

Supplementary Information

Table S1. Bray Curtis dissimilarity indices for Rhizochip, Nutrient broth/ gellan and Mueller Hinton isolates

Bray Curtis dissimilarity index			
A. Nutrient broth/ gellan vs Mueller Hinton			
Taxon	Average dissimilarity (%)	Contribution (%)	Cumulative percentage (%)
Bacillales	7.114	14.37	14.37
Clostridiales	7.104	14.35	28.73
Xanthomonadales	3.358	6.785	35.51
Bacteroidales	2.699	5.453	40.97
Pseudomonadales	2.54	5.132	46.1
Actinomycetales	2.245	4.536	50.63
Enterobacteriales	2.245	4.536	55.17
Burkholderiales	2.19	4.425	59.59
Rhizobiales	2.045	4.132	63.73
Sphingobacteriales	1.651	3.337	67.06
Coriobacteriales	1.651	3.337	70.4
Gaiellales	1.567	3.165	73.57
RF39	1.271	2.569	76.13
Rubrobacterales	1.271	2.569	78.7
AKYG885	1.258	2.542	81.24
Verrucomicrobiales	1.258	2.542	83.79
Erysipelotrichales	1.211	2.446	86.23
Turicibacterales	0.9733	1.967	88.2
Solirubrobacterales	0.9733	1.967	90.17
Lactobacillales	0.9733	1.967	92.13
Anaeroplasmatales	0.9733	1.967	94.1
Caulobacterales	0.9733	1.967	96.07
Actinomycetales;Other;Other;Other	0.9733	1.967	98.03
0319-7L14	0.9733	1.967	100
Nitrospirales	0	0	100
Flavobacteriales	0	0	100
Acidithiobacillales	0	0	100
B. Rhizochip vs Mueller Hinton			
Actinomycetales	6.673	14.77	14.77
Bacteroidales	5.499	12.17	26.94
Clostridiales	5.078	11.24	38.18
Bacillales	3.72	8.234	46.42
Pseudomonadales	2.665	5.899	52.31
Burkholderiales	2.172	4.806	57.12
Erysipelotrichales	2.143	4.743	61.86
Gaiellales	1.729	3.828	65.69
Xanthomonadales	1.701	3.765	69.46

Enterobacteriales	1.377	3.047	72.5
Flavobacteriales	1.271	2.814	75.32
0319-7L14	1.271	2.814	78.13
Verrucomicrobiales	1.253	2.773	80.9
Rhizobiales	1.253	2.773	83.68
AKYG885	1.253	2.773	86.45
Nitrospirales	1.224	2.71	89.16
Actinomycetales;Other;Other;Other	1.224	2.71	91.87
Acidithiobacillales	1.224	2.71	94.58
Rubrobacterales	1.224	2.71	97.29
Caulobacterales	1.224	2.71	100
C. Rhizochip vs Nutrient broth/ gellan			
Bacillales	5.306	11.27	11.27
Actinomycetales	4.802	10.2	21.47
Bacteroidales	3.903	8.289	29.76
Clostridiales	3.217	6.832	36.59
Pseudomonadales	3.197	6.791	43.38
Xanthomonadales	2.714	5.764	49.14
Erysipelotrichales	2.072	4.4	53.54
Rhizobiales	1.895	4.026	57.57
Enterobacteriales	1.696	3.601	61.17
Burkholderiales	1.412	2.999	64.17
Rubrobacterales	1.4	2.974	67.14
Gaiellales	1.382	2.935	70.08
0319-7L14	1.338	2.842	72.92
Actinomycetales;Other;Other;Other	1.318	2.8	75.72
Caulobacterales	1.318	2.8	78.52
Sphingobacteriales	1.302	2.765	81.29
Coriobacteriales	1.302	2.765	84.05
RF39	1.054	2.239	86.29
Flavobacteriales	1.052	2.235	88.52
Nitrospirales	1.019	2.165	90.69
Acidithiobacillales	1.019	2.165	92.85
Turicibacterales	0.8412	1.787	94.64
Solirubrobacterales	0.8412	1.787	96.43
Lactobacillales	0.8412	1.787	98.21
Anaeroplasmatales	0.8412	1.787	100

Table S2. Microbial isolates identified through phylogenetic marker gene sequencing targeting bacterial 16S rRNA region in canola rhizosphere soil collected at crop harvest.

Isolated taxa	Method(s) of isolation	Taxonomy
0319-7L14	RC/NG	Bacteria Actinobacteria MB-A2-108 0319-7L14
Acidimicrobiales	NG	Bacteria Actinobacteria Acidimicrobiia Acidimicrobiales
Acidithiobacillus	RC	Bacteria Proteobacteria Gammaproteobacteria Acidithiobacillales Acidithiobacillaceae Acidithiobacillus
Actinomycetales Other	RC/NG	Bacteria Actinobacteria Actinobacteria Actinomycetales
Actinomycetales	RC	Bacteria Actinobacteria Actinobacteria Actinomycetales
Agrobacterium	NG	Bacteria Proteobacteria Alphaproteobacteria Rhizobiales Rhizobiaceae Agrobacterium
AKYG885	MH	Bacteria Chloroflexi TK10 AKYG885
Alcaligenaceae	RC/NG/MH	Bacteria Proteobacteria Betaproteobacteria Burkholderiales Alcaligenaceae
Allobaculum	RC/MH	Bacteria Firmicutes Erysipelotrichi Erysipelotrichales Erysipelotrichaceae Allobaculum
Anaeroplasmataceae	NG	Bacteria Tenericutes Mollicutes Anaeroplasmatales Anaeroplasmataceae
Aureus	NG/MH	Bacteria Firmicutes Bacilli Bacillales Staphylococcaceae Staphylococcus Aureus
Bacillaceae	NG/MH	Bacteria Firmicutes Bacilli Bacillales Bacillaceae
Bacillus	RC/NG/MH	Bacteria Firmicutes Bacilli Bacillales Bacillaceae Bacillus
Bacteroides Other	RC/NG/MH	Bacteria Bacteroidetes Bacteroidia Bacteroidales Bacteroidaceae Bacteroides Other
Bacteroides	RC/NG/MH	Bacteria Bacteroidetes Bacteroidia Bacteroidales Bacteroidaceae Bacteroides
Barnesiellaceae	RC	Bacteria Bacteroidetes Bacteroidia Bacteroidales Barnesiellaceae
Blautia	RC	Bacteria Firmicutes Clostridia Clostridiales Lachnospiraceae Blautia
Brevibacillus Other	RC/NG	Bacteria Firmicutes Bacilli Bacillales Paenibacillaceae Brevibacillus Other
Caulobacteraceae	RC/NG	Bacteria Proteobacteria Alphaproteobacteria Caulobacterales Caulobacteraceae
Cereus	RC/NG/MH	Bacteria Firmicutes Bacilli Bacillales Bacillaceae Bacillus Cereus
Chryseobacterium	RC	Bacteria Bacteroidetes Flavobacteriia Flavobacteriales Weeksellaceae Chryseobacterium
Clostridiaceae	NG/MH	Bacteria Firmicutes Clostridia Clostridiales Clostridiaceae
Clostridiales	RC/NG	Bacteria Firmicutes Clostridia Clostridiales
Clostridium	NG/MH	Bacteria Firmicutes Clostridia Clostridiales Clostridiaceae Clostridium
Aerofaciens	NG	Bacteria Actinobacteria Coriobacteriia Coriobacteriales Coriobacteriaceae Collinsella Aerofaciens
Copri	NG	Bacteria Bacteroidetes Bacteroidia Bacteroidales Prevotellaceae Prevotella Copri
Enterobacteriaceae	RC/NG	Bacteria Proteobacteria Gammaproteobacteria Enterobacteriales Enterobacteriaceae Other Other
Erysipelotrichaceae	RC	Bacteria Firmicutes Erysipelotrichi Erysipelotrichales Erysipelotrichaceae

Fascians	RC	Bacteria Actinobacteria Actinobacteria Actinomycetales Nocardiaceae Rhodococcus Fascians
Flexus	RC/MH	Bacteria Firmicutes Bacilli Bacillales Bacillaceae Bacillus Flexus
Gaiellaceae	RC/NG/MH	Bacteria Actinobacteria Thermoleophilia Gaiellales Gaiellaceae Other Other
Gluconacetobacter	NG	Bacteria Proteobacteria Gammaproteobacteria Enterobacteriales Enterobacteriaceae Gluconacetobacter
Lachnospiraceae	RC/NG/MH	Bacteria Firmicutes Clostridia Clostridiales Lachnospiraceae
Lachnospiraceae Other Other	RC/NG	Bacteria Firmicutes Clostridia Clostridiales Lachnospiraceae Other Other
Lactobacillus	NG	Bacteria Firmicutes Bacilli Lactobacillales Lactobacillaceae Lactobacillus
Lautus	NG/MH	Bacteria Firmicutes Bacilli Bacillales Paenibacillaceae Paenibacillus Lautus
Leptospirillum	RC	Bacteria Nitrospirae Nitrospira Nitrospirales Leptospirillaceae Leptospirillum
Leucobacter	RC	Bacteria Actinobacteria Actinobacteria Actinomycetales Microbacteriaceae Leucobacter
Lysinibacillus Boronitolerans	RC/NG/MH	Bacteria Firmicutes Bacilli Bacillales Planococcaceae Lysinibacillus Boronitolerans
Megamonas	RC/NG	Bacteria Firmicutes Clostridia Clostridiales Veillonellaceae Megamonas
Microbacterium	RC	Bacteria Actinobacteria Actinobacteria Actinomycetales Microbacteriaceae Microbacterium
Microbacterium Other	RC	Bacteria Actinobacteria Actinobacteria Actinomycetales Microbacteriaceae Microbacterium Other
Micrococcaceae Other Other	NG	Bacteria Actinobacteria Actinobacteria Actinomycetales Micrococcaceae
Micrococcaceae	NG	Bacteria Actinobacteria Actinobacteria Actinomycetales Micrococcaceae
Moraxella	RC/NG/MH	Bacteria Proteobacteria Gammaproteobacteria Pseudomonadales Moraxellaceae Moraxella
Moraxellaceae	RC	Bacteria Proteobacteria Gammaproteobacteria Pseudomonadales Moraxellaceae
Muciniphila	MH	Bacteria Verrucomicrobia Verrucomicrobiae Verrucomicrobiales Verrucomicrobiaceae Akkermansia Muciniphila
Multivorum	NG/MH	Bacteria Bacteroidetes Sphingobacteriia Sphingobacteriales Sphingobacteriaceae Sphingobacterium Multivorum
Muralis	RC/NG/MH	Bacteria Firmicutes Bacilli Bacillales Bacillaceae Bacillus Muralis
Oscillospira	NG/MH	Bacteria Firmicutes Clostridia Clostridiales Ruminococcaceae Oscillospira
Paenibacillus	RC/MH	Bacteria Firmicutes Bacilli Bacillales Paenibacillaceae Paenibacillus
Paenibacillus Other	RC/NG/MH	Bacteria Firmicutes Bacilli Bacillales Paenibacillaceae Paenibacillus Other
Paradoxus	MH	Bacteria Proteobacteria Betaproteobacteria Burkholderiales Comamonadaceae Variovorax Paradoxus
Phascolarctobacterium	RC	Bacteria Firmicutes Clostridia Clostridiales Veillonellaceae Phascolarctobacterium
Phyllobacteriaceae	NG/MH	Bacteria Proteobacteria Alphaproteobacteria Rhizobiales Phyllobacteriaceae
Reuszeri	NG/MH	Bacteria Firmicutes Bacilli Bacillales Paenibacillaceae Brevibacillus Reuszeri

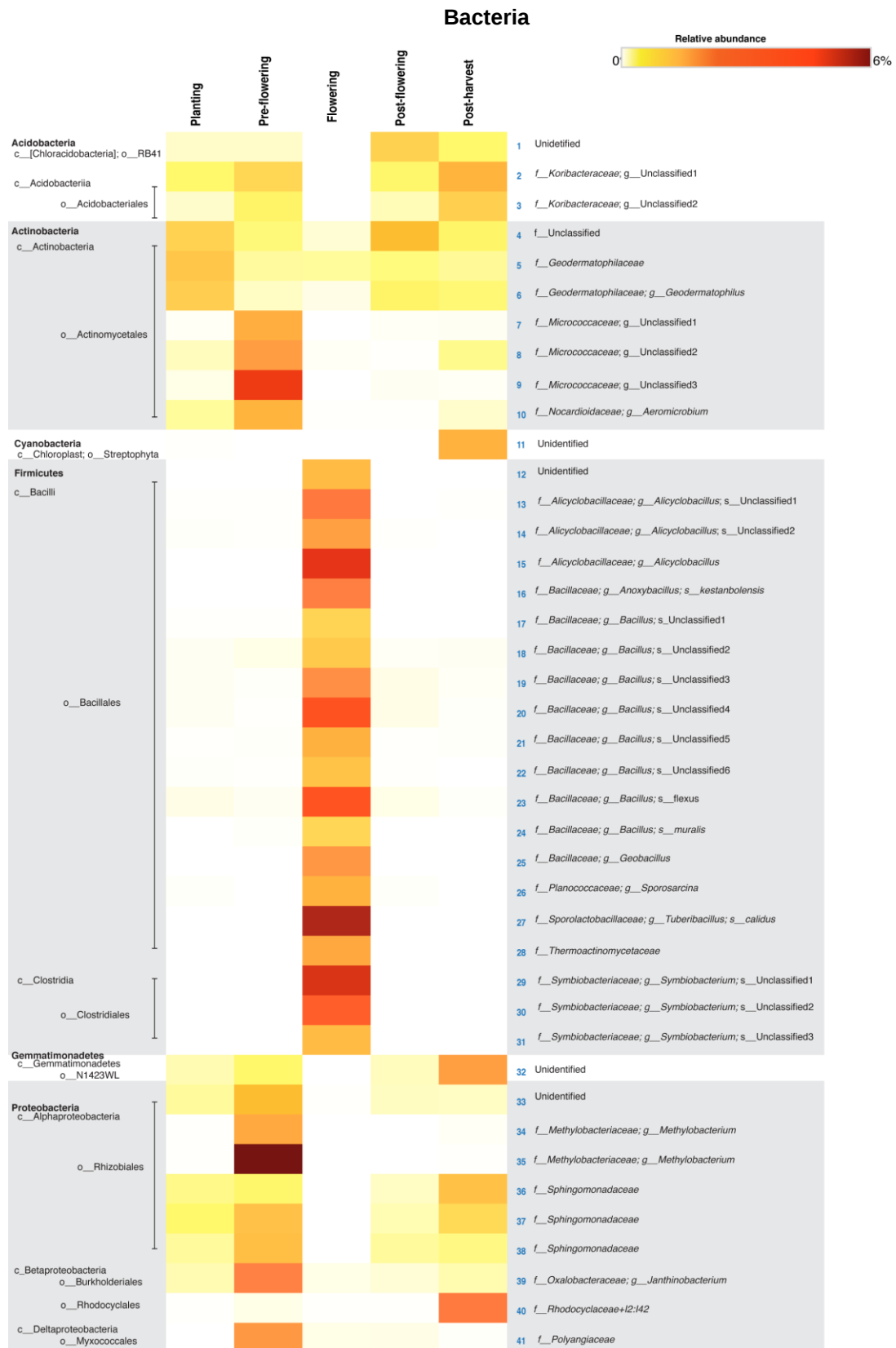
RF39	NG	Bacteria Tenericutes Mollicutes RF39
Roseburia	RC	Bacteria Firmicutes Clostridia Clostridiales Lachnospiraceae Roseburia
Rubrobacter	RCN/G	Bacteria Actinobacteria Rubrobacteria Rubrobacterales Rubrobacteraceae Rubrobacter
Ruminococcaceae Other Other	RC/NG	Bacteria Firmicutes Clostridia Clostridiales Ruminococcaceae Other Other
Ruminococcaceae	NG/MH	Bacteria Firmicutes Clostridia Clostridiales Ruminococcaceae
Ruminococcus	NG	Bacteria Firmicutes Clostridia Clostridiales Ruminococcaceae Ruminococcus
S24-7	RC	Bacteria Bacteroidetes Bacteroidia Bacteroidales S24-7
Solirubrobacterales	NG	Bacteria Actinobacteria Thermoleophilia Solirubrobacterales
Staphylococcus	RC/NG/MH	Bacteria Firmicutes Bacilli Bacillales Staphylococcaceae Staphylococcus
Stenotrophomonas	RC/NG/MH	Bacteria Proteobacteria Gammaproteobacteria Xanthomonadales Xanthomonadaceae Stenotrophomonas
Stenotrophomonas Other	RC/MH	Bacteria Proteobacteria Gammaproteobacteria Xanthomonadales Xanthomonadaceae Stenotrophomonas Other
Sulfobacillus	RC	Bacteria Firmicutes Clostridia Clostridiales Sulfobacillaceae Sulfobacillus
Turicibacter	NG	Bacteria Firmicutes Bacilli Turicibacterales Turicibacteraceae Turicibacter
Uniformis	RC/NG	Bacteria Bacteroidetes Bacteroidia Bacteroidales Bacteroidaceae Bacteroides Uniformis
Veronii	RC/NG	Bacteria Proteobacteria Gammaproteobacteria Pseudomonadales Pseudomonadaceae Pseudomonas Veronii
Xanthomonadaceae	RC/NG/MH	Bacteria Proteobacteria Gammaproteobacteria Xanthomonadales Xanthomonadaceae
Xanthomonadaceae other other	RC/NG/MH	Bacteria Proteobacteria Gammaproteobacteria Xanthomonadales Xanthomonadaceae other other

RC, Rhizochip; NG, Nutrient broth gellan; MH, Mueller Hinton

Table S3. Alpha diversity indices for bacterial and fungal OTUs in canola rhizosphere soil at various growth stages

Diversity index	Planting	Pre-flowering	Flowering	Post-flowering	Post-harvest
Bacteria					
Shannon	7.149	6.136	4.832	7.227	6.979
Evenness	0.3364	0.1645	0.1449	0.3985	0.2817
Fungi					
Shannon	3.957	2.741	3.123	4.164	3.38
Evenness	0.1304	0.05988	0.07836	0.1496	0.07687

A



B

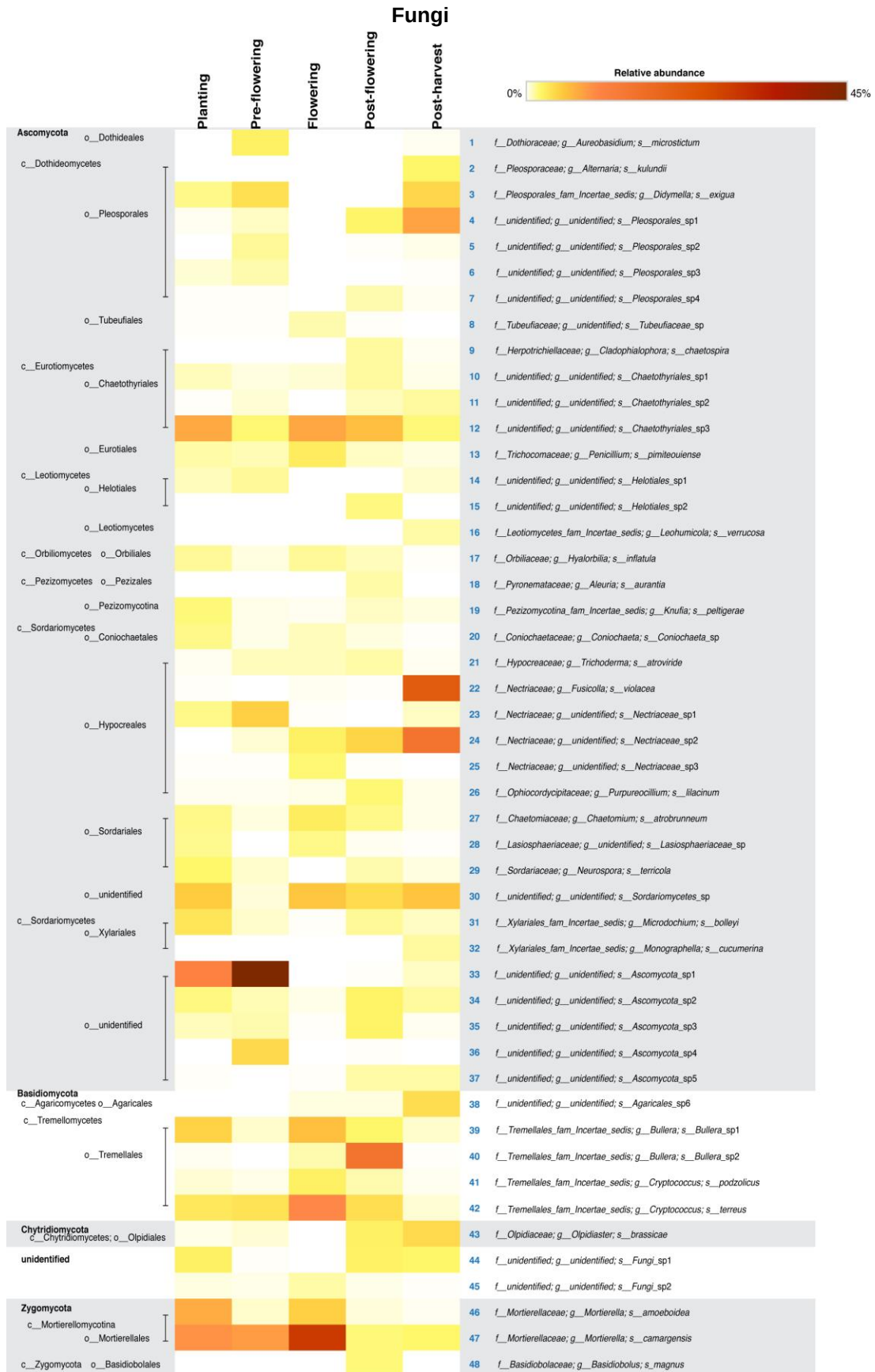


Figure S1. Heatmaps summarising the variation in the composition of rhizosphere bacterial (A) and fungal (B) communities at various growth stages of canola crop growth. OTUs listed are those present at $\geq 1\%$ relative abundance at each sampling time.

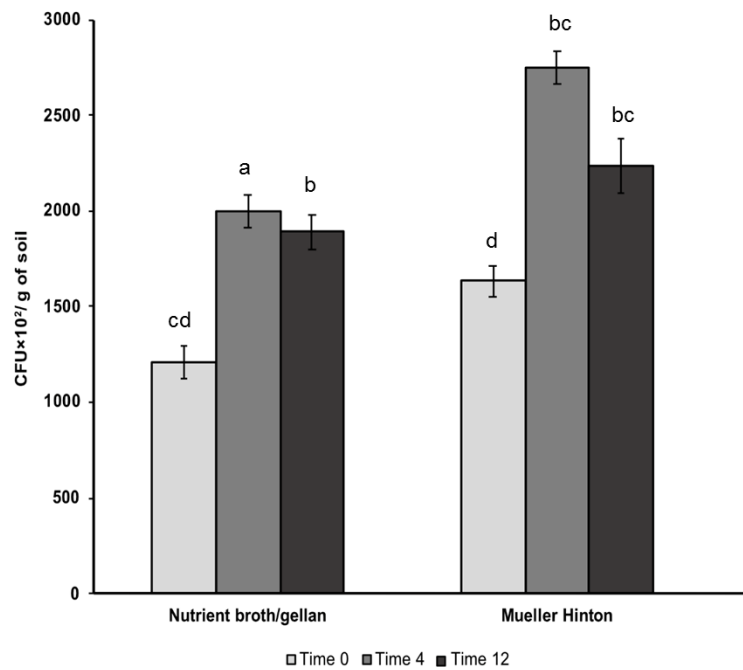


Figure S2. Impact of media selection and incubation time of aqueous soil suspension collected from canola rhizosphere soil at crop harvest on CFUs . Means sharing the same letters are not significantly different.

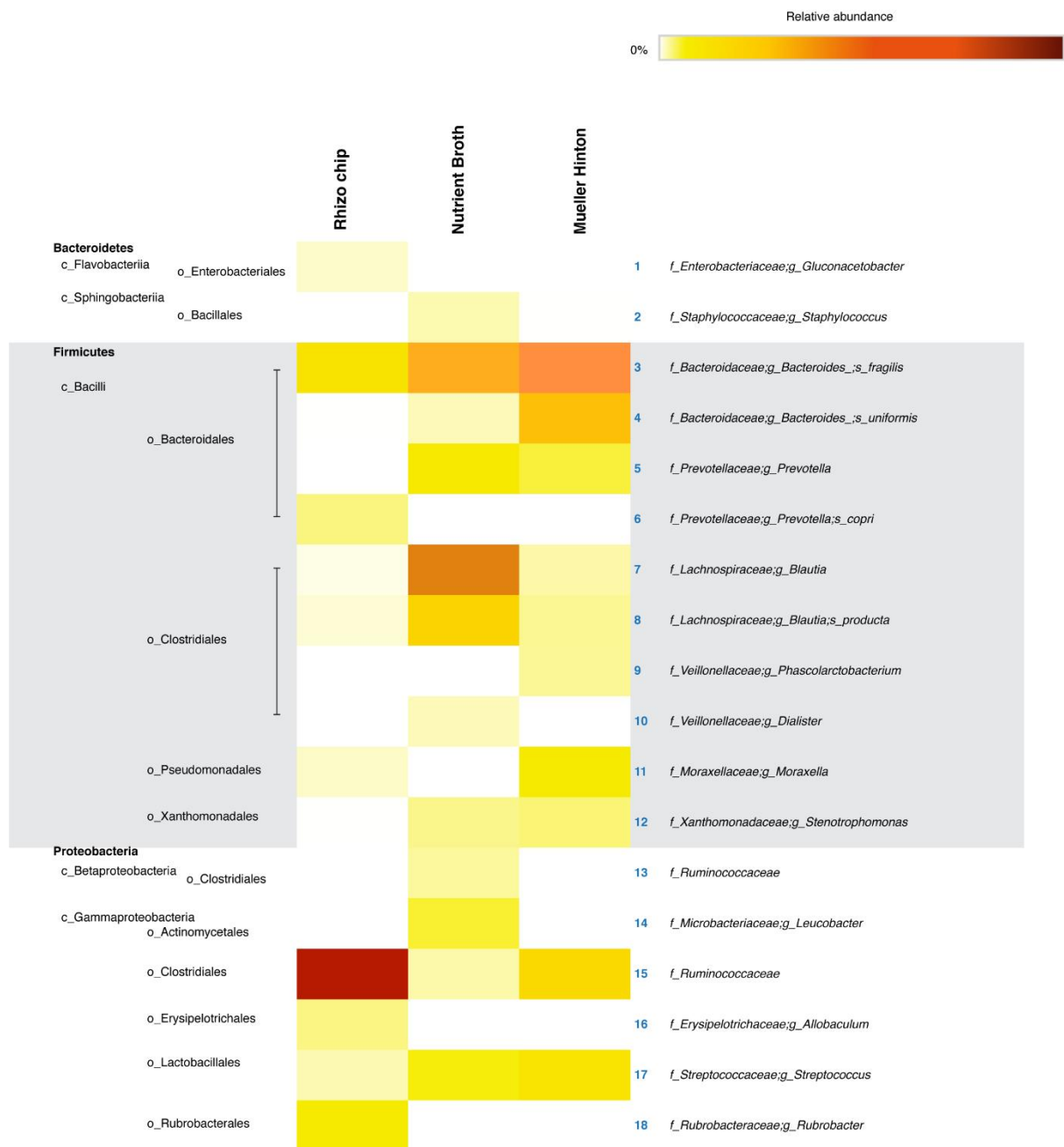
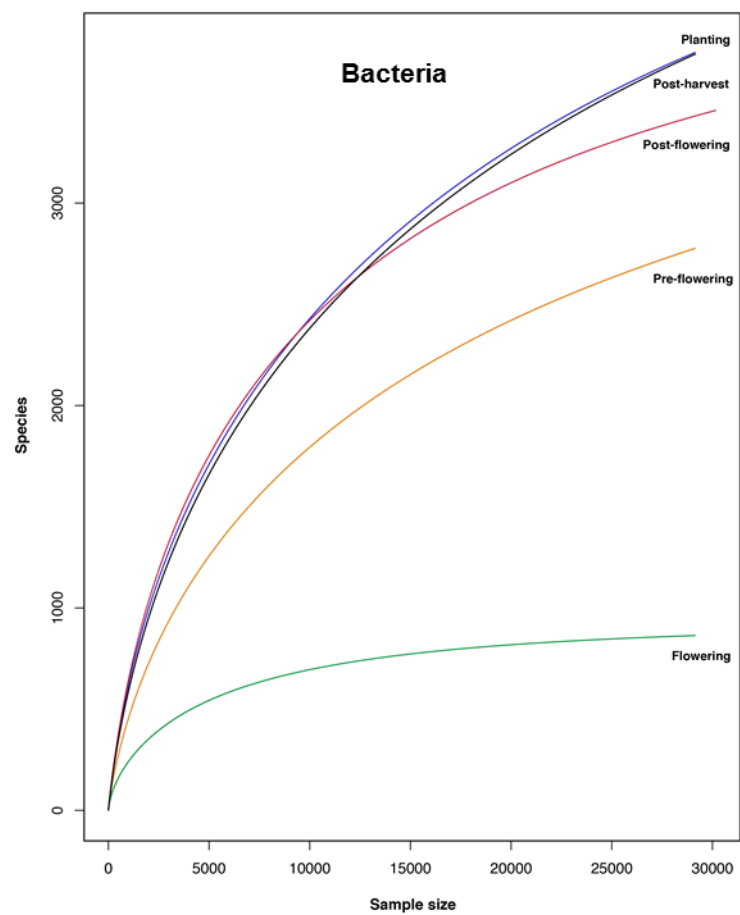


Figure S3. Heatmap summarising the composition of bacterial isolates obtained through isolation from canola rhizosphere soil at harvest using the rhizochip and two standard culture media. OTUs listed are those present at $\geq 1\%$ relative abundance.

A



B

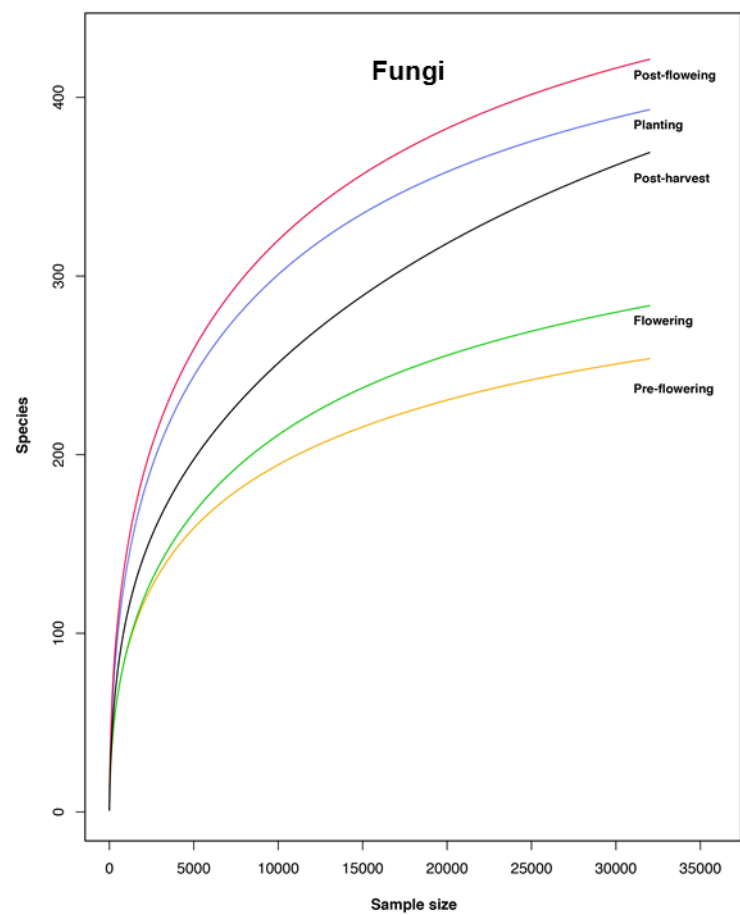


Figure S4. Rarefaction analysis for canola rhizosphere soil at various stages of crop growth for bacteria (A) and fungi (B) at 97% sequence similarity.