear juice, BE – initial granular sodium-activated bentonite dose added at the beginning of fermentation, MD – initial granular sodium-activated bentonite dose added in the middle of fermentation, EN – initial granular sodium-activated bentonite dose added near the end of fermentation. TL – thaumatin-like proteins, CHI – chitinases, RP-HPLC – reverse phase high-performance liquid chromatography, SE-HPLC – size exclusion high-performance liquid chromatography. Different lowercase letters above bars represent statistically significant differences among treatments with respect to total bentonite dose required, at $p < 0.05$ obtained by one-way ANOVA and LSD test.

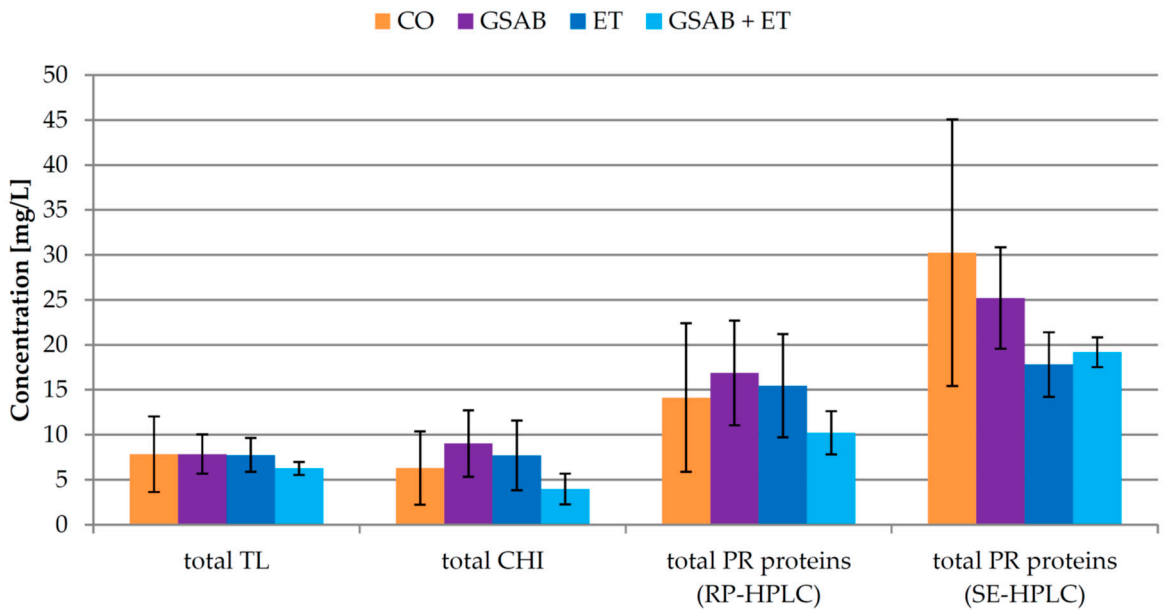

Figure S2. Total residual concentrations of pathogenesis-related (PR) proteins in protein stable Malvazija istarska wines (mean ± standard deviation; n = 3) obtained after partial fining with bentonite and/or the addition of commercial enological tannin preparation during fermentation followed by additional fining by a required dose of granular sodium activated bentonite after fermentation. CO – control wine without bentonite or commercial enological tannin preparation added during fermentation, GSAB – initial dose of granular sodium-activated bentonite added near the end of fermentation, ET – commercial enological tannin preparation added during fermentation, GSAB + ET – initial dose of granular sodium-activated bentonite added near the end of fermentation and commercial enological tannin preparation added during fermentation. TL – thaumatin-like proteins, CHI – chitinases, RP-HPLC – reverse phase high-performance liquid chromatography, SE-HPLC – size exclusion high-performance liquid chromatography. Different lowercase letters above bars represent statistically significant differences among treatments with respect to total bentonite dose required, at $p < 0.05$ obtained by one-way ANOVA and LSD test,

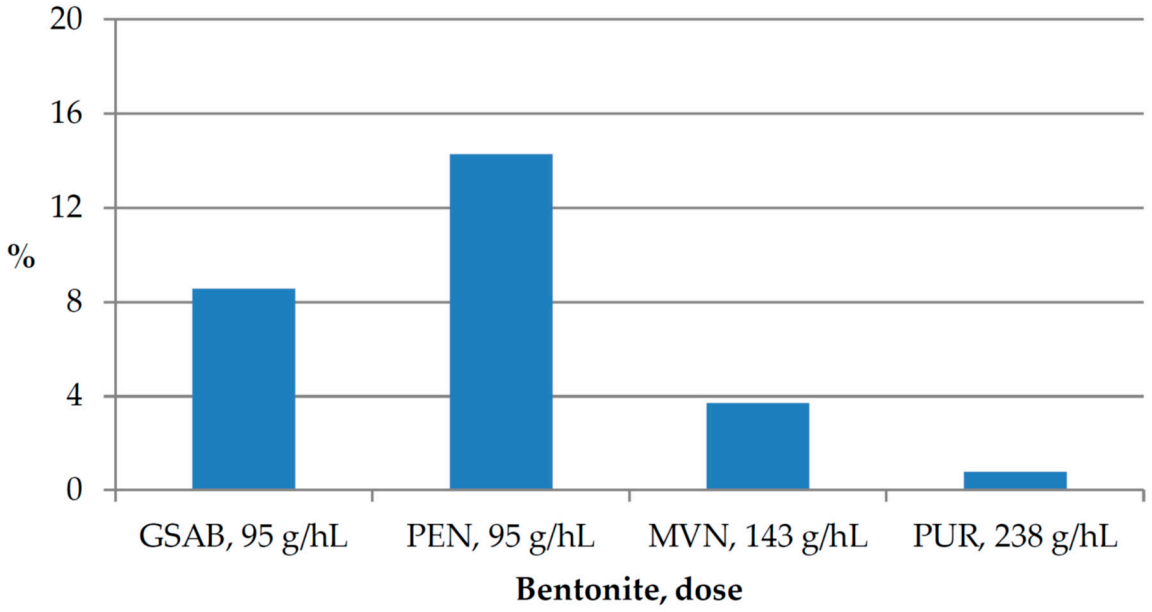

Figure S3. Percentage of bentonite sediment (%) after treatment of grape juice with a dose of 95 g/hL of granular sodium-activated bentonite and equivalent doses of other bentonites determined by a preliminary protein stability test. Abbreviations: GSAB - granular sodium-activated bentonite CX Special Grain, PEN - activated sodium bentonite Pentagel, MVN - activated sodium bentonite with specifically adsorbed silica and activated silica Mastervin Compact, PUR - active Na-Ca bentonite SIHA Puranit

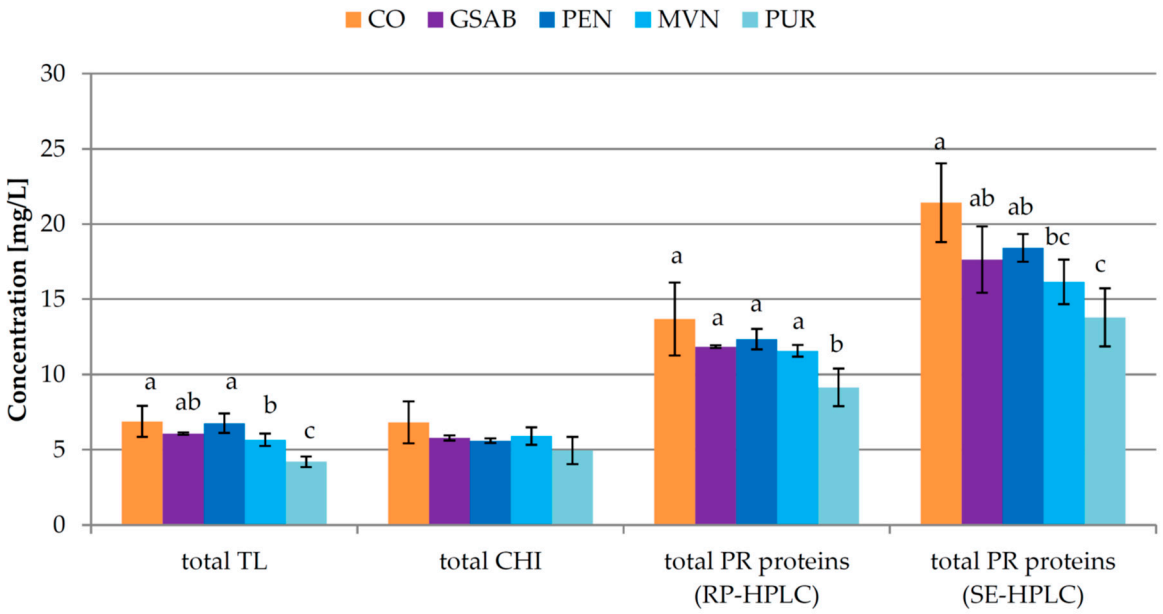

Figure S4. Total residual concentrations of pathogenesis-related (PR) proteins in protein stable Malvazija istarska wines (mean ± standard deviation; n = 3) obtained after partial fining with different types of bentonite in fermentation followed by additional fining by a required dose of granular sodium-activated bentonite after fermentation. CO – control wine without bentonite in fermentation, GSAB – initial dose (95 g/hL) of granular sodium-activated bentonite CX Special Grain added near the end of fermentation, PEN – initial dose (95 g/hL) of sodium-activated bentonite Pentagel added near the end of fermentation, MVN – initial dose (143 g/hL) of activated sodium bentonite with specifically adsorbed silica and activated silica Mastervin Compact added near the end of fermentation, PUR – initial dose (238 g/hL) of active Na-Ca bentonite Siha Puranit bentonite added near the end of fermentation. TL – thaumatin-like proteins, CHI – chitinases, RP-HPLC – reverse phase high-performance liquid chromatography, SE-HPLC – size exclusion high-performance liquid chromatography. Different lowercase letters above bars represent statistically significant differences among treatments with respect to total bentonite dose required, at $p < 0.05$ obtained by one-way ANOVA and LSD test.