

Table S1

Main characteristics of the six vineyards used in this study.

	Vineyard-1	Vineyard-2	Vineyard-3	Vineyard-4	Vineyard-5	Vineyard-6
Coordinates	42°26'06.8"N 7°00'19.3"W	42°25'37.5"N 7°00'18.3"W	42°21'44.2"N 8°06'56.5"W	42°21'34.4"N 8°07'09.5"W	42°31'22.1"N 8°44'33.7"W	42°31'22.8"N 8°44'31.9"W
Location	O Barco de Valdeorras	O Barco de Valdeorras	Leiro	Leiro	Ribadumia	Ribadumia
Province	Ourense	Ourense	Ourense	Ourense	Pontevedra	Pontevedra
Denomination of Origin	Valdeorras	Valdeorras	Ribeiro	Ribeiro	Rías Baixas	Rías Baixas
Age	37	29	13	25	13	19
Rootstock	110 Richter	110 Richter	196-17 Castel	196-17 Castel	196-17 Castel	196-17 Castel
Cultivar	Godello	Godello	Mencia	Mencia	Albariño	Albariño

Table S2

Estimates of number of reads, sample coverage and diversity indices at the genus level for fungal profiles.

Sample ID*	Number of reads	Good's coverage (%)	Chao1 richness	Shannon diversity
VA1	30997	99.99	14	0.82
VA2	37265	99.91	13	0.80
VA3	32082	99.25	13	0.89
VA4	55980	99.90	10	0.77
VA5	57752	100	12	0.92
VA6	44741	99.99	18	1.52
VA7	75471	99.26	17	1.18
VA8	102463	99.99	21	1.75
VA9	85422	99.99	26	1.95
VA10	110137	99.99	22	1.49
VA11	157989	99.97	21	1.39
VA12	151246	99.99	22	1.54
VA13	144063	99.29	21	1.79
VA14	112761	99.98	22	1.79
VA15	126625	99.98	23	1.82
VB1	21438	99.99	9	0.72
VB2	42497	99.99	11	0.75
VB3	29866	99.99	11	0.67
VB4	52414	99.99	12	0.77

VB5	38232	99.37	11	0.69
VB6	81483	99.99	17	1.82
VB7	85432	99.42	17	1.49
VB8	100993	99.99	17	1.40
VB9	73418	99.99	15	1.44
VB10	142701	99.99	19	1.76
VB11	153446	99.88	18	1.36
VB12	102367	99.98	15	1.35
VB13	126372	99.99	13	1.45
VB14	98737	99.97	16	1.26
VB15	143041	99.96	15	1.59
EA1	34336	99.97	16	1.39
EA2	47911	99.91	16	1.15
EA3	60592	99.99	14	1.08
EA4	39445	99.98	13	0.96
EA5	30599	99.95	12	1.41
EA6	30950	99.98	13	1.40
EA7	91545	99.43	13	1.62
EA8	35994	99.55	13	1.62
EA9	53704	99.90	13	1.82
EA10	77680	100	16	2.03
EA11	78617	99.99	16	1.80

EA12	110987	99.71	18	2.14
EA13	110881	99.98	22	2.27
EA14	113505	99.77	22	1.95
EA15	120807	99.97	22	2.13
EB1	30916	99.98	18	1.34
EB2	44533	99.98	18	1.25
EB3	65869	99.29	19	1.77
EB4	57978	99.53	15	1.48
EB5	62357	99.99	18	1.58
EB6	49423	99.92	19	1.94
EB7	62882	99.45	17	1.71
EB8	39264	99.61	18	1.99
EB9	123476	99.99	22	2.23
EB10	95639	99.99	21	2.24
EB11	99738	99.97	25	1.87
EB12	109848	99.83	23	2.04
EB13	139663	99.98	25	2.13
EB14	91304	99.99	19	1.67
EB15	87918	99.99	20	1.78
RBA1	78947	99.99	12	0.45
RBA2	107572	99.99	14	0.53
RBA3	74950	99.98	10	0.86

RBA4	122474	99.98	15	0.85
RBA5	95505	99.99	14	0.73
RBA6	92223	100	17	0.98
RBA7	50186	100	16	0.62
RBA8	72830	99.93	17	1.23
RBA9	107543	99.91	23	1.08
RBA10	92547	99.78	15	0.63
RBA11	91007	99.34	26	2.19
RBA12	101431	99.72	22	1.92
RBA13	122762	99.98	17	1.67
RBA14	95197	99.88	16	1.75
RBA15	76690	99.99	20	2.03
RBB1	73988	99.99	13	0.82
RBB2	107288	99.98	12	0.42
RBB3	37573	99.98	14	0.58
RBB4	32966	99.98	11	0.70
RBB5	100935	99.98	13	0.57
RBB6	71106	99.99	17	1.14
RBB7	102172	99.99	18	1.20
RBB8	72704	99.99	17	1.23
RBB9	60729	99.99	14	1.08
RBB10	133564	100	18	1.39

RBB11	74115	99.99	23	2.06
RBB12	71541	99.98	22	1.80
RBB13	120200	100	17	1.65
RBB14	95079	99.90	17	1.75
RBB15	108127	99.99	18	1.88
VA16	22135	99.98	8	0.89
VA17	25774	99.98	10	0.75
VA18	32272	99.99	11	0.80
VA19	31106	99.99	18	1.24
VA20	42558	99.99	14	1.12
VA21	36801	99.99	20	1.52
VA22	46534	99.98	18	0.91
VA23	26136	99.98	19	1.48
VA24	25613	99.98	14	1.33
VA25	37975	99.83	18	1.59
VA26	55837	99.72	21	1.47
VA27	45041	99.85	22	1.75
VA28	36321	99.79	20	1.43
VA29	34329	99.56	23	1.86
VA30	73180	99.97	21	1.63
VB16	20896	99.96	9	0.73
VB17	33556	99.98	10	1.05

VB18	29260	99.98	8	0.63
VB19	23805	99.98	5	0.63
VB20	33390	100	8	0.93
VB21	39692	99.99	17	1.39
VB22	49296	99.99	17	1.07
VB23	32440	99.98	21	1.63
VB24	29700	99.98	14	1.29
VB25	34674	99.98	14	1.20
VB26	48616	99.98	16	1.36
VB27	43326	99.98	17	1.52
VB28	41102	99.99	16	1.37
VB29	32632	99.95	12	1.31
VB30	65962	99.90	15	1.44
EA16	30996	99.99	9	1.23
EA17	26365	99.99	11	0.81
EA18	30523	99.99	15	1.53
EA19	24200	99.98	13	1.22
EA20	32822	99.81	16	1.44
EA21	34981	99.78	20	1.58
EA22	37116	100	18	1.96
EA23	34795	99.99	18	1.48
EA24	41678	99.98	17	1.76

EA25	42096	99.99	21	1.97
EA26	42101	99.90	21	1.88
EA27	43259	99.93	20	1.81
EA28	48662	99.93	25	2.06
EA29	46391	99.93	20	2.14
EA30	35451	99.96	16	2.01
EB16	25525	99.98	16	1.44
EB17	38998	99.98	17	2.04
EB18	38530	99.98	17	1.84
EB19	22581	100	14	1.52
EB20	36746	99.99	19	1.64
EB21	46211	99.89	17	2.11
EB22	44363	99.91	17	2.07
EB23	46907	99.99	12	1.90
EB24	62412	99.99	14	1.76
EB25	45877	99.99	15	1.52
EB26	29742	99.97	11	1.40
EB27	39639	99.90	16	1.57
EB28	23434	99.93	14	1.81
EB29	43869	100	13	1.24
EB30	45514	100	17	1.07
RBA16	31241	99.56	14	0.56

RBA17	40820	99.91	9	0.32
RBA18	21700	99.99	5	0.31
RBA19	30113	99.66	9	0.67
RBA20	42209	99.61	12	0.55
RBA21	32981	99.45	13	0.88
RBA22	36942	99.78	15	0.82
RBA23	30676	99.61	14	0.92
RBA24	32895	99.67	12	0.56
RBA25	42133	99.45	16	1.01
RBA26	23946	99.48	18	1.12
RBA27	30540	99.40	19	1.42
RBA28	33873	99.39	14	1.23
RBA29	35837	99.54	15	1.37
RBA30	45960	99.32	18	1.64
RBB16	35758	99.81	10	0.36
RBB17	27059	99.34	10	0.44
RBB18	25019	99.48	11	0.62
RBB19	28702	99.88	10	0.40
RBB20	42310	99.90	13	0.57
RBB21	38842	99.28	15	1.02
RBB22	40254	99.32	14	0.78
RBB23	36802	99.56	14	0.84

RBB24	38137	99.98	16	1.03
RBB25	33501	99.98	16	0.77
RBB26	34645	100	21	2.06
RBB27	21287	99.99	14	1.77
RBB28	32235	99.81	12	1.26
RBB29	35528	99.94	16	1.47
RBB30	27240	99.98	16	1.25

*VA: D.O. Valdeorras; EA: D.O. Ribeiro; RB: D.O. Rias Baixas.

Table S3

OTUs that were unique in both infection periods for each D.O.

D.O. Ribeiro		D.O. Rias Baixas		D.O. Valdeorras	
Nov-Feb	Feb-May	Nov-Feb	Feb-May	Nov-Feb	Feb-May
Unknown	<i>Arthrinium</i>	<i>Aleurobotrys</i>	<i>Bannozya</i>	<i>Acremonium</i>	<i>Apiognomonia</i>
<i>Pleosporaceae</i>	<i>Aspergillus</i>	<i>Bensingtonia</i>	<i>Botryosphaeria</i>	<i>Apiognomonia</i>	<i>Bloxamia</i>
<i>Athelia</i>	Unknown <i>Heliotaceae</i>	<i>Boeremia</i>	<i>Bulleromyces</i>	<i>Apiotrichum</i>	<i>Botryosphaeria</i>
<i>Bensingtonia</i>	<i>Ceratobasidium</i>	<i>Camptophora</i>	<i>Coniosporium</i>	<i>Athelia</i>	Unknown <i>Heliales</i>
<i>Colletotrichum</i>	<i>Coniosporium</i>	<i>Clavaria</i>	<i>Coniothyrium</i>	<i>Boeremia</i>	<i>Candida</i>
<i>Conlarium</i>	<i>Cryptodiaporthe</i>	<i>Colacogloea</i>	<i>Constantinomyces</i>	<i>Buckleyzyma</i>	<i>Coniozyma</i>
<i>Craterellus</i>	<i>Cyclothyrium</i>	<i>Eucasphaeria</i>	<i>Cryptodiaporthe</i>	<i>Ceratobasidium</i>	<i>Constantinomyces</i>
<i>Cyanodermella</i>	<i>Dendrothyrium</i>	<i>Glomus</i>	<i>Cryptosporiopsis</i>	<i>Curvularia</i>	<i>Cryptodiaporthe</i>
<i>Devriesia</i>	<i>Devriesia</i>	<i>Krasilnikovozyma</i>	<i>Cyanodermella</i>	<i>Eucasphaeria</i>	<i>Cryptovalsa</i>
<i>Dioszegia</i>	Unknown <i>Gnomoniaceae</i>	<i>Malassezia</i>	Unknown <i>Orbiliaceae</i>	<i>Exobasidium</i>	<i>Dendrophoma</i>
<i>Deroxomyces</i>	<i>Fellozyma</i>	<i>Metschnikowia</i>	Unknown <i>Gnomoniaceae</i>	<i>Exophiala</i>	<i>Devriesia</i>
<i>Erythrobasidium</i>	Unknown <i>Tremellales</i>	<i>Penicillium</i>	<i>Deroxomyces</i>	<i>Flagelloscypha</i>	Unknown
<i>Eucasphaeria</i>	<i>Keissleriella</i>	<i>Phaeotremella</i>	<i>Eutypa</i>	<i>Heterocephalacria</i>	<i>Gnomoniaceae</i>
<i>Exobasidium</i>	<i>Kwoniella</i>	<i>Phialophora</i>	<i>Exophiala</i>	<i>Krasilnikovozyma</i>	Unknown <i>Dothideomycetes</i>
<i>Flagelloscypha</i>	<i>Lachnella</i>	<i>Piskurozyma</i>	<i>Flagelloscypha</i>	Unknown <i>Nectriaceae</i>	<i>Endoconidioma</i>
<i>Kondoa</i>	Unknown <i>Pleosporaceae</i>	<i>Reddellomyces</i>	Unknown <i>Physalacriaceae</i>	<i>Microdochium</i>	Unknown
<i>Lachancea</i>	<i>Lophiotrema</i>	<i>Sampaiozyma</i>	<i>Fonsecazyma</i>	<i>Microstroma</i>	<i>Physalacriaceae</i>
<i>Lecanicillium</i>	<i>Mulderomyces</i>	<i>Septoriella</i>	<i>Herpotrichia</i>	<i>Murilentithecium</i>	<i>Gnomoniopsis</i>
Unknown <i>Nectriaceae</i>	<i>Neofusicoccum</i>	<i>Sporidiobolales</i>	<i>Hyalotiella</i>	<i>Neophaeocryptopus</i>	<i>Hyalotiella</i>
<i>Neocucurbitaria</i>	<i>Papiliotrema</i>	<i>Strigula</i>	<i>Hypocreales</i>	<i>Niesslia</i>	<i>Italica</i>
<i>Neophaeocryptopus</i>	<i>Plagiostoma</i>		<i>Hypsotheca</i>	<i>Penicillium</i>	<i>Kalmusia</i>
<i>Penicillium</i>	<i>Raffaelea</i>		<i>Lachancea</i>	<i>Periconia</i>	<i>Lanzia</i>
<i>Phaeococcomyces</i>	Unknown		<i>Lanzia</i>	<i>Phlyctema</i>	Unknown
<i>Phialophora</i>	<i>Phanerochaetaceae</i>		<i>Lasionectria</i>	<i>Piskurozyma</i>	<i>Cystobasidiomycetes</i>
<i>Pleospora</i>			Unknown <i>Pleosporaceae</i>	<i>Pithomyces</i>	<i>Neofusicoccum</i>
<i>Pseudohyphozyma</i>			<i>Leucosporidium</i>	<i>Praetumpfia</i>	<i>Neosetophoma</i>
<i>Sarocladium</i>			<i>Lewia</i>	<i>Rhizopus</i>	Unknown
<i>Seimatosporium</i>			Unknown <i>Niaceae</i>	<i>Septoriella</i>	<i>Pleosporales</i>
<i>Stagonospora</i>			<i>Microdochium</i>	<i>Sporobolomyces</i>	<i>Papiliotrema</i>

<p><i>Sterigmatomyces</i> <i>Tygervalleyomyces</i> <i>Xenoramularia</i></p>			<p><i>Mucor</i> <i>unknownganishia</i> <i>Neoacrodontiella</i> <i>Neocucurbitaria</i> <i>Niesslia</i> <i>Periconia</i> <i>Phaeococcomyces</i> <i>Powellomyces</i> <i>Pyrenophora</i> <i>Rachicladosporium</i> <i>Rhizopus</i> <i>Sclerostagnospora</i> <i>Seiridium</i> <i>Setophaeosphaeria</i> <i>Sydowia</i> <i>Syncephalis</i> <i>Xylopsora</i></p>	<p><i>Sugiyamaella</i> <i>Tetracladium</i> <i>Tremellomycetes</i> <i>Triposporium</i> <i>Vestigium</i> <i>Xenoramularia</i></p>	<p><i>Pleospora</i> <i>Reddellomyces</i> <i>Rhexocercosporidium</i> <i>Rhizoscyphus</i> <i>Sphaceloma</i> <i>Sterigmatomyces</i> <i>Syncephalis</i></p>
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Table S4

Mean values of temperature and relative humidity, and accumulated rainfall values at 1, 2 and 3 periods in each experimental season (winter: infection period Nov-Feb or spring: infection period Feb-May) for the two years of assay (2017/2018 and 2018/2019), in the three locations studied: (A) D.O. Ribeiro (Ourense), (B) D.O. Rías Baixas (Pontevedra), and (C) D.O. Valdeorras (Ourense).

A					
D.O. RIBEIRO					
Season	Period	Days	Mean temperature (°C)	Mean relative humidity (%)	Accumulated rainfall (mm)
Winter 2017/18	1	30	5.90	89.93	171.60
	2	30	7.77	89.80	125.60
	3	18	6.64	86.67	25.00
Winter 2017/18 totals		78	6.79	89.13	322.20
Winter 2018/19	1	30	10.15	89.03	107.40
	2	30	5.51	90.23	81.60
	3	40	6.87	86.20	105.40
Winter 2018/19 totals		104	7.44	88.26	294.40
Winter totals (all years)			7.12	88.69	308.30
Spring 2018	1	30	6.96	83.23	180.60
	2	30	9.45	81.43	284.00
	3	39	13.95	71.08	62.60
Spring 2018 totals		99	10.47	77.90	527.20
Spring 2019	1	30	10.24	76.60	88.80
	2	30	11.80	73.47	119.60
	3	31	14.75	70.10	59.20
Spring 2019 totals		91	12.29	73.35	267.60
Spring totals (all years)			11.38	75.63	397.40
B					
D.O. RÍAS BAIXAS					
Season	Period	Days	Mean temperature (°C)	Mean relative humidity (%)	Accumulated rainfall (mm)
Winter 2017/18	1	30	8.66	84.40	173.60
	2	30	10.57	88.93	206.20
	3	10	8.25	81.90	13.50
Winter 2017/18 totals		70	9.42	85.99	393.30
Winter 2018/19	1	30	11.60	88.00	243.40
	2	30	9.38	79.67	34.40
	3	35	9.74	83.03	161.30
Winter 2018/19 totals		95	10.22	83.54	439.10
Winter totals (all years)			9.82	84.76	416.20
Spring 2018	1	30	8.85	77.97	200.20
	2	30	10.38	80.17	218.10
	3	39	13.20	77.44	143.20
Spring 2018 totals		99	11.03	78.42	561.50

Spring 2019	1	30	11.71	76.37	83.60
	2	30	13.14	70.77	173.70
	3	31	14.61	73.87	87.10
Spring 2019 totals		91	13.17	73.67	344.40
Spring totals (all years)			12.10	76.05	452.95

C

D.O. VALDEORRAS

Season	Period	Days	Mean temperature (°C)	Mean relative humidity (%)	Accumulated rainfall (mm)
Winter 2017/18	1	30	6.08	84.17	133.60
	2	30	7.08	86.93	149.00
	3	16	6.30	81.94	15.80
Winter 2017/18 totals		76	6.52	84.79	298.40
Winter 2018/19	1	30	9.06	86.73	81.40
	2	30	4.76	86.10	46.40
	3	44	7.20	80.14	181.80
Winter 2018/19 totals		104	7.04	83.76	309.60
Winter totals (all years)			6.78	84.27	304.00
Spring 2018	1	30	6.22	76.93	158.60
	2	30	8.66	76.20	214.40
	3	39	13.49	67.85	55.20
Spring 2018 totals		99	9.83	73.13	428.20
Spring 2019	1	30	11.13	63.63	35.60
	2	30	11.15	71.63	148.40
	3	24	15.72	63.17	21.80
Spring 2019 totals		84	12.45	66.36	205.80
Spring totals (all years)			11.14	69.74	317.00

Figure S1. Rarefaction curve values for each sample in each Denomination of Origin.

Figure S2. Relative abundance of different fungal phyla **(a)**, orders **(b)** and families **(c)** detected across Denominations of Origin.

Figure S3. Boxplot illustrating the differences in Chao1 and Shannon diversity measures of the fungal communities between vineyards in D.O. Ribeiro **(a)**, D.O. Rías Baixas **(b)**, and Valdeorras **(c)**.

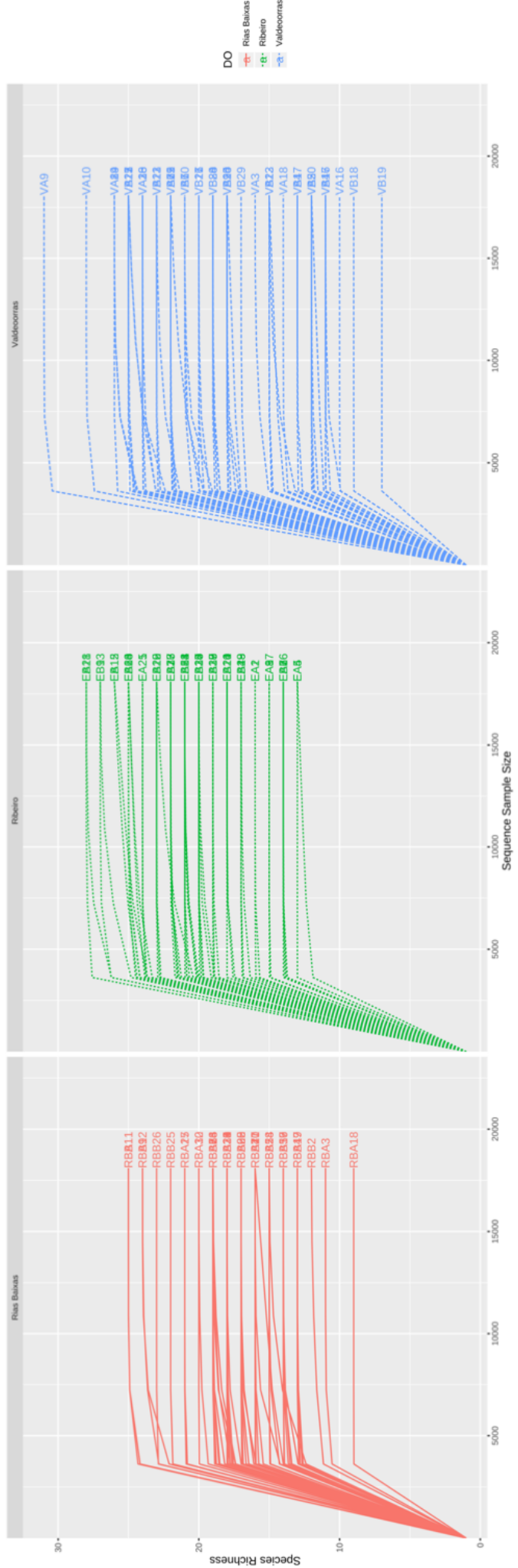
Figure S4. Boxplot illustrating the differences in Chao1 and Shannon diversity measures of the fungal communities between years in D.O. Ribeiro **(a)**, D.O. Rías Baixas **(b)**, and Valdeorras **(c)**.

Figure S5. Boxplot illustrating the differences in Chao1 and Shannon diversity measures of the fungal communities among sampling times in D.O. Ribeiro **(a)**, D.O. Rías Baixas **(b)**, and Valdeorras **(c)**.

Figure S6. Principal Coordinate Analysis (PCoA) based on Bray Curtis dissimilarity metrics showing the distance in the fungal communities among sampling times D.O. Ribeiro **(a)**, D.O. Rías Baixas **(b)**, and Valdeorras **(c)**.

Figure S7. Boxplot illustrating the differences in Chao1 **(a)** and Shannon **(b)** diversity measures of the grapevine trunk disease pathogens among Denominations of Origin.

Figure S8. Distribution of the relative abundance of fungal trunk diseases genera obtained by high-throughput amplicon sequencing in the annual shoot (sampling in November: initial microbiome) in the three Denominations of Origin.



Rios Baixos

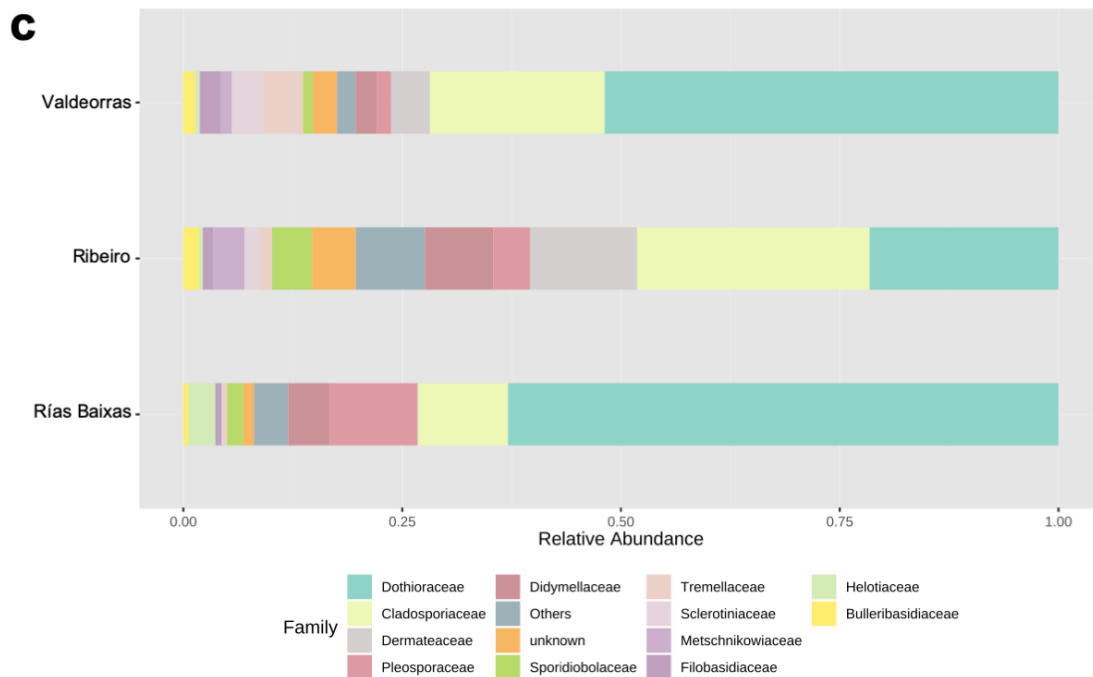
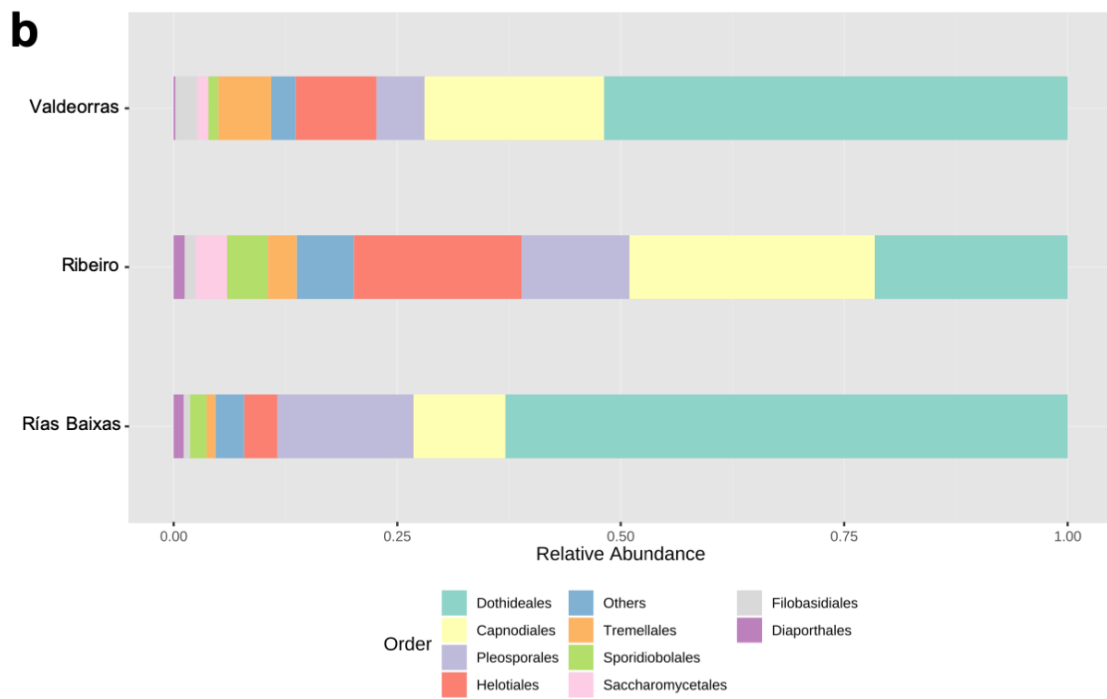
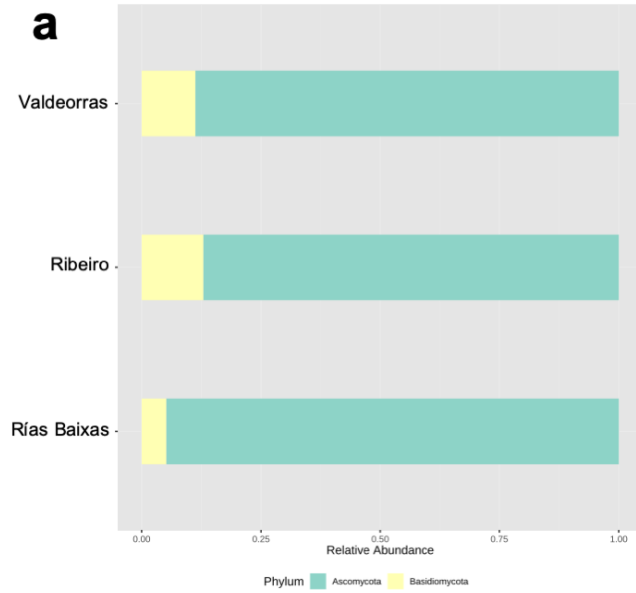
Ribeiro

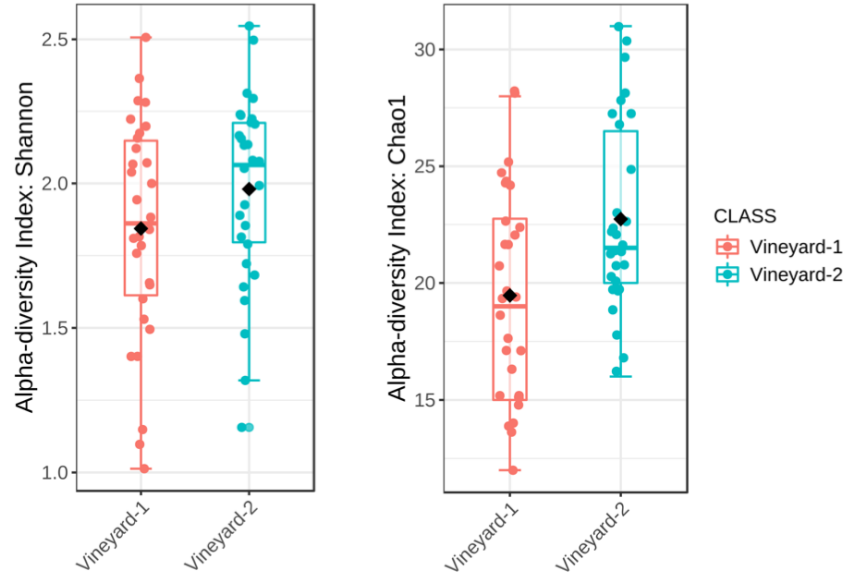
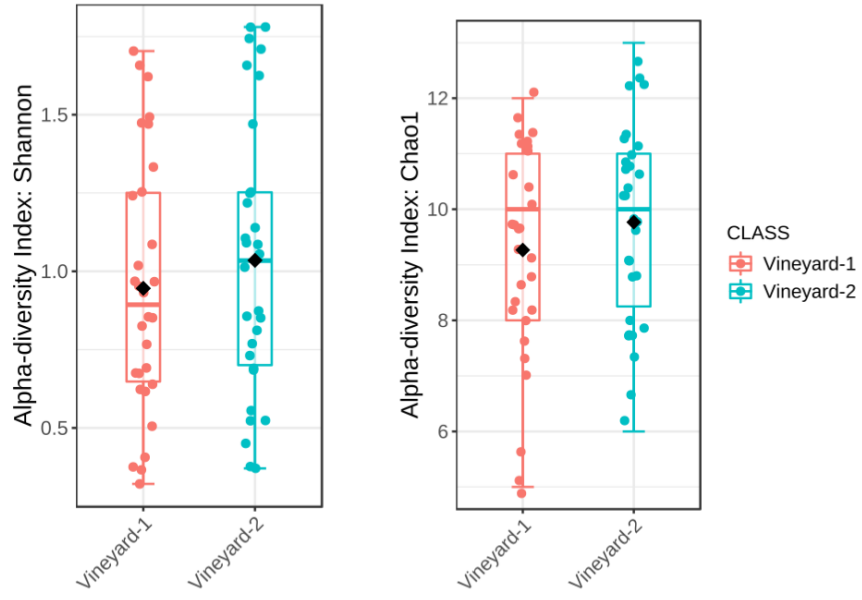
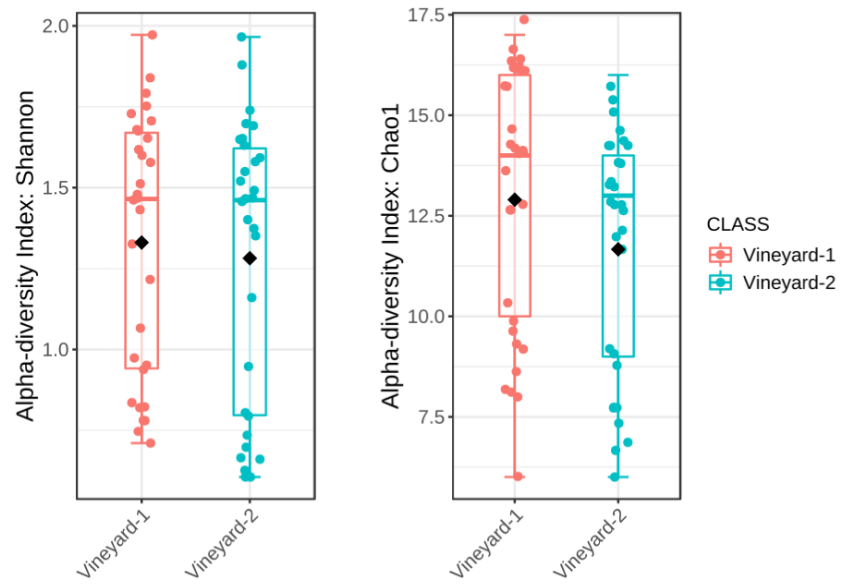
Valdecoornas

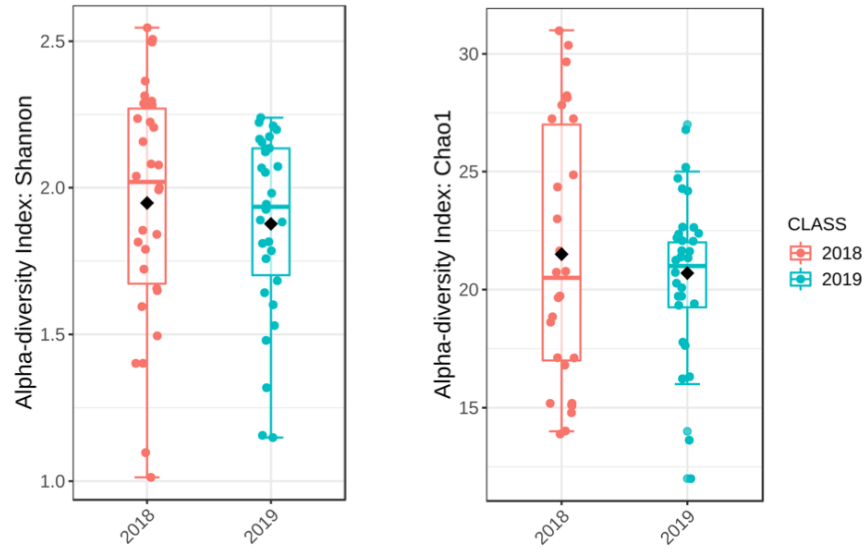
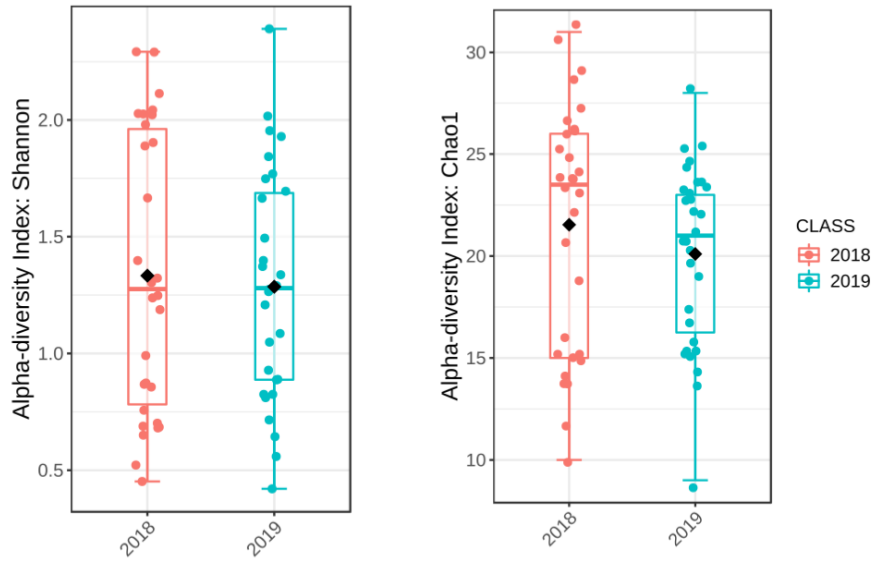
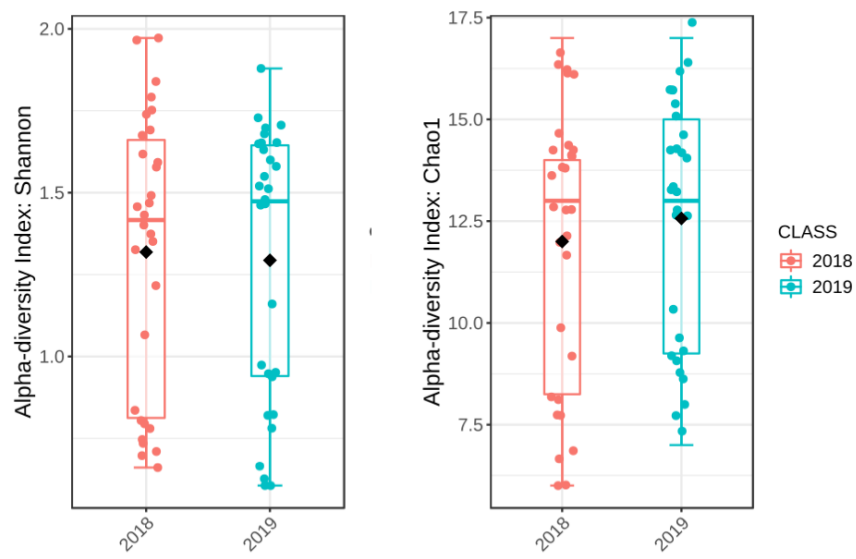
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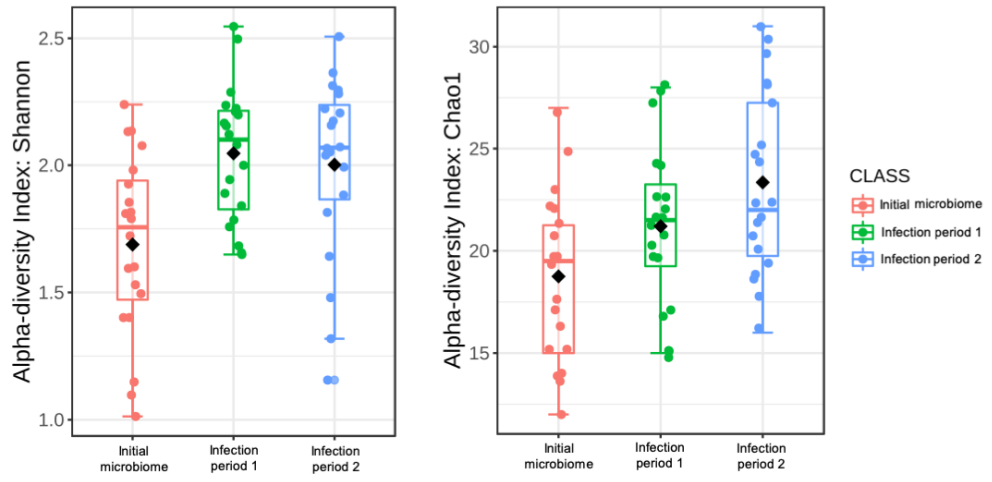
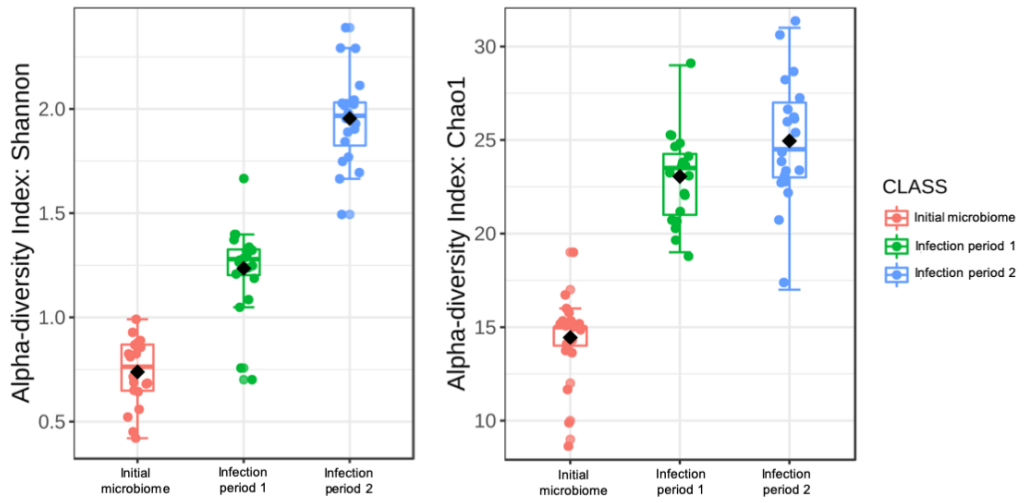
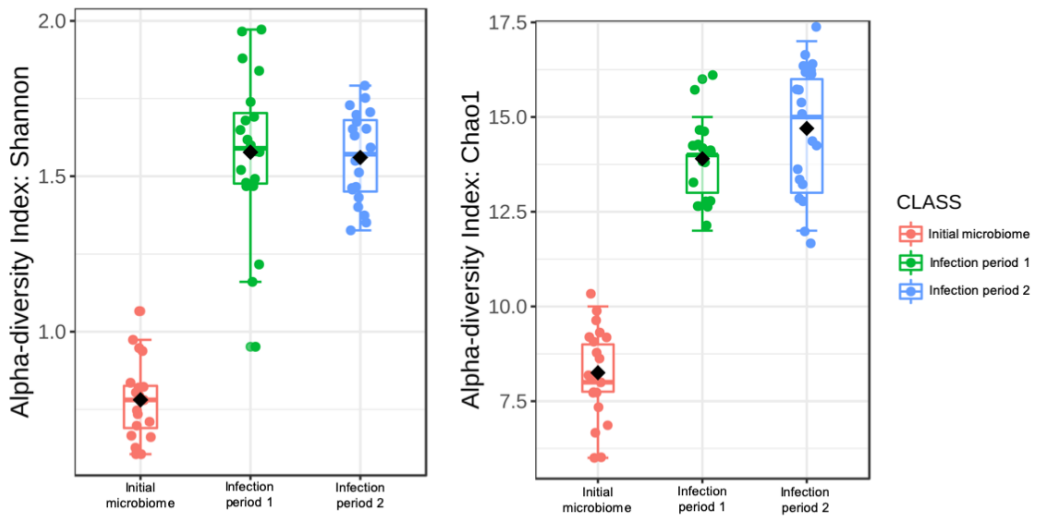
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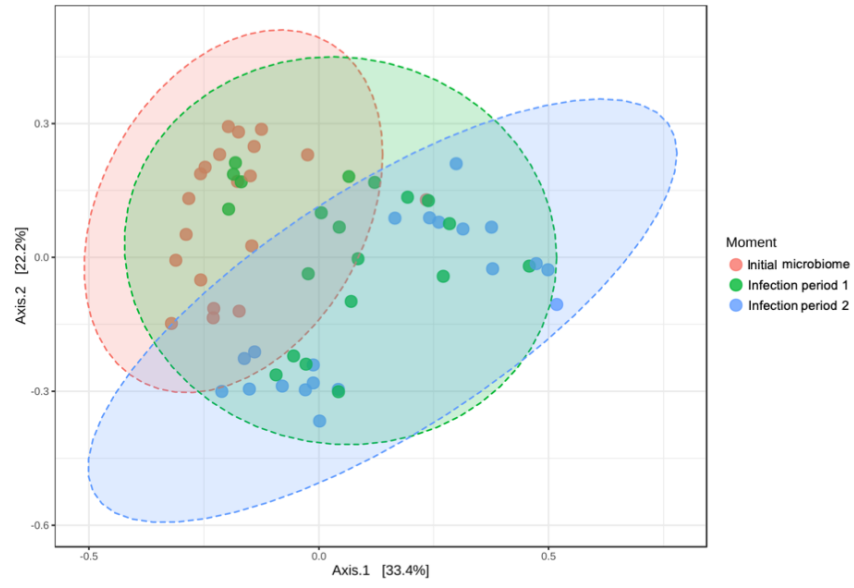
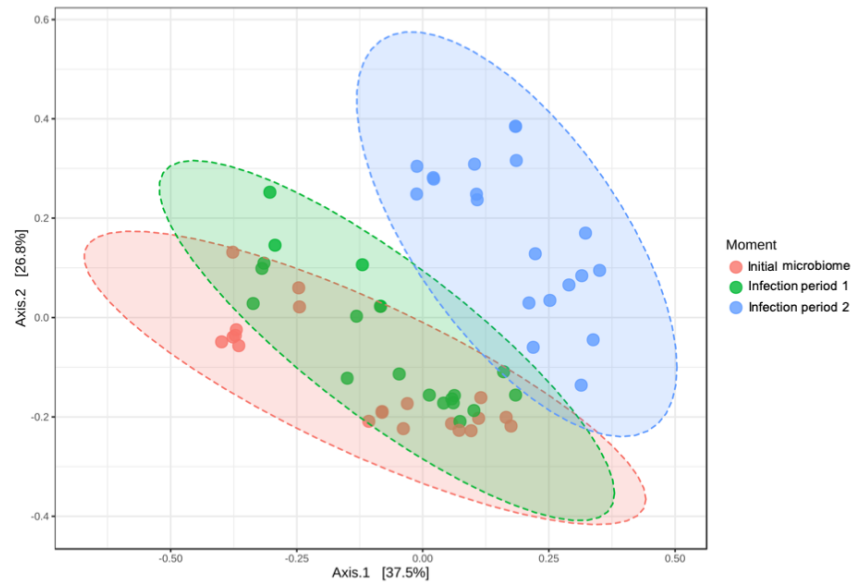
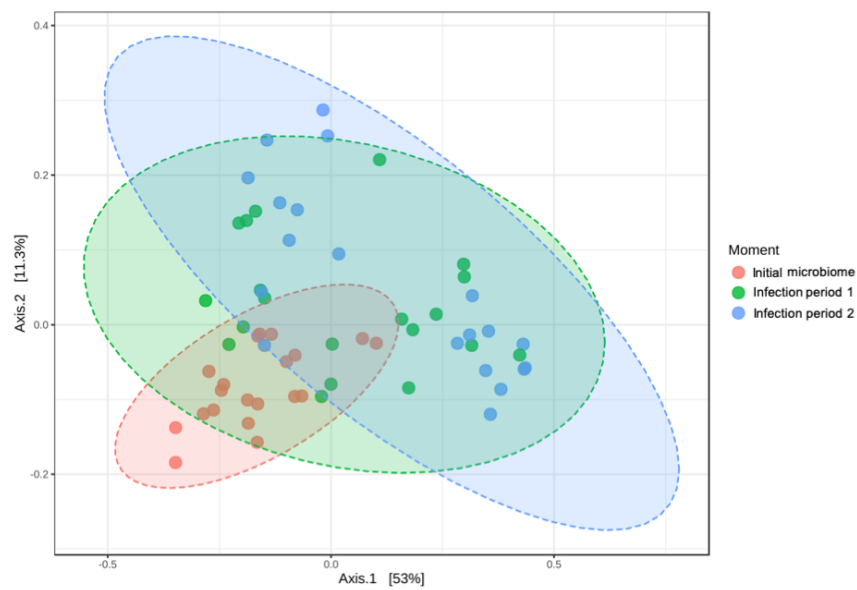
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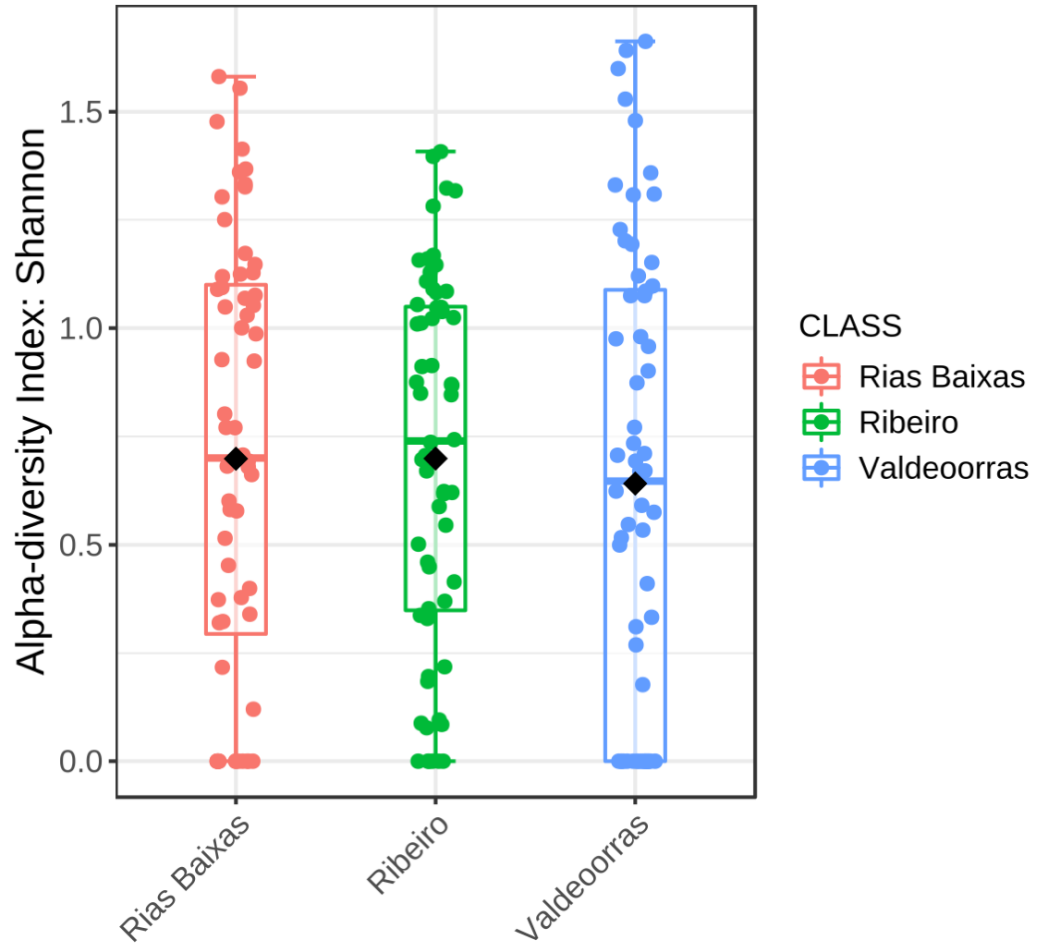


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