Supplementary Table 1. Results of ANOVA (or Kruskal-Wallis test) for d_5-TCA values in wines grouped according to the types of bottle closures. The presented values are means of three replicates ± standard deviations. Small letters denote significant differences in ANOVA according to the Tukey's test (ns>0.05; *$p \leq 0.05$; **$p < 0.01$; ***$p < 0.001$)

Type of closure	Storage time	d_5-TCA in wine (ng/L) at *Medium conditions*	Significance in ANOVA (in Kruskal-Wallis test)[1]	d_5-TCA in wine (ng/L) at *Intense conditions*	Significance in ANOVA (in Kruskal-Wallis test)[1]
Natural cork HQ	6 months	nd	na[2]	nd	na[2]
	12 months	nd		nd	
	24 months	nd		nd	
Natural cork BQ	6 months	nd		nd	
	12 months	nd		nd	
	24 months	nd		nd	
Agglomerated cork HQ	6 months	nd		nd	
	12 months	nd		nd	
	24 months	nd		nd	
Agglomerated cork BQ	6 months	nd		nd	
	12 months	nd		nd	
	24 months	nd		nd	
Synthetic stopper Low OTR	6 months	nd	*	nd	(Factor Closure p=0.059 Factor Time p<0.001)
	12 months	nd		12.1 ± 2.0	
	24 months	nd		22.7 ± 3.3	
Synthetic stopper Medium OTR	6 months	nd		1.4 ± 0.3	
	12 months	nd		21.7 ± 2.0	
	24 months	1.3 ± 0.1[a]		44.0 ± 6.1	
Synthetic stopper Medium+ OTR	6 months	nd		6.2 ± 0.7	
	12 months	nd		45.4 ± 4.5	
	24 months	2.6 ± 0.6[b]		48.8 ± 3.4	

BVS Saranex™	6 months	nd		< 1	
	12 months	nd		2.7 ± 2.4	
	24 months	nd		2.9 ± 2.5	
BVS Tin Saran™	6 months	nd	na[2]	nd	(Factor Closure p<0.001 Factor Time p=0.675)[3]
	12 months	nd		nd	
	24 months	nd		nd	
MCA screw cap	6 months	nd		16.4 ± 7.0	
	12 months	< 1		27.7 ± 16.2	
	24 months	< 1		29.4 ± 5.8	
Plastic screw cap	6 months	nd	na[2]	2.4 ± 0.9	(Factor Time p=0.026)
	12 months	nd		3.7 ± 0.1	
	24 months	nd		6.3 ± 0.4	
Glass stopper	6 months	nd	ns	36.0 ± 18.7[a]	ns
	12 months	5.0 ± 1.0[a]		62.5 ± 32.5[a]	
	24 months	3.6 ± 0.8[a]		59.1 ± 11.7[a]	

[1] – if Test for Equality of Variances (Levene's) resulted in: p>0.05, then ANOVA was applied; p<0.05, then Kruskal-Wallis Test was applied.

[2] – not applicable because of non-detectable or non-quantifiable values of d_5-TCA content in wine.

[3] – BVS Tin Saran™ screw caps are not included because of non-detectable values of d_5-TCA content in these wine samples.

Supplementary Table 2. Results of ANOVA (or Kruskal-Wallis test) for *releasable* d_5-TCA content in bottle closure extracts grouped according to their types. The values are means of three replicates ± standard deviations. Small letters denote significant differences in ANOVA according to the Tukey's test (ns>0.05; *$p \leq 0.05$; **$p < 0.01$; ***$p < 0.001$)

Type of closure	Storage time	d_5-TCA in extract (ng/L) at *Medium conditions*	Significance in ANOVA (in Kruskal-Wallis test)[1]	d_5-TCA in extract (ng/L) at *Intense conditions*	Significance in ANOVA (in Kruskal-Wallis test)[1]
Natural cork HQ	12 months	39.4 ± 14.7		40.9 ± 27.6	
(Outer part)	24 months	39.4 ± 14.6		11.2 ± 1.2	
Natural cork BQ	12 months	nd		31.9 ± 55.3	
(Outer part)	24 months	12.8 ± 2.2	(Factor Closure p=0.013	11.1 ± 1.9	(Factor Closure p=0.368
Agglomerated cork HQ	12 months	27.6 ± 22.8	Factor Time p=0.272)	nd	Factor Time p=0.165)
(Outer part)	24 months	35.1 ± 28.9		16.8 ± 1.2	
Agglomerated cork BQ	12 months	34.6 ± 11.8		nd	
(Outer part)	24 months	41.9 ± 17.0		16.4 ± 2.2[a]	
Synthetic stopper	12 months	9.4 ± 3.2		62.2 ± 8.8[b]	
Low OTR *(Outer part)*	24 months	11.2 ± 4.1		31.2 ± 1.8[a]	
Synthetic stopper	12 months	9.7 ± 2.4	(Factor Closure p=0.003	68.5 ± 8.3[b]	**
Medium OTR *(Outer part)*	24 months	11.3 ± 3.2	Factor Time p=0.353)	34.0 ± 3.9[a]	
Synthetic stopper	12 months	46.7 ± 12.3		74.7 ± 5.7[b]	
Medium+ OTR *(Outer part)*	24 months	52.3 ± 16.1		37.7 ± 2.5[a]	
BVS Saranex™	12 months	nd		17.1 ± 9.5[ab]	
(Liner)	24 months	nd		5.7 ± 5.0[a]	
BVS Tin Saran™	12 months	nd	ns[2]	27.6 ± 10.5[b]	*
(Liner)	24 months	nd		6.2 ± 0.4[a]	
MCA screw cap	12 months	4.8 ± 2.2[a]		24.3 ± 8.6[ab]	
(Liner)	24 months	1.2 ± 1.0[a]		17.9 ± 0.9[ab]	

Plastic screw cap *(Sealing ring)*	12 months	nd	na[3]	3.8 ± 1.7[a]	ns
	24 months	nd		3.4 ± 1.3[a]	
Glass stopper *(Sealing ring)*	12 months	8.1 ± 0.9[b]	**	64.5 ± 4.6	(Factor Time p=0.05)
	24 months	3.7 ± 0.5[a]		24.3 ± 0.2	

[1] – if Test for Equality of Variances (Levene's) resulted in: p>0.05, then ANOVA was applied; p<0.05, then Kruskal-Wallis Test was applied.

[2] – ANOVA was performed for extracts with MCA screw caps 12 months and 24 months of storage.

[3] – not applicable because of non-detectable or non-quantifiable values of d_5-TCA content in extracts.

Data Processing

Calculation of means (± standard deviations) were performed using Microsoft Office (Version 15.0.5153.1000, Microsoft Corporation, Redmond, Washington, DC, USA). Where d_5-TCA values were below the LOD, they were considered to be "0 ng/L" for the calculation of means. Statistical analysis was performed using JASP software (Version 0.16, University of Amsterdam, Netherlands). Analysis of variance (ANOVA) was carried out with the Tukey HSD test for post hoc comparison to discriminate among the means of d_5-TCA content in wine (Supplementary Table 1) and *releasable* d_5*-TCA* content of bottle closure extracts (Supplementary Table 2). The values for ANOVA analysis were grouped according to bottle closure types. If ANOVA assumptions were not fulfilled (as shown by the Levene tests with p<0.05 for equality of variance), the nonparametric Kruskal-Wallis Test was applied (Supplementary Tables 1 and 2).