

Supporting Information

New protective coatings against lampenflora growing in the Pommery Champagne cellar

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Figure S1. Localisation of the sampling locations for the identification of the biofilm microorganisms.

Table S1. Applied quantity of liquid product on each slab and equivalent dry weight for the three biocidal assays.

Assay	Weight of liquid coating/slab (g)			Weight of dry coating/slab (g)		
	POM-IL1	POM-IL2	PR80	POM-IL1	POM-IL2	PR80
1	0.24 ± 0.01	0.21 ± 0.01	0.28 ± 0.03	0.04 ± 0.01	0.03 ± 0.01	0.15 ± 0.02
2	0.42 ± 0.01	0.40 ± 0.01	0.44 ± 0.01	0.08 ± 0.02	0.09 ± 0.01	0.24 ± 0.01
3	0.10 ± 0.03	0.12 ± 0.01	0.11 ± 0.01			
	0.20 ± 0.04	0.22 ± 0.03	0.23 ± 0.02			
	0.41 ± 0.02	0.40 ± 0.01	0.41 ± 0.01			

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Table S2. Identification of algae and cyanobacteria species by the closest affiliation in NCBI BlastN with primer, similarity percentage. The nucleotide sequence data have been deposited NCBI nucleotide sequence database under accession number. *CR_GenBank accession number.

Phylogenetic closest affiliation of isolates	Primer	Similarity (%)	Accession number*
<i>Chromochloris zofingiensis</i> strain ACSSI	18S rRNA	98.19	OK217227.1
<i>Pseudostichococcus monallantoides</i> strain UTEX 2249	rbcL	98.46	OK432519
<i>Diplosphaera</i> sp. cort12	rbcL	98.28	OK432520
<i>Timaviella</i> sp.	16S rRNA	98.00	OK422863

Table S3. Hoagland medium composition.

Hoagland - Component	Stock Solution	Stock Solution ml / L
2M KNO ₃	202 g/L	2.5
2M Ca(NO ₃) ₂ •4H ₂ O	472 g/L	2.5
2M MgSO ₄ •7H ₂ O	493 g/L	1
1M KH ₂ PO ₄	136 g/L	1
H ₃ BO ₃	2.86 g/L	1
MnCl ₂ •4H ₂ O	1.81 g/L	1
ZnSO ₄ •7H ₂ O	0.22 g/L	1
CuSO ₄ •5H ₂ O	0.08 g/L	1
Na ₂ MoO ₄ •2H ₂ O ☆	0.12 g/L	1
Iron(III)-EDTA	0.14 g/L	1.5

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Table S4. Δa^* and F_v/F_M average and standard deviation for Assay 1.

coating	Time (week)	<i>Chromochloris</i> sp. inoculation				<i>Pseudostichococcus</i> sp. inoculation			
		Δa^* average	Δa^* SD	F_v/F_M average	F_v/F_M SD	Δa^* average	Δa^* SD	F_v/F_M average	F_v/F_M SD
NO	0			0.47	0.03			0.28	0.07
	1	-3.3	0.8	0.61	0.03	-14.0	2.0	0.44	0.07
	2	-7.3	1.3	0.49	0.05	-20.2	1.2	0.62	0.01
	3	-12.8	2.6	0.47	0.05	-17.5	2.2	0.50	0.02
	4	-15.1	3.7	0.50	0.02	-17.5	2.2	0.48	0.01
	5	-17.6	2.1	0.41	0.03	-19.3	1.1	0.50	0.03
	7	-14.6	2.3	0.39	0.03	-21.1	1.1	0.44	0.04
POM-IL1	0			0.44	0.05			0.28	0.07
	1	0.3	0.4	0.56	0.04	0.0	0.2	0.23	0.05
	2	0.7	0.4	0.08	0.04	0.2	0.3	0.20	0.02
	3	0.7	0.4	0.16	0.04	-0.8	0.6	0.14	0.04
	4	0.7	0.4	0.05	0.01	-2.9	1.3	0.22	0.08
	5	0.5	0.4	0.13	0.02	-6.3	1.8	0.24	0.09
	7	-0.9	0.7	0.17	0.04	-10.0	2.9	0.35	0.08
POM-IL2	0			0.38	0.03			0.33	0.04
	1	-1.4	0.3	0.57	0.02	-9.6	2.0	0.30	0.04
	2	-3.0	0.4	0.35	0.09	-18.5	1.3	0.57	0.02
	3	-7.5	1.0	0.31	0.07	-16.0	2.4	0.42	0.01
	4	-10.3	1.9	0.36	0.06	-15.8	2.6	0.47	0.02
	5	-12.6	2.8	0.45	0.03	-16.8	1.6	0.43	0.03
	7	-15.7	3.4	0.40	0.03	-17.0	1.6	0.37	0.04
PR80	0			0.41	0.04			0.34	0.04
	1	-1.4	0.5	0.50	0.02	-1.2	0.8	0.33	0.06
	2	-3.4	1.2	0.36	0.08	-5.9	3.3	0.41	0.06
	3	-9.1	2.3	0.32	0.05	-14.4	2.9	0.46	0.02
	4	-14.2	2.0	0.42	0.04	-16.3	2.1	0.41	0.03
	5	-16.7	1.1	0.46	0.02	-17.1	2.4	0.38	0.03
	7	-17.9	2.1	0.40	0.04	-16.5	1.8	0.31	0.04

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Table S5. Δa^* and F_v/F_M average and standard deviation for Assay 2.

coating	Time (week)	Δa^* average	Δa^* SD	F_v/F_M average	F_v/F_M SD
NO	0			0.12	0.06
	1	-2.1	1.8	0.32	0.11
	2	-15.7	3.3	0.47	0.05
	3	-18.4	2.0	0.42	0.04
	4	-19.2	1.5	0.46	0.02
	5	-19.1	1.7	0.33	0.03
POM- IL1	0			0.15	0.06
	1	0.4	0.3	0.06	0.03
	2	0.5	0.3	0.08	0.02
	3	0.5	0.3	0.03	0.01
	4	0.5	0.3	0.04	0.01
	5	0.4	0.3	0.03	0.01
POM- IL2	0			0.12	0.05
	1	0.5	0.2	0.05	0.02
	2	0.6	0.2	0.02	0.02
	3	0.5	0.2	0.01	0.02
	4	0.5	0.2	0.04	0.02
	5	0.5	0.2	0.01	0.01
PR80	0			0.14	0.04
	1	0.2	0.2	0.06	0.04
	2	0.4	0.2	0.03	0.02
	3	0.2	0.5	0.02	0.02
	4	-0.1	1.0	0.08	0.06
	5	-3.3	3.0	0.17	0.12

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Table S6. Δa^* and F_v/F_M average and standard deviation for Assay 3.

coating	Time (week)	Δa^* average	Δa^* SD	F_v/F_M average	F_v/F_M SD
NO	0			0.21	0.06
	1	-7.0	3.9	0.39	0.09
	2	-17.2	4.3	0.51	0.04
	3	-19.0	2.9	0.40	0.02
	4	-19.7	2.6	0.41	0.03
	5	-19.2	2.6	0.33	0.04
POM-IL1 0.1g	0			0.06	0.04
	1	0.7	0.4	0.05	0.02
	2	0.6	0.5	0.16	0.07
	3	0.6	0.4	0.06	0.02
	4	0.5	0.5	0.18	0.04
	5	0.5	0.5	0.06	0.03
POM-IL2 0.1g	0			0.04	0.02
	1	0.4	0.2	0.04	0.02
	2	0.5	0.2	0.12	0.11
	3	0.4	0.2	0.07	0.03
	4	0.2	0.3	0.14	0.04
	5	0.3	0.3	0.05	0.02
POM-IL1 0.2g	0			0.04	0.04
	1	1.0	0.4	0.04	0.01
	2	0.7	0.4	0.11	0.03
	3	0.8	0.4	0.06	0.03
	4	0.7	0.4	0.17	0.04
	5	0.7	0.4	0.04	0.02
POM-IL2 0.2g	0			0.05	0.05
	1	0.9	0.5	0.04	0.02
	2	0.8	0.6	0.11	0.04
	3	0.8	0.5	0.05	0.03
	4	0.8	0.6	0.19	0.03
	5	0.8	0.6	0.06	0.03
PR80 0.2g	0			0.06	0.04
	1	0.6	0.7	0.06	0.06
	2	0.4	1.3	0.19	0.10
	3	0.4	1.1	0.08	0.08
	4	-0.8	2.3	0.16	0.07
	5	-2.7	4.6	0.20	0.11

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coating	Time (week)	Δa^* average	Δa^* SD	F_v/F_M average	F_v/F_M SD
POM- IL1 0.4g	0			0.09	0.04
	1	1.0	0.7	0.02	0.01
	2	0.8	0.8	0.11	0.04
	3	0.9	0.8	0.06	0.02
	4	0.8	0.8	0.12	0.03
	5	0.8	0.8	0.04	0.05
POM- IL2 0.4g	0			0.09	0.05
	1	0.8	0.5	0.03	0.02
	2	0.7	0.5	0.09	0.04
	3	0.8	0.5	0.06	0.02
	4	0.7	0.5	0.13	0.04
	5	0.7	0.5	0.02	0.01
PR80 0.4g	0			0.05	0.02
	1	1.0	0.2	0.04	0.02
	2	0.8	0.3	0.09	0.03
	3	0.9	0.2	0.06	0.02
	4	0.8	0.2	0.14	0.03
	5	0.8	0.3	0.05	0.02

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Table S7. Δa^* and F_V/F_M average and standard deviation for Assay 4.

coating	Time (week)	Δa^* average	Δa^* SD	F_V/F_M average	F_V/F_M SD
NO	0			0.14	0.04
	1	-4.8	1.8	0.35	0.07
	2	-18.5	3.5	0.40	0.04
	3	-20.1	2.3	0.58	0.02
	4	-19.6	1.9	0.32	0.04
	5	-18.7	1.5	0.45	0.04
POM-IL1 0.1g wet	0			0.13	0.04
	1	0.3	0.4	0.18	0.05
	2	0.5	0.5	0.20	0.06
	3	0.5	0.5	0.11	0.04
	4	0.5	0.4	0.11	0.05
	5	-0.3	1.0	0.15	0.06
POM-IL2 0.1g wet	0			0.13	0.03
	1	0.3	0.4	0.17	0.05
	2	-0.4	1.0	0.18	0.05
	3	-2.5	3.3	0.16	0.04
	4	-8.0	6.6	0.24	0.09
	5	-14.4	8.2	0.27	0.06
POM-IL1 0.2g wet	0			0.16	0.04
	1	0.1	0.5	0.15	0.04
	2	0.4	0.6	0.09	0.09
	3	0.4	0.6	0.01	0.04
	4	0.2	0.8	0.16	0.05
	5	-0.4	1.4	0.13	0.05
POM-IL2 0.2g wet	0			0.14	0.04
	1	0.5	0.5	0.15	0.05
	2	0.6	0.4	0.15	0.04
	3	0.3	0.7	0.06	0.09
	4	-0.4	2.0	0.14	0.08
	5	-2.0	4.9	0.12	0.05
POM-IL1 0.4g dry	0			0.13	0.04
	1	0.5	0.3	0.18	0.06
	2	0.7	0.3	0.15	0.09
	3	0.6	0.3	0.16	0.04
	4	0.6	0.4	0.18	0.06
	5	0.4	0.6	0.13	0.04
POM-IL2 0.4g dry	0			0.12	0.04
	1	0.4	0.3	0.18	0.04
	2	0.6	0.2	0.11	0.09
	3	0.5	0.3	0.16	0.05
	4	0.5	0.4	0.19	0.08
	5	0.2	0.6	0.18	0.07

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PR80 0.4g wet	0			0.17	0.06
	1	-3.9	2.5	0.39	0.08
	2	-16.2	5.5	0.43	0.10
	3	-18.4	4.4	0.42	0.04
	4	-18.2	3.3	0.57	0.04
	5	-16.2	3.2	0.56	0.05