

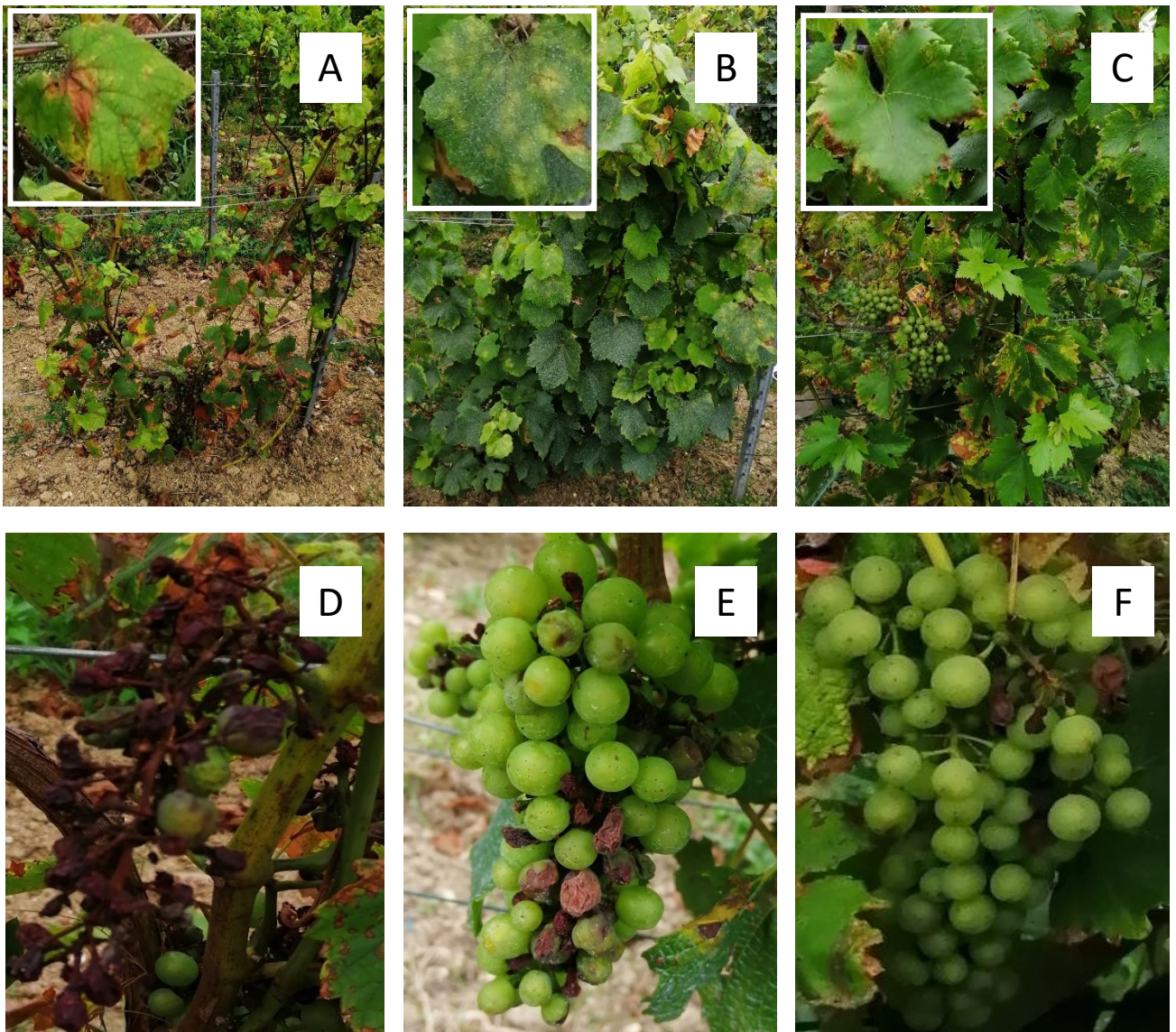


Figure S1: Downy mildew symptoms on leaves and grapes Chardonnay and Voltis at veraison stage. Representative photographs of leaves (A, B, C) and grapes (C, E, F) were obtained from untreated Chardonnay (A, D), treated Chardonnay (B, E) and Voltis (C, F), respectively in experimental vineyard located in Plumecoq domain, Champagne, France.

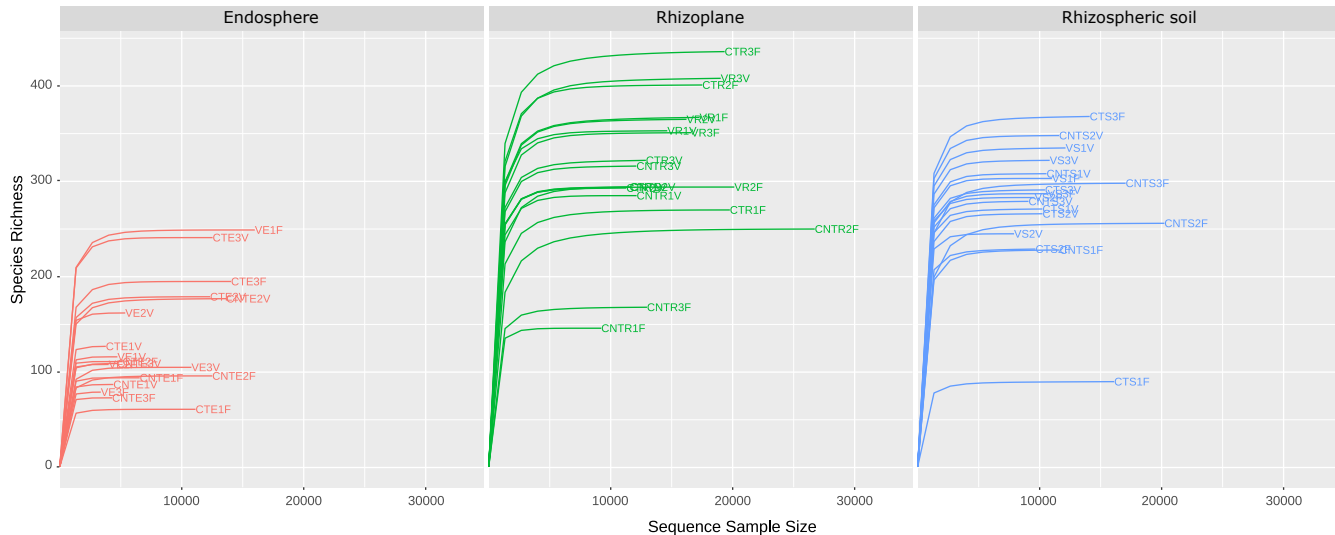


Figure S2: Alpha diversity rarefaction plot at the ASV level to confirm species richness of bacteria in the endosphere, rhizoplane and rhizosphere of susceptible (Chardonnay) and resistant (Voltis) cultivars at flowering and veraison. Each condition was done in triplicate using the following label: cultivar (CNT: untreated Chardonnay; CT: treated Chardonnay; V: Voltis), rhizocompartment (E: endosphere; R: rhizoplane; S: rhizosphere), sample (1, 2 or 3) and stage (F: flowering; V: veraison).

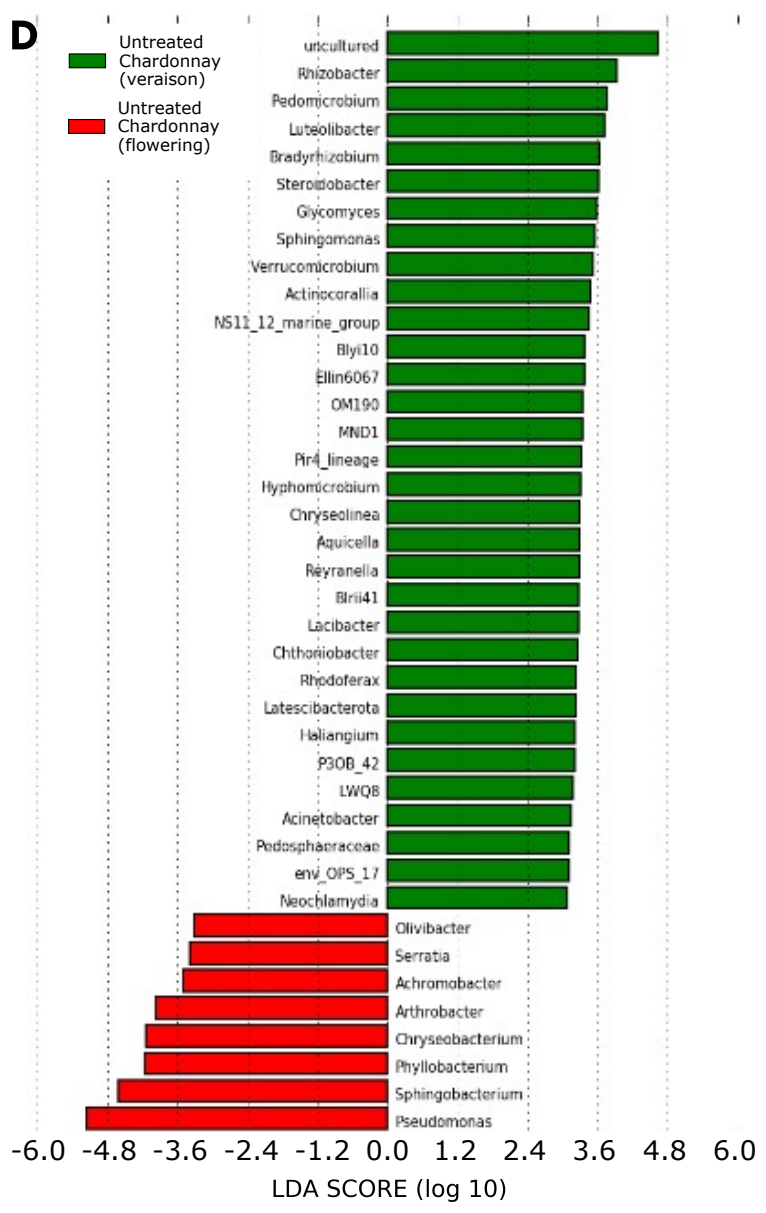
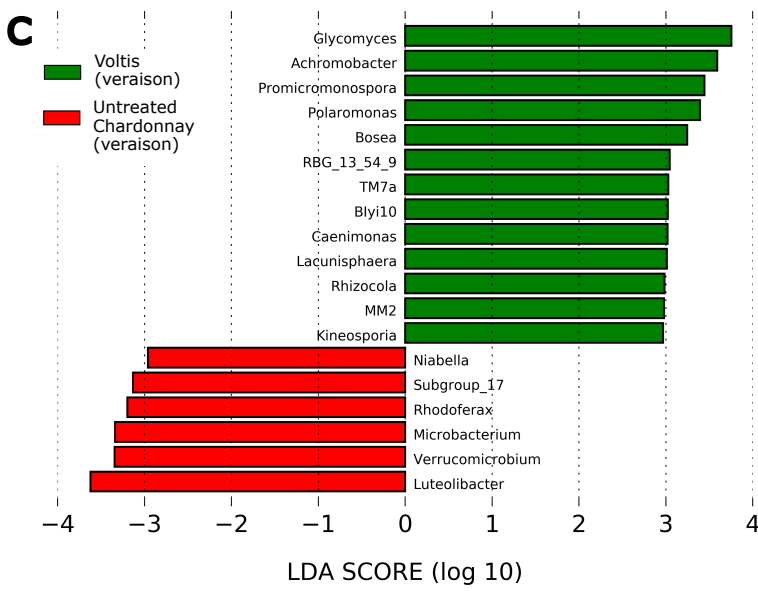
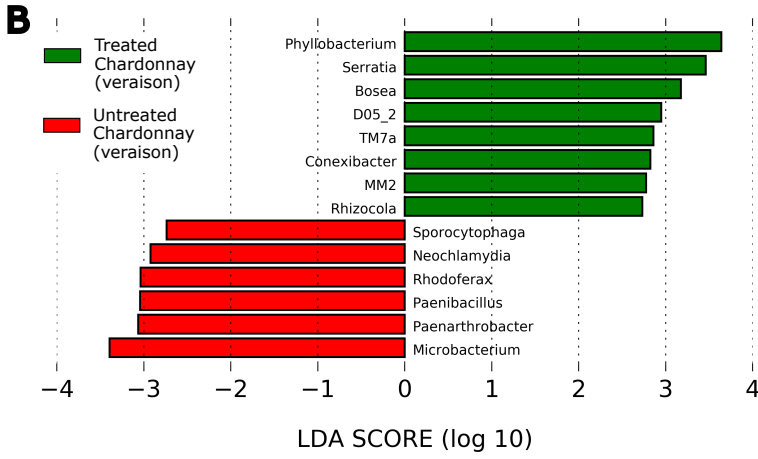
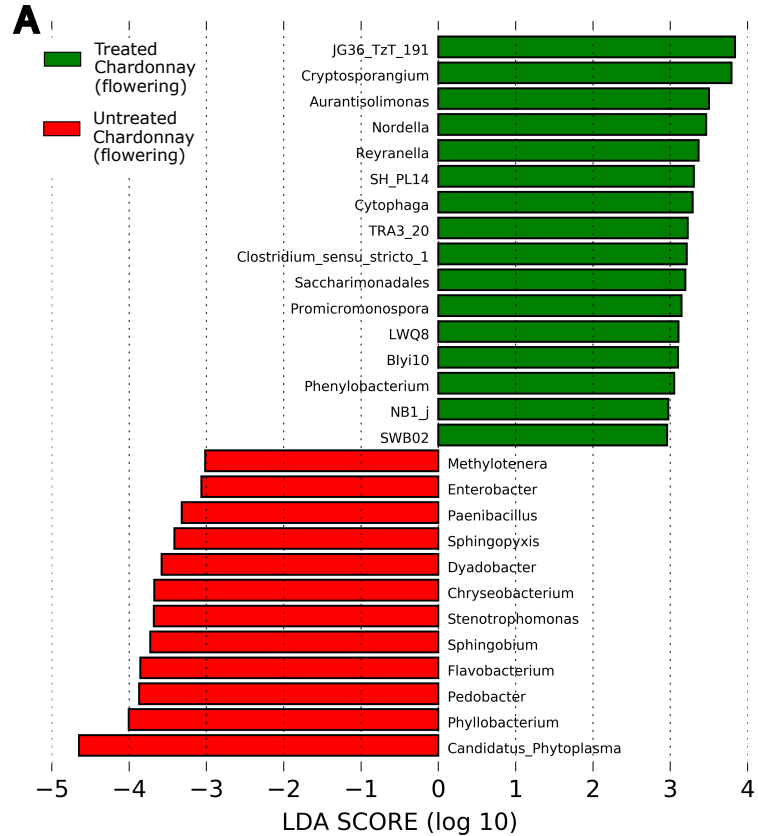


Figure S3: Differential abundances of bacterial genera between plant conditions. Global output of Lefse analyzes with LDA scores ≥ 2 cutoff between (A) treated and untreated Chardonnay at flowering; (B) treated and untreated Chardonnay at veraison; (C) Voltis and untreated Chardonnay at veraison; (D) Untreated Chardonnay at flowering and veraison.

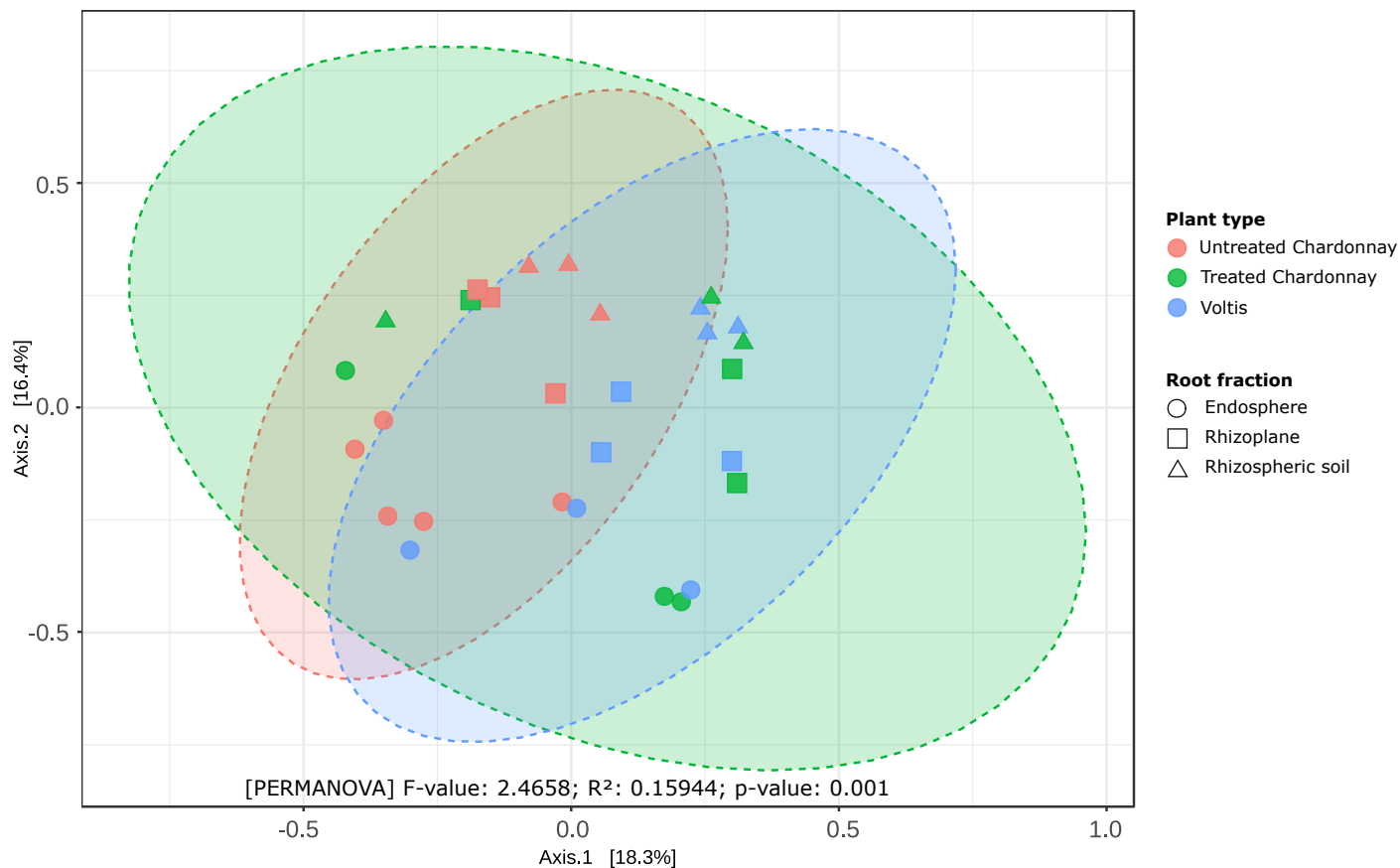


Figure S4: Beta-diversity of bacterial communities in rhizocompartments of susceptible (treated and untreated) and resistant cultivars at flowering. Beta-diversity was calculated using Bray-Curtis distance and statistically tested by the PERMANOVA test. The beta-diversity was visualized by the principle coordinate analysis (PCoA) plots for bacterial communities.

B

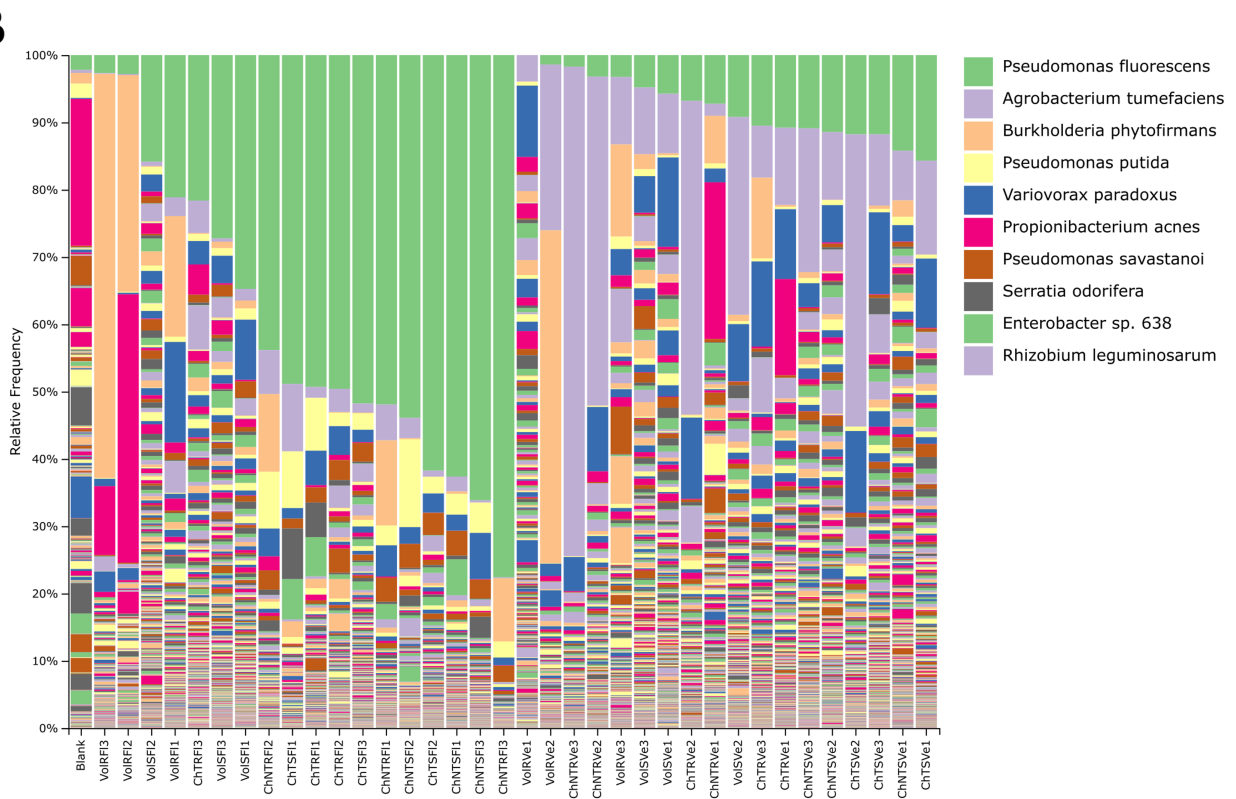
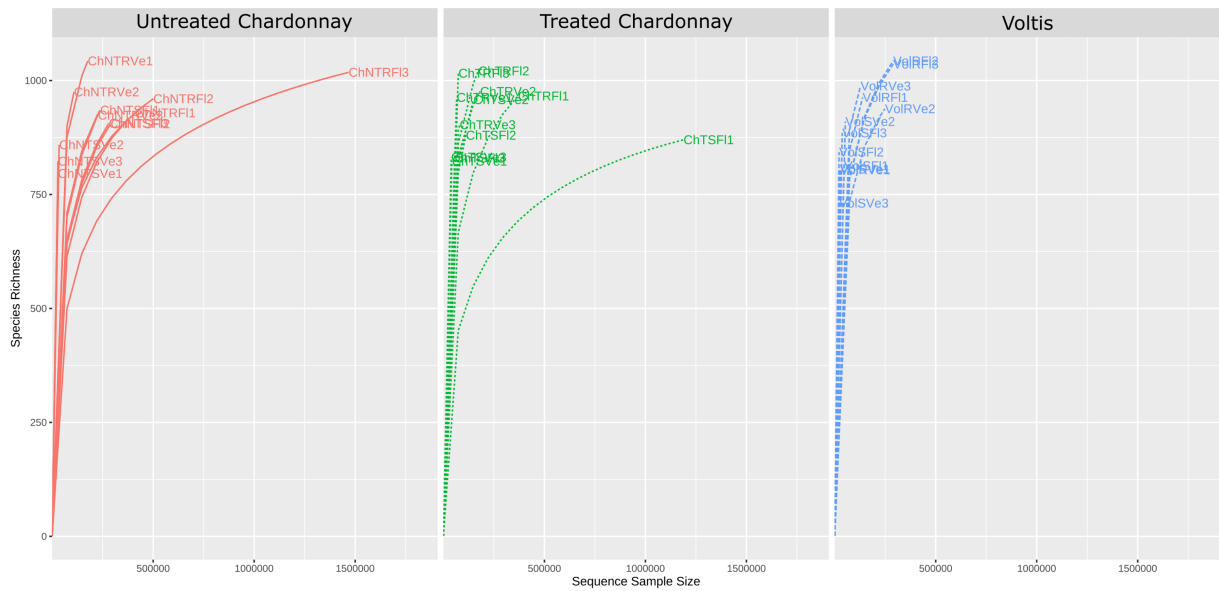


Figure S5: Shotgun metagenomics reads used for taxonomic predictions. (A) Alpha diversity rarefaction plot at the species level for shotgun metagenomics generated taxonomic affiliations. This method does not allow to reach a saturation of the diversity present in the samples and cannot be used for robust analyses of the general microbiome compositions. The endosphere was not included in the shotgun metagenomics analysis because of the overabundance of plant genetic material. (B) Relative abundance of bacterial species in the rhizoplane and rhizospheric soil of untreated and treated Chardonnay as well as Voltis. The taxonomic affiliation at the species level for the overall ten most abundant taxa is shown. Each condition was done in triplicate using the following label: cultivar (ChNT: untreated Chardonnay; ChT: treated Chardonnay; V: Voltis), rhizocompartment (R: rhizoplane; S: rhizosphere), stage (Fl: flowering; Ve: veraison) and sample (1, 2 or 3).

Table S1: Taxonomical composition of bacterial communities in the rhizocompartments of Chardonnay (untreated and treated) and Voltis, at flowering (absence of *P. viticola*), and veraison (presence of *P. viticola*). The top 18 taxa were shown, and the less abundant taxa grouped as “Others”. For each rhizocompartment, the taxa abundance was reported at 100%. E: endosphere; R: rhizosphere; S: Rhizospheric soil.

	Untreated Chardonnay						Treated Chardonnay						Voltis					
	Flowering			Veraison			Flowering			Veraison			Flowering			Veraison		
	E	R	S	E	R	S	E	R	S	E	R	S	E	R	S	E	R	S
Proteobacteria	38.96	70.80	56.80	48.70	50.21	36.95	55.00	57.16	58.66	54.91	53.92	43.08	44.28	53.29	38.07	55.54	53.65	35.78
Bacteroidota	18.97	11.51	14.32	18.16	17.22	4.95	17.25	10.11	11.66	17.09	12.23	5.83	11.12	11.10	3.78	13.41	10.52	5.53
Actinobacteriota	11.25	13.25	21.08	11.73	16.03	29.47	21.93	20.71	20.02	22.74	20.41	30.47	23.73	23.12	38.57	26.72	20.96	34.75
Myxococcota	0.48	0.18	0.54	1.44	1.52	2.01	2.71	0.94	0.57	1.60	1.27	1.29	3.76	1.19	1.23	1.64	1.27	1.85
Acidobacteriota	0.23	1.08	1.94	0.75	3.12	7.10	0.20	2.83	1.95	0.83	3.83	5.96	0.85	2.28	5.17	0.54	3.55	6.38
Verrucomicrobiota	0.23	0.78	1.12	1.99	4.48	4.32	0.72	2.72	1.69	1.59	3.09	3.27	0.45	2.00	3.13	0.59	2.75	3.46
Planctomycetota	0.02	0.51	0.85	0.34	1.76	3.46	0.25	1.33	1.33	0.22	1.22	2.08	0.30	1.73	1.80	0.13	1.26	2.34
Patescibacteria	0.06	0.17	0.01	0.73	0.42	0.05	0.35	0.93	0.10	0.49	0.60	0.09	1.07	1.93	0.07	0.83	1.59	0.23
Firmicutes	29.80	0.91	2.12	15.76	2.66	5.62	1.26	1.26	2.16	0.00	1.49	4.02	13.98	1.43	3.50	0.09	1.82	4.48
Chloroflexi	0.00	0.44	0.53	0.23	1.57	2.17	0.09	1.18	0.94	0.17	0.93	2.01	0.20	1.09	2.60	0.33	1.45	2.79
Nitrospirota	0.00	0.17	0.52	0.07	0.35	1.71	0.00	0.26	0.47	0.01	0.43	0.82	0.05	0.18	1.02	0.08	0.48	1.00
Bdellovibrionota	0.00	0.02	0.02	0.01	0.19	0.12	0.23	0.14	0.05	0.14	0.23	0.14	0.11	0.12	0.03	0.07	0.11	0.11
Methylomirabilota	0.00	0.03	0.10	0.00	0.09	0.86	0.00	0.06	0.12	0.05	0.21	0.66	0.00	0.08	0.63	0.00	0.13	0.44
Gemmatimonadota	0.00	0.09	0.00	0.00	0.09	0.24	0.00	0.14	0.17	0.01	0.02	0.16	0.00	0.23	0.16	0.00	0.17	0.26
NB1-j	0.00	0.00	0.00	0.00	0.05	0.14	0.00	0.08	0.06	0.00	0.01	0.01	0.02	0.01	0.13	0.00	0.06	0.05
Entotheonellaeota	0.00	0.02	0.05	0.00	0.03	0.20	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.06	0.00	0.08	0.26
Latescibacterota	0.00	0.00	0.00	0.00	0.02	0.32	0.00	0.00	0.03	0.02	0.00	0.03	0.00	0.05	0.06	0.00	0.05	0.24
Others	0.00	0.02	0.00	0.08	0.20	0.29	0.03	0.15	0.02	0.13	0.11	0.06	0.06	0.17	0.01	0.04	0.11	0.03

Table S2: Taxonomy affiliations of the 50 longest genomic assemblies for untreated and treated Chardonnay as well as Voltis at flowering and veraison.

Cultivar	Treatment	Season	Assembly affiliation	Abundance
Chardonnay	Untreated	Flowering	<i>Agrobacterium tumefaciens</i>	1
Chardonnay	Untreated	Flowering	<i>Phyllobacterium zundukense</i>	9
Chardonnay	Untreated	Flowering	<i>Sphingobacterium paramultivorum</i>	3
Chardonnay	Untreated	Flowering	<i>Sphingobacterium thalpophilum</i>	7
Chardonnay	Untreated	Flowering	<i>Pseudomonas azotoformans</i>	11
Chardonnay	Untreated	Flowering	<i>Pseudomonas fluorescens</i>	3
Chardonnay	Untreated	Flowering	<i>Pseudomonas ogarae</i>	1
Chardonnay	Untreated	Flowering	<i>Microbacterium foliorum</i>	2
Chardonnay	Untreated	Flowering	<i>Pseudomonas lini</i>	1
Chardonnay	Untreated	Flowering	<i>Sphingobacterium multivorum</i>	3
Chardonnay	Untreated	Flowering	<i>Sinorhizobium fredii</i>	2
Chardonnay	Untreated	Flowering	<i>Sphingobacterium siyangense</i>	2
Chardonnay	Untreated	Flowering	<i>Microbacterium paraoxydans</i>	1
Chardonnay	Untreated	Flowering	<i>Microbacterium luteolum</i>	2
Chardonnay	Untreated	Flowering	<i>Microbacterium oxydans</i>	1
Chardonnay	Untreated	Flowering	<i>Paraburkholderia phytofirmans</i>	1
Chardonnay	Untreated	Veraison	<i>Agrobacterium radiobacter</i>	4
Chardonnay	Untreated	Veraison	<i>Flavobacterium panici</i>	2
Chardonnay	Untreated	Veraison	<i>Agrobacterium rhizogenes</i>	29
Chardonnay	Untreated	Veraison	<i>Acidovorax radialis</i>	5
Chardonnay	Untreated	Veraison	<i>Acidovorax carolinensis</i>	1
Chardonnay	Untreated	Veraison	<i>Nitrosopumilus piranensis</i>	1
Chardonnay	Untreated	Veraison	<i>Sphingomonas panacis</i>	1
Chardonnay	Untreated	Veraison	<i>Streptomyces pactum</i>	1
Chardonnay	Untreated	Veraison	<i>Acidovorax temperans</i>	2
Chardonnay	Untreated	Veraison	<i>Nitrosocosmicus oleophilus</i>	1
Chardonnay	Untreated	Veraison	<i>Flavobacterium bizetiae</i>	1
Chardonnay	Treated	Flowering	<i>Pseudomonas tensinigenes</i>	2
Chardonnay	Treated	Flowering	<i>Microbacterium oxydans</i>	5
Chardonnay	Treated	Flowering	<i>Serratia ficaria</i>	13
Chardonnay	Treated	Flowering	<i>Sphingobacterium paramultivorum</i>	3
Chardonnay	Treated	Flowering	<i>Agrobacterium tumefaciens</i>	7
Chardonnay	Treated	Flowering	<i>Sphingobacterium multivorum</i>	4
Chardonnay	Treated	Flowering	<i>Phyllobacterium zundukense</i>	1
Chardonnay	Treated	Flowering	<i>Sphingobacterium siyangense</i>	7
Chardonnay	Treated	Flowering	<i>Sphingobacterium thalpophilum</i>	4
Chardonnay	Treated	Flowering	<i>Microbacterium luteolum</i>	1
Chardonnay	Treated	Flowering	<i>Serratia entomophila</i>	2
Chardonnay	Treated	Flowering	<i>Leifsonia xyli</i>	1
Chardonnay	Treated	Veraison	<i>Nitrosopumilus cobalamini</i>	2
Chardonnay	Treated	Veraison	<i>Nitrosocosmicus franklandus</i>	1
Chardonnay	Treated	Veraison	<i>Variovorax paradoxus</i>	12
Chardonnay	Treated	Veraison	<i>Agrobacterium rhizogenes</i>	15
Chardonnay	Treated	Veraison	<i>Rhizobium wittichii</i>	1
Chardonnay	Treated	Veraison	<i>Vitis vinifera</i>	7
Chardonnay	Treated	Veraison	<i>Sphingomonas alpina</i>	1
Chardonnay	Treated	Veraison	<i>Agrobacterium radiobacter</i>	4
Chardonnay	Treated	Veraison	<i>Nitrososphaera gargensis</i>	1
Chardonnay	Treated	Veraison	<i>Nitrosocosmicus hydrocola</i>	1
Chardonnay	Treated	Veraison	<i>Agrobacterium tumefaciens</i>	1
Chardonnay	Treated	Veraison	<i>Agrobacterium vitis</i>	1
Chardonnay	Treated	Veraison	<i>Nitrosocosmicus oleophilus</i>	1
Chardonnay	Treated	Veraison	<i>Nitrosopumilus oxycyclinae</i>	1
Chardonnay	Treated	Veraison	<i>Stenotrophomonas maltophilia</i>	1
Voltis	Untreated	Flowering	<i>Cutibacterium acnes</i>	15
Voltis	Untreated	Flowering	<i>Paraburkholderia phytofirmans</i>	34
Voltis	Untreated	Flowering	<i>Burkholderia contaminans</i>	1
Voltis	Untreated	Veraison	<i>Agrobacterium tumefaciens</i>	4
Voltis	Untreated	Veraison	<i>Nitrosopumilus oxycyclinae</i>	1
Voltis	Untreated	Veraison	<i>Vitis vinifera_mitochondrion</i>	18
Voltis	Untreated	Veraison	<i>Agrobacterium fabacearum</i>	1
Voltis	Untreated	Veraison	<i>Nitrosocosmicus franklandus</i>	1
Voltis	Untreated	Veraison	<i>Streptomyces phage</i>	2
Voltis	Untreated	Veraison	<i>Vitis vinifera_chloroplast</i>	2
Voltis	Untreated	Veraison	<i>Nonomuraea phyllanthi</i>	1
Voltis	Untreated	Veraison	<i>Acetohalobium arabaticum</i>	1
Voltis	Untreated	Veraison	<i>Nitrosocosmicus oleophilus</i>	1
Voltis	Untreated	Veraison	<i>Acanthamoeba castellanii</i>	1
Voltis	Untreated	Veraison	<i>Nitrosocosmicus hydrocola</i>	2
Voltis	Untreated	Veraison	<i>Paraburkholderia phytofirmans</i>	2
Voltis	Untreated	Veraison	<i>Bacillus sp.</i>	1
Voltis	Untreated	Veraison	<i>Vitis riparia</i>	1
Voltis	Untreated	Veraison	<i>Protaetia bacter intestinalis</i>	1
Voltis	Untreated	Veraison	<i>Agrobacterium rhizogenes</i>	1
Voltis	Untreated	Veraison	<i>Nitrosopumilus ureiphilus</i>	1

Table S3: Genome information obtained from the MAGs annotated by the MicroScope platform.

Cultivar	Treatment	Stage	Genus	ID	Seq length	Undetermined bases	% GC	Contig nb	Scaffold nb	CDS nb	Average CDS length	Average intergenic length	% Protein coding density	% Nosferatu Repeated Regions	Pseudogene	CheckM completeness (%)	CheckM contamination (%)
Chardonnay	Untreated	Veraison	<i>Nitrosopumilales</i>	CNTV_Bin7	1629488	17300	35.41	174	174	2002	671.45	168.91	82.33	2.33	2	97.5728	3.8835
Chardonnay	Treated	Veraison	<i>Nitrosopumilales</i>	CTV_Bin3	1688789	19300	35.37	194	194	2049	675.7	173.63	82.07	2.71	2	95.3074	3.39806
Chardonnay	Untreated	Veraison	<i>Flavobacterium</i>	CNTV_Bin5	5427865	45400	33.54	455	455	4971	954.27	148.97	87.79	3.70	2	92.9366	3.91974
Chardonnay	Untreated	Flowering	<i>Shingobacterium</i>	CNTF_Bin35	6322267	2100	40.27	22	22	5552	1019.5	137.95	89.11	1.18	2	99.8413	1.42857
Chardonnay	Treated	Flowering	<i>Shingobacterium</i>	CTF_Bin39	6324835	6200	40.25	63	63	5585	1012.89	139	89.01	1.67	2	99.3651	1.42857
Chardonnay	Untreated	Flowering	<i>Phyllobacterium</i>	CNTF_Bin24	5065490	22100	53.35	222	222	4937	911.38	145.71	88.72	2.87	0	74.4828	0
Chardonnay	Untreated	Flowering	<i>Phyllobacterium</i>	CNTF_Bin39	4621233	59100	57.30	592	592	5098	810.3	137.19	89.1	9.49	0	67.5862	2.58621
Chardonnay	Treated	Flowering	<i>Phyllobacterium</i>	CTF_Bin18	5067605	36500	53.47	366	366	5196	869.55	139.27	88.94	2.29	4	96.5942	0
Chardonnay	Treated	Flowering	<i>Agrobacterium</i>	CTF_Bin22	4754985	12300	59.77	124	124	4565	932.04	134.08	89.06	4.06	4	98.3787	0.643742
Voltis	Untreated	Flowering	<i>Cutibacterium</i>	VOLF_Bin13	2428105	18200	60.08	183	183	2497	888.42	130.53	90.24	2.54	14	98.3553	1.04167
Chardonnay	Untreated	Veraison	<i>Novosphingobium</i>	CNTV_Bin25	2967053	46100	64.32	462	462	3151	851.65	133.89	89.91	3.77	6	75.5486	11.7555
Voltis	Untreated	Flowering	<i>Paraburkholderia</i>	VOLF_Bin15	7988758	71000	62.20	711	711	8155	860.12	158.03	87.09	3.53	8	93.6788	2.23139
Chardonnay	Untreated	Flowering	<i>Pseudomonas</i>	CNTF_Bin20	4460420	84100	63.02	842	842	4588	880.86	122.21	91.19	15.58	8	70.5263	10.5263
Chardonnay	Treated	Flowering	<i>Pseudomonas</i>	CTF_Bin33	6526820	28100	59.23	282	282	6087	952.46	150.89	88.46	14.20	4	84.5614	6.14035
Chardonnay	Treated	Veraison	<i>Variovorax</i>	CTV_Bin11	6425823	91500	66.54	916	916	6762	893.19	101.35	92.92	9.12	4	60.815	0.862069
Chardonnay	Untreated	Veraison	<i>Acidovorax</i>	CNTV_Bin9	5003435	31500	64.45	316	316	4945	912.07	133.38	89.54	3.87	2	96.9066	1.83442

Table S4: MAGs taxonomies assigned by Genome Taxonomy DataBase with the MicroScope platform.

Cultivar	Treatment	Stage	ID	Domain	Phylum	Class	Order	Family	Genus
Chardonnay	Untreated	Veraison	CNTV_Bin7	Archaea	Thermoproteota	Nitrososphaeria	Nitrososphaerales	Nitrososphaeraceae	<i>TA-21</i>
Chardonnay	Treated	Veraison	CTV_Bin3	Archaea	Thermoproteota	Nitrososphaeria	Nitrososphaerales	Nitrososphaeraceae	<i>TA-21</i>
Chardonnay	Untreated	Veraison	CNTV_Bin5	Bacteria	Bacteroidota	Bacteroidia	Flavobacteriales	Flavobacteriaceae	<i>Flavobacterium</i>
Chardonnay	Untreated	Flowering	CNTF_Bin35	Bacteria	Bacteroidota	Bacteroidia	Sphingobacteriales	Sphingobacteriaceae	<i>Sphingobacterium</i>
Chardonnay	Treated	Flowering	CTF_Bin39	Bacteria	Bacteroidota	Bacteroidia	Sphingobacteriales	Sphingobacteriaceae	<i>Sphingobacterium</i>
Chardonnay	Untreated	Flowering	CNTF_Bin24	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	<i>Phyllobacterium</i>
Chardonnay	Untreated	Flowering	CNTF_Bin39	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	<i>Phyllobacterium</i>
Chardonnay	Treated	Flowering	CTF_Bin18	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	<i>Phyllobacterium</i>
Chardonnay	Treated	Flowering	CTF_Bin22	Bacteria	Proteobacteria	Alphaproteobacteria	Rhizobiales	Rhizobiaceae	<i>Agrobacterium</i>
Voltis	Untreated	Flowering	VOLF_Bin13	Bacteria	Actinobacteriota	Actinomycetia	Propionibacteriales	Propionibacteriaceae	<i>Cutibacterium</i>
Chardonnay	Untreated	Veraison	CNTV_Bin25	Bacteria	Proteobacteria	Alphaproteobacteria	Sphingomonadales	Sphingomonadaceae	<i>Novosphingobium</i>
Voltis	Untreated	Flowering	VOLF_Bin15	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Paraburkholderia</i>
Chardonnay	Untreated	Flowering	CNTF_Bin20	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas_E</i>
Chardonnay	Treated	Flowering	CTF_Bin33	Bacteria	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Pseudomonadaceae	<i>Pseudomonas_E</i>
Chardonnay	Treated	Veraison	CTV_Bin11	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Variovorax</i>
Chardonnay	Untreated	Veraison	CNTV_Bin9	Bacteria	Proteobacteria	Gammaproteobacteria	Burkholderiales	Burkholderiaceae	<i>Acidovorax_D</i>

Table S5: EGGNOG functions classification. The unknown and non-affiliated functions were removed from the analyses and the other functions were adjusted to 100%.

	Nitrososphaeria		Bacteroidia			Alphaproteobacteria				Actinomycetia			Gammaproteobacteria				
	Nitrososphaerales		Flavobacteriales	Sphingobacteriales		Rhizobiales				Sphingomonadales	Actinomycetales	Propionibacteriales	Pseudomonadales		Burkholderiales		
	<i>Nitrosopumilales</i>	<i>Nitrosopumilales</i>	<i>Flavobacterium</i>	<i>Shingobacterium</i>	<i>Shingobacterium</i>	<i>Phyllobacterium</i>	<i>Phyllobacterium</i>	<i>Phyllobacterium</i>	<i>Agrobacterium</i>	<i>Novosphingobium</i>	<i>Lysinimonas</i>	<i>Cutibacterium</i>	<i>Pseudomonas</i>	<i>Pseudomonas</i>	<i>Paraburkholderia</i>	<i>Variovorax</i>	<i>Acidovorax</i>
Functions (%)	CNTV_Bin7	CTV_Bin3	CNTV_Bin5	CNTF_Bin35	CTF_Bin39	CNTF_Bin24	CNTF_Bin39	CTF_Bin18	CTF_Bin22	CNTV_Bin25	CTF_Bin24	VOLF_Bin13	CNTF_Bin20	CTF_Bin33	VOLF_Bin15	CTV_Bin11	CNTV_Bin9
Amino acid transport and metabolism	12.42	12.27	8.85	8.03	8.23	15.41	16.20	15.90	14.57	9.31	11.25	10.43	12.70	11.97	11.56	13.97	13.65
Carbohydrate transport and metabolism	5.10	5.01	11.05	10.09	10.58	10.45	9.01	10.07	10.41	7.59	8.86	14.71	5.46	6.80	8.77	6.97	6.55
Cell cycle control, cell division, chromosome partitioning	1.06	1.23	0.71	0.55	0.61	0.86	0.75	0.78	0.86	1.16	1.16	0.82	0.94	0.96	0.79	0.73	0.93
Cell motility	0.00	0.00	0.35	0.27	0.27	1.20	0.78	1.11	1.15	1.57	0.06	0.06	1.66	1.65	1.15	1.56	1.76
Cell wall/membrane/envelope biogenesis	3.72	3.68	10.93	9.64	9.66	7.18	6.42	7.05	7.27	9.16	5.56	4.46	8.36	8.65	9.05	6.31	5.90
Chromatin structure and dynamics	0.11	0.10	0.00	0.03	0.03	0.06	0.03	0.09	0.03	0.05	0.00	0.00	0.09	0.10	0.02	0.09	0.12
Coenzyme transport and metabolism	9.45	9.30	4.60	3.88	3.89	4.25	4.21	4.09	4.10	4.20	5.75	6.66	5.10	4.21	3.50	3.59	4.05
Cytoskeleton	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.03
Defense mechanisms	1.38	1.43	3.22	3.84	3.96	1.94	1.65	1.82	1.44	1.62	2.14	2.83	1.81	1.80	1.56	2.09	1.91
Energy production and conversion	10.72	10.22	6.41	7.07	7.06	7.86	8.41	8.22	8.10	8.45	9.23	9.43	8.78	8.52	9.37	8.36	8.12
Extracellular structures	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.12	0.00	0.05	0.00	0.00	0.00	0.00	0.10	0.18	0.00
Inorganic ion transport and metabolism	4.25	5.52	8.73	11.60	11.54	9.43	9.22	9.68	11.98	8.40	8.44	7.67	10.77	9.13	8.73	8.54	8.03
Intracellular trafficking, secretion, and vesicular transport	0.85	1.02	0.83	0.89	0.85	1.82	2.12	2.18	1.41	2.78	2.14	1.26	2.29	2.69	2.32	3.01	2.44
Lipid transport and metabolism	2.97	2.97	3.89	3.74	3.65	4.47	4.61	4.48	3.81	4.25	3.97	3.58	4.44	4.54	4.69	6.27	5.53
Nucleotide transport and metabolism	5.41	4.40	3.34	2.57	2.59	3.02	2.96	2.87	3.27	2.73	4.71	5.15	2.60	2.77	2.42	2.86	2.81
Posttranslational modification, protein turnover, chaperones	6.05	6.54	5.54	5.83	5.77	4.75	4.52	4.45	4.13	5.72	4.40	4.53	4.50	4.97	4.08	4.05	5.10
Replication, recombination and repair	8.07	7.98	5.62	5.18	4.74	4.41	5.67	4.51	4.20	9.71	6.85	6.03	4.80	4.72	4.57	4.20	5.10
RNA processing and modification	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.03	0.05	0.02	0.07	0.06
Secondary metabolites biosynthesis, transport and catabolism	1.91	2.05	1.77	1.72	1.64	2.90	3.09	2.54	2.11	3.89	2.32	1.26	2.81	3.40	3.49	4.84	3.86
Signal transduction mechanisms	4.46	4.60	8.65	8.37	8.33	4.35	4.77	4.42	5.77	4.86	4.95	3.90	8.39	7.38	6.38	6.01	7.94
Transcription	7.64	7.46	9.91	11.11	11.16	11.53	11.56	11.27	10.70	6.02	9.60	7.48	9.99	11.47	13.25	12.81	10.81
Translation, ribosomal structure and biogenesis	14.44	14.21	5.58	5.59	5.43	4.04	3.99	4.33	4.68	8.50	8.56	9.68	4.50	4.16	4.18	3.50	5.31