

Table S1. Comparison of relative abundance of metabolites in each group.

Metabolites	FR	FRh	MR	MRh
Glycerophospholipids	25.3 a	14.8 a	20.3 a	15.7 a
Steroids and steroid derivatives	17 a	20.5 a	7.4 b	7.5 b
Carboxylic acids and derivatives	9.6 ab	10.4 b	14.1 ab	15.3 a
Fatty Acyls	9.1 ab	9.9 b	12.5 a	11.6 ab
Prenol lipids	7.6 a	9 a	9.7 a	9.9 a
Organonitrogen compounds	6.9 a	6.3 a	9.5 a	11.6 a
Macrolides and analogues	4.6 a	5.8 a	8.4 a	10.3 a
Benzene and substituted derivatives	2.6 a	2.8 a	3 a	3.4 a
Cinnamic acids and derivatives	1.1 b	1.6 b	3.1 a	2.9 a
Depsidones and depsidones	0.9 ab	0.5 b	3.5 a	3.6 a
Organooxygen compounds	2.3 a	3 a	0.8 b	0.9 b
Flavonoids	3.5 a	2.5 b	0 c	0 c
Imidazopyrimidines	1.1 a	1.3 a	2 a	2.3 a
Glycerolipids	0.9 a	1.6 a	1 a	0.6 a
Phenols	0.8 a	0.9 a	1.1 a	0.8 a
Purine nucleosides	0.5 a	0.8 a	0.6 a	0.6 a
Sphingolipids	0.5 a	0.5 a	0.6 a	0.6 a
Coumarins and derivatives	0.5 ab	1.1 a	0 b	0 b
Indoles and derivatives	0.7 a	0.7 a	0 b	0 b
Others	4.4 a	5.8 a	2.4 b	2.3 b

Table S2A. Differential analysis of metabolites in the roots between sexes.

otu_id	logC PM	logF C	PVal ue	Mean A	Mean B	level	
neg_6 866	0.00	-10. 90	0.00	398.2 0	0.00	Depl eted	(4R)-7-Hydroxy-4-isopropenyl-7-methyl-2-oxo-oxepanone
pos_1 284	0.03	-1.1 6	0.00	2374. 50	960.83	Depl eted	His Val Pro
pos_7 840	0.00	-6.0 1	0.00	125.0 3	1.92	Depl eted	Gravacridonol
pos_7 427	0.00	-1.0 2	0.00	196.4 9	87.90	Depl eted	Squalene
pos_4 0	0.02	-0.9 0	0.00	1056. 01	516.32	Depl eted	Ivacaftor
pos_9 501	0.02	-1.11	0.00	1194. 18	499.45	Depl eted	Gibberellin A24
pos_7 946	0.00	-6.0 7	0.00	182.6 6	2.18	Depl eted	4-(3-Methyl-1-butenyl)-3,3',4',5-tetrahydroxystilbene
pos_7 505	0.01	-0.6 5	0.00	704.0 4	412.10	Depl eted	Hexadecanoic acid
pos_6 131	0.00	-0.8 6	0.00	138.9 0	68.69	Depl eted	Erythromycin B
pos_6 544	0.01	-0.5 6	0.00	309.0 9	191.06	Depl eted	5,6-DHET
pos_7 225	0.01	-0.3 9	0.00	399.5 4	278.07	Depl eted	(9Z)-Hexadecenoic acid
pos_3 565	0.02	-0.7 1	0.00	1437. 93	804.60	Depl eted	Val Pro His
pos_3 510	0.02	-0.6 8	0.00	1281. 75	727.97	Depl eted	Gibberellin A36
pos_5 505	0.01	-1.4 4	0.00	383.2 5	127.03	Depl eted	Dihydrourocanate
pos_6 342	0.01	-0.4 2	0.00	491.9 0	333.75	Depl eted	8,9-DHET
pos_5 513	0.01	-1.8 0	0.00	407.4 0	104.78	Depl eted	Aurantininidin
pos_5 524	0.02	-2.1 2	0.00	1241. 59	254.43	Depl eted	5,7,4',5'-Tetrahydroxy-3,2'-dimethoxyflavone
pos_6 115	0.01	-0.7 4	0.00	664.4 8	364.43	Depl eted	(-)-Corey Lactone Diol
pos_5 930	0.01	-0.7 0	0.00	567.1 8	315.05	Depl eted	Ecliptasaponin A
neg_4 692	0.00	-2.3 9	0.00	313.1 8	54.44	Depl eted	5-Amino-6-(5'-phosphoribosylamino)uracil

pos_7 065	0.01	-0.5 8	0.00	522.9 1	318.89	Depl eted	Benzyl cinnamate
pos_3 070	0.05	-0.6 9	0.00	3210. 90	1809.8 0	Depl eted	2-Oleoyl-1-palmitoyl-sn-glycero-3-phosphocholine
pos_7 022	0.29	-0.2 6	0.00	16126 .90	12313. 68	Depl eted	Propyl 2,4-decadienoate
neg_7 000	0.00	-1.2 5	0.00	254.4 0	97.03	Depl eted	Asperosaponin VI
neg_6 266	0.00	-1.8 7	0.00	79.33	19.24	Depl eted	Deacetylvindoline
neg_4 504	0.00	-4.2 9	0.00	269.7 0	13.15	Depl eted	3-Isopropenylpimelyl-CoA
neg_2 708	0.00	-1.9 2	0.00	315.2 6	72.76	Depl eted	2-epi-5-epi-Valiolone 7-phosphate
neg_6 963	0.01	-1.7 8	0.00	559.4 1	150.60	Depl eted	Macrocin
neg_6 415	0.00	-4.0 8	0.00	245.1 0	12.37	Depl eted	Haemanthamine
pos_6 773	0.00	-0.5 5	0.00	150.8 6	94.49	Depl eted	(1E,4S,5E,7R)-Germacra-1(10),5-dien-11-ol
pos_9 386	0.11	-0.6 0	0.00	6939. 55	4153.4 6	Depl eted	Phosphocholine
neg_4 188	0.03	-3.3 2	0.00	2318. 58	211.29	Depl eted	GDP-4-amino-4,6-dideoxy-alpha-D-mannose
pos_8 072	0.00	-3.5 4	0.00	37.94	3.16	Depl eted	6-Deoxocathasterone
pos_7 561	0.01	-0.4 0	0.00	775.4 7	538.90	Depl eted	Vindoline
pos_8 566	0.02	-0.2 7	0.00	1260. 15	948.98	Depl eted	Sepiapterin
pos_1 844	3.86	-1.2 1	0.00	27693 6.44	10812 6.79	Depl eted	PC(18:0/18:4(6Z,9Z,12Z,15Z))
pos_6 294	0.00	-0.9 8	0.00	53.71	25.26	Depl eted	Solavetivol
pos_4 224	1.10	-0.2 6	0.00	62120 .62	47378. 97	Depl eted	2-Chloro-L-phenylalanine
pos_7 250	0.00	-2.5 1	0.00	133.7 6	20.69	Depl eted	Chenodeoxycholate
neg_7 153	0.00	-2.6 0	0.00	416.6 7	62.20	Depl eted	Hydrogenobyrate a,c diamide
pos_2 402	0.01	-0.3 7	0.00	393.7 2	277.65	Depl eted	Octadecanoic acid
neg_6 954	0.00	-1.6 1	0.00	342.3 5	102.77	Depl eted	Cholic acid (sodium)

pos_4 3	0.01	-0.9 0	0.00	358.8 2	176.12	Depl eted	Momilactone A
pos_7 832	0.00	-0.4 8	0.00	101.6 8	66.97	Depl eted	Benzofuran
neg_4 521	0.03	-1.3 0	0.01	2539. 28	929.27	Depl eted	Polygalaxanthone III
neg_6 833	0.00	-1.3 3	0.01	159.7 8	57.10	Depl eted	7-Deoxyloganate
pos_6 817	0.16	-0.2 6	0.01	8973. 36	6862.1 8	Depl eted	(±)7-epi Jasmonic Acid
pos_7 866	0.15	-0.2 8	0.01	8747. 69	6602.5 6	Depl eted	dodecanamide
neg_6 214	0.00	-4.6 2	0.01	365.2 0	13.13	Depl eted	N-Methylserotonin
pos_8 573	0.00	-0.6 8	0.01	192.5 4	109.95	Depl eted	5-Methylthio-D-ribose
pos_3 832	0.01	-0.3 7	0.01	385.5 1	271.91	Depl eted	Isoeugenol
neg_3 603	0.01	-0.6 3	0.01	496.1 6	291.41	Depl eted	Cyanidin 3-O-(6-O-p-coumaroyl)glucoside
pos_5 427	0.01	-0.8 8	0.01	346.0 7	171.61	Depl eted	5-Hydroxymethyldeoxycytidylate
pos_6 613	0.00	-1.7 7	0.01	136.9 5	35.70	Depl eted	3-ketosphingosine
pos_6 842	0.01	-0.3 6	0.01	507.7 9	360.46	Depl eted	Norecasantalol
pos_6 452	0.00	-3.8 4	0.01	177.1 8	11.63	Depl eted	Norgestrel
pos_8 801	0.01	-0.5 2	0.01	373.7 3	237.10	Depl eted	5-Aminopentanamide
neg_1 827	0.02	-3.0 2	0.01	2010. 83	227.12	Depl eted	Tryptophyl-Glutamine
neg_1 766	0.15	-1.7 7	0.01	11549 .19	2967.2 3	Depl eted	Loganic Acid
pos_9 632	1.37	-0.4 8	0.01	82811 .75	53827. 35	Depl eted	Zeaxanthin diglucoside
pos_4 548	0.00	-0.8 4	0.01	272.3 1	141.27	Depl eted	(±)-2-(3,4-Dihydroxyphenyl)-1,3-benzodioxole-5-carboxalde hyde
pos_8 558	0.02	-0.2 7	0.01	1111. 02	842.03	Depl eted	DIBOA
pos_7 789	0.00	-4.11	0.01	26.55	1.26	Depl eted	Batyl Alcohol
pos_6 349	0.00	-0.5 4	0.01	163.2 2	101.89	Depl eted	Indole-3-ethanol

neg_3 307	0.02	-1.5 9	0.01	1519. 46	438.51	Depl eted	GYROPHORIC ACID
neg_5 967	0.01	-0.7 9	0.01	738.5 2	392.39	Depl eted	(S)-Coclaurine
pos_5 297	0.00	-1.8 7	0.01	151.8 2	37.42	Depl eted	(2S)-5,7,3',4'-Tetrahydroxyflavanone 7-glucuronide
pos_1 640	0.01	-1.7 6	0.01	783.3 3	203.75	Depl eted	Engeletin
pos_8 074	0.02	-0.3 6	0.01	1005. 68	711.03	Depl eted	5-Amino-5-(4-hydroxybenzyl)-6-(D-ribitylimino)-5,6-dihydro uracil
pos_7 634	0.08	-0.2 6	0.01	4539. 74	3463.4 8	Depl eted	Ethyl salicylate
pos_7 278	0.00	-0.3 2	0.01	191.2 6	139.92	Depl eted	(5S,6S)-6-Amino-5-hydroxycyclohexa-1,3-diene-1-carboxylat e
pos_3 077	0.04	-0.2 4	0.01	2133. 83	1652.9 0	Depl eted	2'-O-Methyluridine
pos_3 091	0.03	-0.1 8	0.01	1543. 55	1242.6 9	Depl eted	Alanopine
neg_6 212	0.00	-0.6 3	0.01	198.3 2	117.94	Depl eted	N-Methyltryptamine
pos_2 122	0.01	-0.2 5	0.01	411.4 2	314.40	Depl eted	Diphenylamine
pos_6 798	0.00	-0.5 0	0.02	77.14	49.92	Depl eted	L-Methionine
neg_4 327	0.01	-0.8 5	0.02	987.1 4	501.96	Depl eted	Apigenin 7-O-[beta-D-apiosyl-(1->2)-beta-D-glucoside]
pos_5 558	0.15	-0.7 2	0.02	9589. 33	5278.2 6	Depl eted	Phenylacetylglutamine
pos_7 848	0.02	-0.2 1	0.02	1265. 96	996.50	Depl eted	Alanyl-Isoleucine
pos_7 834	0.02	-0.2 0	0.02	1232. 32	980.38	Depl eted	p-Coumaric acid
pos_4 534	0.04	-0.7 0	0.02	2371. 61	1352.3 6	Depl eted	Sulfamerazine
pos_3 036	0.02	-0.2 7	0.02	922.2 8	699.37	Depl eted	Safranal
pos_6 930	0.04	-0.3 9	0.02	2446. 71	1706.0 7	Depl eted	Creatinine
pos_2 563	0.05	-0.8 2	0.02	3123. 90	1591.7 7	Depl eted	Bis(2-ethylhexyl) phthalate
pos_6 339	0.04	-0.2 1	0.02	2388. 54	1881.4 2	Depl eted	Nortropine
pos_7 835	0.02	-0.2 1	0.02	1150. 20	908.29	Depl eted	Precocene II

pos_6 441	0.00	-0.7 1	0.02	43.86	24.63	Depl eted	beta-PC-M6
neg_4 419	0.02	-4.0 4	0.02	1761. 32	102.23	Depl eted	N-Methylanthraniloyl-CoA
pos_7 471	0.00	-0.7 0	0.02	59.06	33.26	Depl eted	(R)-(-)-Mellein
pos_6 622	0.00	-3.8 7	0.02	223.1 3	13.50	Depl eted	Quercetin 4'-galactoside
pos_4 923	0.00	-0.6 7	0.02	197.6 0	114.36	Depl eted	Reduced coenzyme F420
pos_4 098	1.69	-0.2 3	0.02	94470 .68	73735. 09	Depl eted	Indoxyl
pos_6 515	0.01	-1.0 8	0.02	604.7 7	257.27	Depl eted	Narcotine hemiacetal
pos_7 053	0.01	-0.2 6	0.02	323.5 9	246.75	Depl eted	(S)-Limonene
neg_3 231	0.01	-0.6 5	0.02	601.8 7	349.45	Depl eted	GDP-valienol
neg_2 635	0.02	-4.8 6	0.02	1526. 88	44.56	Depl eted	2-Hydroxycyclohexane-1-carboxyl-CoA
neg_1 736	0.01	-0.9 9	0.02	558.9 2	250.24	Depl eted	Lecanoric acid
pos_7 601	0.01	-0.2 3	0.02	515.6 9	402.10	Depl eted	3-[4-Hydroxy-3-(3-methyl-2-butenyl)phenyl]-2-propenal
pos_2 350	0.04	-0.2 7	0.02	2022. 12	1531.5 0	Depl eted	1-Stearoyl-rac-glycerol
pos_2 405	0.08	-0.2 9	0.02	4640. 11	3479.2 3	Depl eted	Hexadecyl Acetyl Glycerol
neg_2 920	0.00	-2.6 7	0.02	396.4 2	54.84	Depl eted	Neocarzinostatin chromophore
pos_5 641	0.02	-1.2 1	0.02	1466. 62	576.09	Depl eted	Syringetin 3-rutinoside
pos_5 873	0.00	-0.8 7	0.02	67.33	32.68	Depl eted	HistidinyI-Valine
pos_3 776	0.00	-0.5 3	0.02	144.0 5	90.97	Depl eted	1-Hydroxyphenazine
pos_6 623	0.00	-4.4 6	0.02	157.9 4	6.38	Depl eted	Asperuloside
pos_7 294	0.00	-0.4 2	0.02	169.3 4	115.48	Depl eted	1D-1-Guanidino-3-amino-1,3-dideoxy-scylo-inositol
neg_4 499	0.02	-0.7 4	0.02	1369. 68	753.85	Depl eted	8-Demethyl-8-(2-O-methyl-alpha-L-rhamnosyl)tetracenomycin C
pos_2 762	0.09	-0.2 4	0.02	5320. 18	4116.1 4	Depl eted	Sphingosyl-phosphocholine

pos_6 772	0.03	-0.2 3	0.02	1612. 37	1261.2 4	Depl eted	Vulgarone A
pos_8 556	0.03	-0.2 0	0.02	1536. 24	1216.3 9	Depl eted	Salicylic acid
pos_4 949	0.01	-0.5 5	0.02	464.7 4	292.87	Depl eted	Leucodelphinidin
pos_6 512	0.00	-4.6 5	0.02	296.6 3	11.20	Depl eted	Avermectin B1a monosaccharide
pos_6 951	0.01	-0.2 7	0.02	589.1 7	446.38	Depl eted	Pseudoionone
pos_3 482	0.00	-0.2 9	0.02	249.7 0	185.66	Depl eted	Thiourocanic acid
pos_2 949	0.01	-2.5 1	0.02	787.0 2	123.64	Depl eted	DG(16:0/17:2(9Z,12Z)/0:0)[iso2]
pos_7 036	0.01	-0.2 6	0.02	362.3 8	275.70	Depl eted	7-Deoxyloganetin
neg_5 461	0.00	-1.4 3	0.02	315.8 7	106.80	Depl eted	Novobiocin
pos_4 073	0.02	-0.2 7	0.02	1306. 39	986.14	Depl eted	Benzaldehyde
pos_3 105	0.01	-0.2 8	0.02	570.9 5	430.01	Depl eted	Pentoxifylline
pos_8 192	0.01	-0.8 8	0.02	732.2 7	370.02	Depl eted	22-Hydroxydocosanoate
pos_7 812	0.00	-0.3 3	0.02	186.6 6	135.50	Depl eted	(E)-4-stilbenol
pos_6 653	0.00	-3.0 8	0.03	30.59	3.52	Depl eted	Psoralenoside
pos_8 478	0.02	-0.2 6	0.03	1364. 32	1047.9 4	Depl eted	19-Hydroxytestosterone
neg_5 721	0.00	-1.8 4	0.03	90.68	24.40	Depl eted	Prostaglandin G2
pos_4 966	0.00	-1.0 3	0.03	160.8 9	71.49	Depl eted	dTDP-3-amino-2,3,6-trideoxy-4-keto-D-glucose
pos_2 661	0.00	-0.3 5	0.03	199.9 9	142.49	Depl eted	Tropine
neg_3 589	0.00	-1.9 7	0.03	227.0 0	51.28	Depl eted	3-Oxohehexanoyl-CoA
pos_5 080	0.00	-1.4 1	0.03	331.3 6	116.86	Depl eted	(3S)-Citramalyl-CoA
neg_4 648	0.01	-0.9 2	0.03	390.1 3	190.16	Depl eted	Deacetylasperulosidic Acid
neg_7 189	0.03	-0.9 0	0.03	1730. 90	829.71	Depl eted	Hydroxychlorobactene glucoside

pos_2 658	0.00	-0.2 7	0.03	213.1 0	160.82	Depl eted	Pseudopelletierine
pos_5 300	0.01	-1.2 5	0.03	366.0 8	144.53	Depl eted	Itaconyl-CoA
pos_6 984	0.01	-0.3 8	0.03	406.4 6	285.08	Depl eted	Palmitoleamide
pos_6 996	0.00	-0.5 5	0.03	168.4 1	106.07	Depl eted	Stizolobate
pos_8 025	0.01	-0.4 8	0.03	385.9 6	255.37	Depl eted	(6Z,9Z,12Z)-Octadecatrienoic acid
neg_1 767	0.01	-1.8 8	0.03	633.0 0	150.65	Depl eted	Deoxynogalonate
neg_3 647	0.02	-1.0 8	0.03	1158. 23	494.49	Depl eted	Taxifolin
neg_6 680	0.01	-1.1 8	0.03	410.5 1	163.45	Depl eted	3,4-Dihydroxy-9,10-secoandrosta-1,3,5(10)-triene-9,17-dione
pos_8 210	0.00	-0.9 8	0.03	44.92	20.20	Depl eted	3alpha,7alpha-Dihydroxy-5beta-cholestane
pos_7 428	0.00	-0.5 8	0.03	253.1 5	154.84	Depl eted	Pro Lys Arg His
neg_4 049	0.00	-2.9 9	0.03	270.8 4	31.56	Depl eted	S-Glutathionyl-L-cysteine
pos_7 476	0.02	-0.3 4	0.03	1184. 63	859.38	Depl eted	Dehydrooreadone
pos_8 028	0.03	-0.2 1	0.03	1770. 79	1401.2 4	Depl eted	Cycloionone
pos_2 511	0.00	-0.3 7	0.03	250.9 5	175.72	Depl eted	D-Glucosamine 6-phosphate
pos_5 408	0.00	-1.2 9	0.03	144.5 2	53.99	Depl eted	Cyanidin 3-O-beta-D-sambubioside
pos_8 591	0.01	-0.2 5	0.03	342.3 8	264.02	Depl eted	6-Hydroxydopamine hydrochloride
neg_7 503	0.17	-1.0 5	0.03	11706 .94	5229.3 9	Depl eted	Solanine
pos_8 557	0.08	-0.2 1	0.03	4494. 75	3548.2 7	Depl eted	4-Hydroxyphenylglyoxylate
neg_4 533	0.00	-3.4 8	0.03	300.4 1	25.18	Depl eted	3-Methylcrotonyl-CoA
neg_3 548	0.01	-1.5 1	0.03	616.5 3	191.12	Depl eted	CMP-N-glycolylneuramate
neg_3 621	0.01	-1.0 2	0.03	620.7 7	283.29	Depl eted	UDP-N-acetyl-3-(1-carboxyvinyl)-D-glucosamine
pos_3 497	0.10	-0.2 1	0.03	5579. 23	4416.6 9	Depl eted	(S)-5-Oxo-2,5-dihydrofuran-2-acetate

neg_6 235	0.02	-4.2 0	0.03	2228. 89	115.57	Depl eted	Formosanin C
pos_5 299	0.03	-2.7 2	0.03	2244. 74	302.26	Depl eted	Malvidin 3-(6-malonylglucoside) 5-glucoside
pos_5 526	0.00	-4.8 2	0.03	20.03	0.62	Depl eted	S-Methyl-5-thio-D-ribose 1-phosphate
neg_5 870	0.00	-0.7 8	0.03	114.6 1	61.00	Depl eted	D-Glucosamine
neg_7 427	0.02	-1.3 9	0.03	1193. 31	433.54	Depl eted	Mycobactin S
pos_4 959	0.02	-0.4 7	0.04	995.0 7	655.57	Depl eted	Torvanol A
pos_2 914	0.02	-0.1 6	0.04	1175. 80	961.83	Depl eted	Methionyl-Glutamate
pos_7 182	0.00	-0.4 7	0.04	78.03	51.24	Depl eted	5-Oxoproline
pos_7 638	0.01	-0.2 5	0.04	480.7 4	367.91	Depl eted	Phenol
pos_7 070	0.27	-0.2 6	0.04	15253 .01	11626. 30	Depl eted	Volicitin
pos_5 129	0.02	-1.4 6	0.04	1522. 76	505.65	Depl eted	Kaempferol 3-rhamnoside-7,4'-digalactoside
pos_5 153	0.00	-1.4 5	0.04	72.58	24.70	Depl eted	L-Glutamyl 5-phosphate
neg_6 625	0.01	-1.8 8	0.04	404.9 0	99.95	Depl eted	Phosphatidylethanolamine 16_1-18_1
neg_7 492	0.29	-0.7 8	0.04	18717 .65	9708.2 4	Depl eted	10beta,14beta-Dihydroxytaxa-4(20),11-dien-5alpha-yl acetate
pos_4 930	0.01	-1.6 3	0.04	706.0 7	216.44	Depl eted	(S)-3-Hydroxyoctanoyl-CoA
pos_7 320	0.03	-0.2 1	0.04	1583. 83	1254.7 9	Depl eted	Ethyl 3-phenylpropanoate
pos_8 560	0.07	-0.2 3	0.04	3756. 55	2933.9 3	Depl eted	Anofinic acid
pos_6 814	0.01	-0.2 3	0.04	304.5 8	237.07	Depl eted	2-Isopropyl-1,4-benzenediol
pos_5 017	0.01	-0.4 3	0.04	547.1 9	368.88	Depl eted	Elenaic acid
neg_4 614	0.20	-0.8 7	0.04	13634 .36	6748.7 4	Depl eted	Theaflavin
neg_4 438	0.00	-1.7 6	0.04	336.9 5	90.55	Depl eted	Sulfazecin
pos_2 788	0.01	-0.2 4	0.04	306.7 2	235.28	Depl eted	5,2'-O-dimethyluridine

pos_6 703	0.00	-0.8 5	0.04	175.5 7	89.37	Depl eted	Stachyose
pos_8 361	0.10	-0.1 8	0.04	5573. 25	4493.0 5	Depl eted	L-Palmitoylcarnitine
pos_6 976	0.01	-0.3 1	0.04	853.0 7	630.00	Depl eted	Linoleoyl ethanolamide
pos_5 328	0.00	-0.2 8	0.04	261.2 5	196.72	Depl eted	5-(3'-Carboxy-3'-oxopropenyl)-4,6-dihydroxypicolinate
pos_6 293	0.00	-0.6 8	0.04	38.74	21.99	Depl eted	Phthalate 3,4-cis-dihydrodiol
neg_3 505	0.00	-1.9 0	0.04	81.36	19.98	Depl eted	5'-Phosphoribosylglycinamide
pos_3 687	0.00	-1.4 6	0.04	87.42	27.73	Depl eted	Cytidine 5'-monophosphate (CMP)
pos_6 556	0.00	-0.3 4	0.05	127.7 3	91.43	Depl eted	1-Deoxy-11beta-hydroxypentalenate
neg_1 988	0.00	-0.6 7	0.05	270.8 5	153.67	Depl eted	Ajmaline
pos_8 180	0.10	-0.1 4	0.05	5543. 49	4587.0 6	Depl eted	5-Aminopentanoic acid
pos_8 073	0.00	-0.4 3	0.05	142.0 9	95.58	Depl eted	4-Methoxy-2,2'-bipyrrrole-5-carbaldehyde
pos_7 620	0.01	-0.2 1	0.05	499.0 7	393.77	Depl eted	Histidinyl-Isoleucine
pos_5 506	0.00	-2.6 8	0.05	153.2 8	21.84	Depl eted	4,21-Dehydrogeissoschizine
neg_4 762	0.02	-0.5 5	0.05	1036. 61	641.14	Depl eted	Ellagic acid
pos_7 550	0.00	-0.2 8	0.05	237.1 3	177.71	Depl eted	4-(4-Methyl-3-pentenyl)-3-cyclohexene-1-carboxaldehyde
pos_2 281	0.00	-0.2 6	0.05	155.6 2	118.17	Depl eted	5-Ethyl-2-methylpyridine
neg_7 347	0.00	18.9 1	0.00	0.00	27.29	Enric hed	[6]-Gingerol
pos_6 545	0.00	7.98	0.00	1.67	297.72	Enric hed	Cadiamine
pos_8 750	0.01	3.74	0.00	51.62	599.99	Enric hed	yibeinoside A
pos_8 815	0.08	2.62	0.00	1225. 99	7011.6 7	Enric hed	Glyuranolide
neg_7 246	0.03	3.11	0.00	327.6 8	2620.2 1	Enric hed	Calcitrol
neg_5 769	0.09	2.78	0.00	1309. 10	8027.4 1	Enric hed	Streptidine 6-phosphate

pos_8 814	0.15	2.09	0.00	2918. 51	11658. 04	Enriched	PRISTIMEROL
neg_7 297	0.00	7.88	0.00	1.05	206.39	Enriched	Taurocholate
pos_7 421	0.00	4.45	0.00	9.21	197.11	Enriched	Alisol B 23-acetate
pos_9 581	0.03	2.12	0.00	626.2 4	2425.5 0	Enriched	Gentamicin C2
pos_6 590	0.00	1.95	0.00	37.85	132.46	Enriched	2-Hexaprenyl-6-methoxy-1,4-benzoquinone
pos_9 579	0.02	0.67	0.00	908.9 0	1307.0 1	Enriched	Gentamicin C1a
pos_8 934	0.12	1.86	0.00	2795. 75	9199.1 5	Enriched	Cholic Acid Methyl Ester
pos_9 583	0.01	1.75	0.00	306.3 8	931.62	Enriched	Avermectin A1a aglycone
pos_6 860	0.03	2.53	0.00	557.3 1	2889.1 8	Enriched	Ferulate
pos_5 066	0.03	1.27	0.00	1075. 54	2330.7 2	Enriched	Thr Ile Ser Val
pos_9 076	0.62	0.76	0.00	24191 .80	37593. 04	Enriched	Spheroidenone
neg_7 293	0.00	3.99	0.00	11.88	169.04	Enriched	Sapindoside A
neg_2 266	0.01	7.49	0.00	5.78	857.34	Enriched	Anamorelin
pos_8 906	0.00	3.01	0.00	7.67	55.43	Enriched	Anatalline
pos_4 373	0.03	1.82	0.00	618.3 7	1975.5 7	Enriched	3-O-Methylisoetharine
pos_8 868	0.01	1.89	0.00	319.6 9	1127.5 4	Enriched	4alpha-Methyl-5alpha-ergosta-8,14,24(28)-trien-3beta-ol
pos_8 927	0.00	1.15	0.00	35.36	71.26	Enriched	Lysyl-Proline
pos_7 451	0.00	7.07	0.00	0.00	21.72	Enriched	2'-N-Acetylparomamine
pos_8 807	0.00	1.64	0.00	30.06	86.74	Enriched	1D-1-Guanidino-1-deoxy-3-dehydro-scylo-inositol
neg_7 229	0.46	3.07	0.00	5221. 83	40811. 14	Enriched	His Thr Lys Lys
pos_8 565	0.00	10.3 5	0.00	0.32	461.45	Enriched	alpha-1,5-L-Arabinobiose
neg_6 233	0.02	1.91	0.00	360.2 9	1289.5 8	Enriched	Mifepristone

pos_2 107	0.00	1.33	0.00	75.58	174.78	Enriched	Paspalicine
neg_5 525	0.00	7.30	0.00	0.00	25.39	Enriched	5-Hydroxy-2-oxo-4-ureido-2,5-dihydro-1H-imidazole-5-carboxylate
pos_5 684	0.00	1.58	0.00	55.24	150.70	Enriched	5-Oxopentanoate
pos_8 537	0.00	10.90	0.00	0.04	348.51	Enriched	Americanin D
pos_2 749	0.20	1.01	0.00	6917.02	12938.60	Enriched	PG(18_2(9Z,12Z)_18_0)
pos_9 475	0.03	0.93	0.00	1210.62	2141.80	Enriched	26-Hydroxybrassinolide
neg_4 583	0.02	1.47	0.00	698.26	1744.36	Enriched	Berberine
neg_6 524	0.01	2.08	0.00	243.80	942.14	Enriched	Ganoderenic acid A
pos_5 748	0.00	2.45	0.00	10.42	50.23	Enriched	5'-Benzoylphosphoadenosine
neg_7 092	0.02	3.95	0.00	101.92	1532.11	Enriched	Kukoamine B
neg_4 557	0.01	2.22	0.00	213.49	899.97	Enriched	Byakangelicin
pos_6 962	0.00	1.56	0.00	62.91	171.72	Enriched	(-)-Jasmonic acid
neg_7 311	0.01	5.22	0.00	36.87	1259.72	Enriched	Diosgenin glucoside
pos_8 928	0.01	0.63	0.00	354.58	505.76	Enriched	L-Pyrrolysine
neg_3 465	0.00	5.66	0.00	1.78	71.68	Enriched	1,7-Diphospho-1-epi-valienol
pos_4 716	0.00	0.91	0.00	71.87	124.49	Enriched	Vanillylamine
pos_9 594	0.01	0.90	0.00	367.54	615.56	Enriched	Cyclooctatin
neg_7 231	0.01	2.93	0.00	178.16	1273.34	Enriched	Cucurbitacin B
pos_2 145	0.04	0.55	0.00	1661.61	2209.41	Enriched	Thiothece-474
pos_5 227	0.01	1.07	0.00	503.45	955.84	Enriched	Aldosterone
pos_2 039	0.03	0.89	0.00	1206.27	2030.45	Enriched	Erythromycin D
pos_8 925	0.00	1.17	0.00	52.46	108.56	Enriched	Acetylropine

pos_8 373	0.01	2.13	0.00	184.9 0	738.67	Enriched	Adlupone
neg_7 497	0.01	2.91	0.00	84.30	557.59	Enriched	4-Cholesten-7alpha,12alpha-diol-3-one
pos_7 680	0.00	2.83	0.00	41.75	273.26	Enriched	Testosterone
pos_9 124	0.01	3.48	0.00	76.15	731.39	Enriched	Sipeimine-3beta-D-glucoside
pos_8 929	0.02	0.54	0.00	686.7 0	913.82	Enriched	3β-hydroxy-estra-5,7,9-trien-17-one
pos_8 945	0.00	0.72	0.00	177.0 6	268.09	Enriched	4,7,10,13-Docosatetraynoic acid
neg_7 298	0.00	8.05	0.00	0.00	43.05	Enriched	10-Deoxysarpagine
neg_6 771	0.02	1.95	0.00	365.4 2	1369.2 0	Enriched	Traumatins
pos_8 920	0.00	0.95	0.00	173.9 0	305.49	Enriched	Phenylheptatriene
neg_6 537	0.02	2.07	0.00	457.9 4	1843.4 1	Enriched	Darutoside
pos_8 017	0.00	3.40	0.00	19.98	188.25	Enriched	Daucosterol
pos_1 329	0.00	0.97	0.00	38.62	68.89	Enriched	3-Isochromanone
neg_6 931	0.00	4.72	0.00	10.58	281.01	Enriched	Slaframine
pos_7 738	0.04	2.17	0.00	692.3 3	3102.1 5	Enriched	Liquoric acid
pos_2 031	0.23	0.88	0.00	8476. 43	14723. 71	Enriched	1-Deoxypentalenate
pos_9 523	0.04	1.19	0.00	1298. 82	2754.9 0	Enriched	Quillaic acid
pos_8 808	0.01	1.14	0.00	167.9 9	338.44	Enriched	Histidinyl-Lysine
pos_7 671	0.00	4.17	0.00	7.48	118.71	Enriched	Pachymic acid
pos_8 956	0.01	0.76	0.00	396.7 1	625.98	Enriched	Valyl-Lysine
pos_8 388	0.00	9.26	0.00	0.00	98.26	Enriched	ADP
pos_6 580	0.01	4.32	0.00	45.47	895.48	Enriched	Neriifolin
pos_2 528	0.00	2.38	0.00	28.73	136.80	Enriched	CDP-2,3-bis-O-(geranylgeranyl)-sn-glycerol

neg_4 257	0.01	4.76	0.00	30.93	830.14	Enriched	L-Tryptophan
pos_5 412	0.00	1.35	0.00	31.52	73.25	Enriched	d-Dethiobiotin
neg_6 343	0.02	2.71	0.00	223.57	1456.06	Enriched	L-Oleandrosyl-oleandolide
pos_8 016	0.01	1.96	0.00	300.09	1132.48	Enriched	Ganodermic acid Jb
neg_1 421	0.01	1.96	0.00	111.93	399.90	Enriched	Violaceinic acid
neg_3 806	0.00	3.74	0.00	4.87	57.85	Enriched	Cetoniacytone A
pos_9 245	0.00	7.30	0.01	2.57	335.24	Enriched	IMP
neg_5 666	0.00	1.28	0.01	111.77	246.50	Enriched	5-Amino-5-deoxy-3-dehydroshikimate
neg_5 659	0.02	1.90	0.01	479.35	1629.12	Enriched	Picroside III
pos_9 173	0.00	1.15	0.01	157.79	316.36	Enriched	20,21-Diprenylterpendole C
pos_5 714	0.15	1.54	0.01	4206.55	11052.09	Enriched	Isorhamnetin-3-O-glucoside
pos_1 222	0.00	0.72	0.01	87.46	132.13	Enriched	Isoprene
pos_1 365	0.08	1.10	0.01	2815.69	5475.92	Enriched	Vidarabine
neg_6 392	0.00	1.99	0.01	68.22	257.92	Enriched	yibeissine
pos_9 141	0.00	1.75	0.01	76.10	234.47	Enriched	3'-Hydroxyechinenone
pos_8 383	0.00	8.51	0.01	0.00	58.29	Enriched	Ethanolamine phosphate
pos_4 591	0.00	1.16	0.01	31.68	63.33	Enriched	D-Lysopine
pos_9 101	0.00	2.51	0.01	25.00	123.37	Enriched	Avermectin B1a aglycone
pos_3 976	0.00	1.24	0.01	156.48	333.24	Enriched	5-(N-Methyl-4,5-dihydro-1H-pyrrol-2-yl)pyridin-2-ol
pos_5 704	0.00	0.96	0.01	166.80	295.94	Enriched	S-Adenosyl-L-methionine
pos_5 275	0.00	3.73	0.01	16.38	199.78	Enriched	Dihydrozeatin riboside
neg_6 549	0.00	3.38	0.01	43.30	421.65	Enriched	1-Stearoyl-2-hydroxy-sn-glycero-3-phosphoethanolamine

pos_6 606	0.04	1.12	0.01	1202. 36	2348.6 9	Enric hed	28-Homobrassinolide
neg_6 397	0.00	1.75	0.01	79.46	254.47	Enric hed	Glycocholate
pos_7 757	0.00	1.38	0.01	25.75	62.44	Enric hed	6-Keto-prostaglandin E1
pos_5 468	0.00	1.02	0.01	18.04	33.31	Enric hed	4-Amino-5-aminomethyl-2-methylpyrimidine
neg_7 217	0.12	0.64	0.01	5016. 98	7016.2 6	Enric hed	Ribulose 1,5-diphosphate
neg_6 588	0.10	2.07	0.01	2059. 06	8361.5 2	Enric hed	3alpha,7alpha,12alpha-Trihydroxy-5beta-cholestan-26-al
neg_6 746	0.10	0.64	0.01	4153. 32	5803.0 1	Enric hed	1-Hydroxy-2-methyl-2-butenyl 4-diphosphate
pos_8 003	0.00	1.08	0.01	86.55	169.98	Enric hed	1-(3,4-Dihydroxyphenyl)-5-hydroxy-3-decanone
pos_8 823	0.00	1.57	0.01	50.03	137.94	Enric hed	Prometryn
pos_6 178	0.00	1.39	0.01	111.6 5	265.77	Enric hed	2-Propenal, 3-(1,3-benzodioxol-5-yl)-
neg_6 578	0.03	1.68	0.01	732.3 7	2207.6 4	Enric hed	Brassinolide
pos_1 983	0.08	0.34	0.01	3763. 75	4341.2 2	Enric hed	Vitamin D3 glucosiduronate
neg_5 361	0.00	5.23	0.01	11.75	407.21	Enric hed	Arachidonyl-CoA
pos_5 980	0.00	0.48	0.01	187.9 3	237.95	Enric hed	L-Cys-Gly
pos_4 243	0.42	1.06	0.01	14502 .45	27061. 66	Enric hed	Thr Ala Ala Arg
pos_3 851	0.00	3.93	0.02	2.61	32.18	Enric hed	Gibberellin A14
pos_9 194	0.02	0.40	0.02	1029. 02	1247.9 5	Enric hed	Tetrahydrobiopterin
neg_4 745	0.01	1.02	0.02	284.5 9	524.95	Enric hed	dTDP-4-amino-4,6-dideoxy-D-glucose
neg_7 433	0.05	1.35	0.02	1493. 61	3580.5 0	Enric hed	16-Feruloyloxypalmitate
pos_1 378	0.00	6.84	0.02	0.00	20.01	Enric hed	Gentisate aldehyde
pos_9 079	0.03	0.67	0.02	1386. 68	1996.9 0	Enric hed	3,29-Dibenzoyl Rarounitriol
pos_8 436	0.01	1.36	0.02	155.7 4	373.59	Enric hed	Ascorbyl stearate

pos_8 719	0.00	2.77	0.02	6.90	45.32	Enriched	Paromomycin
neg_5 883	0.00	2.39	0.02	69.84	335.28	Enriched	(-)-Jasmonoyl-L-isoleucine
pos_4 019	0.00	2.86	0.02	23.73	162.73	Enriched	His Tyr Val Arg
neg_3 627	0.00	2.11	0.02	71.00	280.25	Enriched	Allantoate
neg_5 237	0.05	2.17	0.02	951.4 5	3851.4 1	Enriched	Malonylapiin
neg_1 463	0.01	1.49	0.02	172.1 5	432.97	Enriched	(2R)-2-Hydroxy-2-methylbutanenitrile
pos_5 785	0.00	2.37	0.02	21.28	99.43	Enriched	2E,4E,6E-Nonatrienal
pos_6 112	0.02	0.85	0.02	609.3 9	1016.6 2	Enriched	2-Methyl-1,3-cyclohexadiene
pos_3 066	0.01	0.78	0.02	486.5 8	765.25	Enriched	DG(18:3(9Z,12Z,15Z)/16:0/0:0)
neg_4 308	0.00	1.85	0.02	92.33	304.86	Enriched	10-Hydroxydihydrosanguinarine
pos_8 372	0.00	1.64	0.02	101.1 5	287.03	Enriched	10-Deoxymethymycin
neg_1 709	0.01	0.80	0.02	496.0 0	790.12	Enriched	6-O-Methylguanine
pos_2 236	0.00	0.32	0.02	193.5 7	220.58	Enriched	4,8,12,16-hexadecatetraenoic acid
pos_6 681	0.01	0.88	0.02	329.2 0	540.29	Enriched	Monotesone A
pos_3 952	0.00	1.60	0.02	44.54	124.14	Enriched	Estradiol-17beta
pos_5 780	0.01	2.54	0.02	155.0 2	816.45	Enriched	7,8-Dihydromethanopterin
pos_1 524	0.01	1.31	0.02	249.5 2	548.45	Enriched	Linamarin
pos_9 543	0.00	1.22	0.02	99.84	207.63	Enriched	Kanamycin A
pos_9 306	0.01	1.35	0.02	163.1 5	367.60	Enriched	1-(2-Aminophenyl)decane-1,3-dione
pos_7 99	0.04	1.04	0.02	1465. 21	2783.5 0	Enriched	N-Acetyl-2,3-dihydro-1H-pyrrole
neg_3 951	0.00	2.09	0.02	60.30	230.96	Enriched	8-Amino-8-demethylriboflavin
neg_7 100	0.02	1.47	0.02	505.3 0	1355.5 7	Enriched	Alisol C monoacetate

pos_2 466	0.08	0.65	0.02	3426. 70	4833.3 3	Enric hed	beta-Carotenone
pos_6 770	0.01	1.44	0.02	287.4 7	694.39	Enric hed	3beta-Hydroxy-4beta,14alpha-dimethyl-9beta,19-cyclo-5alpha-ergost-24(24(1))-en-4alpha-carboxylate
pos_4 394	0.02	1.87	0.03	401.0 4	1351.3 8	Enric hed	Ser Ile Val Leu
pos_9 539	0.00	0.54	0.03	52.91	70.14	Enric hed	N-Acetylserotonin
pos_5 693	0.04	0.84	0.03	1368. 83	2229.2 2	Enric hed	Aloesol
pos_8 387	0.00	4.33	0.03	9.97	168.89	Enric hed	N3-Fumaroyl-L-2,3-diaminopropanoate
pos_2 531	0.00	0.73	0.03	92.74	141.88	Enric hed	(±)8(9)-EET methyl ester
pos_6 955	0.00	1.91	0.03	51.28	176.83	Enric hed	Sojagol
neg_2 202	0.06	0.49	0.03	2642. 48	3425.7 5	Enric hed	Taxa-4(20),11(12)-dien-5alpha-acetoxy-10beta-ol
pos_5 751	0.00	1.19	0.03	55.74	116.19	Enric hed	2-(Hydroxymethyl)-4-oxobutanoate
pos_4 004	0.01	2.89	0.03	73.91	508.26	Enric hed	Cys Pro Ile Arg
pos_2 782	0.05	1.03	0.03	1599. 48	3100.0 0	Enric hed	29-Norcycloartane-3,24-dione
pos_1 336	0.00	1.34	0.03	71.18	166.46	Enric hed	O-beta-D-Xylosylzeatin
pos_7 692	0.00	3.36	0.03	5.16	48.39	Enric hed	Cyasterone
pos_1 510	0.03	0.80	0.03	1082. 92	1716.1 1	Enric hed	Dexamethasone
neg_6 665	0.01	2.72	0.03	202.6 7	1270.5 6	Enric hed	Feruloylputrescine
pos_5 725	0.03	1.89	0.03	621.6 8	2098.3 3	Enric hed	Amarogentin
pos_4 439	0.00	1.39	0.03	24.93	59.64	Enric hed	Formylisoglutamine
pos_4 266	0.02	1.98	0.03	487.2 6	1716.2 8	Enric hed	Norajmaline
neg_6 583	0.00	2.50	0.03	50.35	274.20	Enric hed	Ilexgenin A
pos_8 57	0.00	1.22	0.03	30.39	64.44	Enric hed	L-Prolinamide
pos_6 713	0.00	1.25	0.03	34.55	72.78	Enric hed	(13Z,16Z)-Docosadienoic acid

pos_7 245	0.00	3.09	0.03	21.69	164.19	Enriched	Yohimbine
pos_7 750	0.02	1.03	0.03	535.7 1	1041.3 2	Enriched	9(S)-HpOTrE
pos_3 826	0.00	1.51	0.03	49.81	129.35	Enriched	Prednisolone Acetate
neg_4 258	0.00	1.36	0.03	47.35	107.49	Enriched	N-Acetyl-L-phenylalanine
pos_8 15	0.01	0.91	0.03	207.9 8	359.07	Enriched	S-Sulfanylgutathione
neg_6 282	0.04	2.24	0.03	671.6 0	2820.4 5	Enriched	beta-Paxitriol
pos_5 359	0.00	2.07	0.03	45.41	176.10	Enriched	Gln Ile Ile
pos_5 675	0.00	0.97	0.03	91.49	163.80	Enriched	Tartronate semialdehyde
pos_3 994	0.00	1.45	0.03	66.60	168.38	Enriched	gamma-Glutamyltyramine
neg_6 103	0.00	2.89	0.03	33.53	243.74	Enriched	Vitamin K1 epoxide
neg_5 381	0.01	1.04	0.03	222.9 2	423.69	Enriched	Guanidinoproclavaminc acid
pos_5 678	0.01	1.74	0.04	215.8 4	655.91	Enriched	UDP-N-acetylmuramoyl-L-alanyl-gamma-D-glutamyl-meso-2,6-diaminopimelate
pos_5 793	0.01	4.18	0.04	39.21	631.42	Enriched	Precorin 3B
pos_2 232	0.00	0.75	0.04	28.02	43.06	Enriched	4-Amino-5-hydroxymethyl-2-methylpyrimidine
pos_3 825	0.03	0.84	0.04	1079. 68	1756.0 4	Enriched	Glutathionylspermidine
neg_4 403	0.24	1.13	0.04	7930. 98	15584. 12	Enriched	Norfloracin
pos_8 809	0.00	0.46	0.04	137.4 6	172.12	Enriched	Ala Ala Arg
pos_8 71	0.00	1.12	0.04	86.61	173.90	Enriched	4-Aminobutyraldehyde
neg_1 287	0.01	0.97	0.04	218.4 3	391.67	Enriched	Deacetylcephalosporin C
pos_1 770	0.09	0.63	0.04	3746. 76	5321.9 2	Enriched	PA(16:0/0:0)[cyclic]
pos_4 746	0.00	1.98	0.04	27.23	98.96	Enriched	Benzamide
neg_6 344	0.01	4.61	0.04	23.37	584.64	Enriched	Baccatin III

neg_6 236	0.01	1.03	0.04	294.6 9	532.46	Enriched	Leukotriene B4
pos_9 89	0.01	1.09	0.04	187.4 7	364.25	Enriched	Cytosine
pos_8 346	0.00	0.88	0.04	180.4 6	314.01	Enriched	(6E,8E,12E,14E)-hexadeca-6,8,12,14-tetraen-10-ynoic acid
pos_1 674	0.07	0.34	0.04	3194. 73	3654.3 9	Enriched	all-trans-4-Hydroxyretinoic acid
neg_6 674	0.04	1.06	0.04	1478. 63	2786.3 1	Enriched	(±)9-HODE
pos_5 786	0.00	2.05	0.04	7.11	25.72	Enriched	Ectocarpin
pos_8 738	0.03	0.81	0.04	1143. 16	1862.5 0	Enriched	3alpha,17alpha-Dihydroxy-5beta-pregnan-20-one
pos_9 183	0.01	0.62	0.04	211.1 8	297.37	Enriched	p-cresol
pos_7 857	0.00	0.54	0.04	72.52	96.34	Enriched	Hirsutine
pos_1 371	0.00	4.22	0.04	0.92	17.88	Enriched	L-Pipecolate
neg_6 767	0.03	1.61	0.04	771.8 3	2302.2 5	Enriched	Cucurbitacin D
pos_5 741	0.00	1.22	0.04	21.57	45.15	Enriched	1,4-Dioxane-2,5-diol
pos_9 186	0.00	0.65	0.04	120.9 5	173.46	Enriched	Limonene-1,2-diol
neg_5 985	0.00	3.38	0.04	45.91	424.11	Enriched	Ankorine
pos_8 020	0.01	0.48	0.04	287.6 5	371.11	Enriched	13-Octadecene-9,11-diynoic acid, (E)-; Exocarpic acid
neg_3 948	0.00	1.85	0.04	60.47	196.80	Enriched	DL-Dithiothreitol
pos_9 504	0.00	0.50	0.04	88.28	113.70	Enriched	2-Pentylfuran
neg_6 324	0.01	3.59	0.04	43.57	532.76	Enriched	Adynerin
pos_4 476	0.01	0.81	0.05	349.7 3	553.73	Enriched	Leukotriene E4
pos_3 690	0.00	0.90	0.05	146.9 2	251.46	Enriched	Phe Ala
pos_7 670	0.00	2.86	0.05	51.76	323.17	Enriched	Norwedelic acid
pos_6 118	0.48	1.25	0.05	15052 .18	33256. 05	Enriched	5-(3E-Pentenyl)tetrahydro-2-oxo-3-furancarboxylic acid

pos_7 468	0.00	2.70	0.05	16.97	107.10	Enriched	3beta-Hydroxyergosta-7,24(24(1))-dien-4alpha-carboxylate
neg_4 100	0.05	0.97	0.05	1920.42	3469.62	Enriched	Fluorouracil
pos_8 739	0.05	0.94	0.05	1931.83	3530.30	Enriched	CPA(18:2(9Z,12Z)/0:0)
pos_3 947	0.00	1.17	0.05	52.79	108.81	Enriched	Abscisate
pos_8 649	0.00	0.85	0.05	93.82	160.28	Enriched	Cannabigerolate
pos_4 264	0.00	1.04	0.05	51.46	94.70	Enriched	L-Norleucine

Table S2B Differential analysis of metabolites in the rhizosphere soils between sexes.

otu_id	logCPM	logFC	PValue	MeanA	MeanB	level	
neg_3511	0.00	-10.52	0.00	248.70	0.00	Depleted	dTDP-3-methyl-4-oxo-2,6-dideoxy-L-allose
pos_5990	0.00	-3.80	0.00	56.34	4.34	Depleted	Violacein
pos_4377	0.00	-4.63	0.00	63.76	2.56	Depleted	Rhodomyacin D
pos_5918	0.00	-5.46	0.00	7.79	0.00	Depleted	Ononin
pos_6235	0.00	-3.21	0.00	287.69	32.54	Depleted	Kanzonol D
neg_7536	0.00	-4.57	0.00	253.62	10.95	Depleted	Capsorubin
pos_1066	0.00	-4.24	0.00	219.28	11.60	Depleted	4-Guanidinobutyric acid
pos_7178	0.00	-9.10	0.00	96.68	0.00	Depleted	Nostoxanthin
neg_3455	0.00	-5.82	0.00	9.60	0.00	Depleted	5-Hydroxy-N-formylkynurenine
pos_689	0.00	-1.50	0.00	56.25	21.54	Depleted	Bergenin
pos_9485	0.52	-2.11	0.00	27924.59	6581.66	Depleted	Sporidesmolide I
neg_6442	0.00	-2.66	0.00	16.07	2.50	Depleted	3-Hydroxy-9,10-secoandrosta-1,3,5(10)-triene-9,17-dione
pos_4373	0.00	-4.38	0.00	3.62	0.00	Depleted	3-O-Methylisoetharine
pos_4409	0.01	-1.89	0.00	378.05	105.70	Depleted	4-Hydroxystyrene
neg_4662	0.00	-5.22	0.00	45.81	1.32	Depleted	7,8-Didemethyl-8-hydroxy-5-deazariboflavin
pos_4415	0.19	-1.87	0.00	9665.01	2734.89	Depleted	Phosphocreatine
pos_3965	0.00	-4.32	0.00	6.30	0.65	Depleted	Phenylalanyl-Glycine
neg_3489	0.01	-4.47	0.01	456.43	21.47	Depleted	PtdIns-(5)-PI (1,2-dihexanoyl) (sodium salt)
pos_9419	0.04	-0.75	0.01	1735.21	1080.81	Depleted	3-Dimethylallyl-4-hydroxybenzaldehyde
pos_3972	0.00	-2.17	0.01	207.12	48.62	Depleted	N-Acetyl-L-2-amino-6-oxopimelate
pos_4414	0.26	-1.91	0.01	13598.83	3740.93	Depleted	3-Hydroxy-4-hydroxymethyl-2-methylpyridine-5-carboxylate
neg_6389	0.00	-4.71	0.01	4.74	0.00	Depleted	Crocin
pos_552	0.00	-2.14	0.01	15.45	3.61	Depleted	4-Aminobutanoate
pos_7281	0.00	-0.59	0.01	84.83	59.14	Depleted	Melperone
neg_7347	0.07	-5.66	0.01	4265.36	85.55	Depleted	[6]-Gingerol
pos_4413	0.07	-1.91	0.01	3729.44	1025.62	Depleted	3-Dehydroshikimate
neg_3237	0.00	-4.45	0.01	3.76	0.00	Depleted	FAD
pos_3690	0.00	-3.43	0.01	3.76	0.46	Depleted	Phe Ala
neg_6866	0.01	-4.80	0.01	739.16	28.29	Depleted	(4R)-7-Hydroxy-4-isopropenyl-7-methyl-2-oxo-oxepanone
pos_5939	0.00	-4.62	0.01	4.28	0.06	Depleted	N-Formimino-L-glutamate
pos_6749	0.00	-1.43	0.01	165.65	64.25	Depleted	Dhurrin
neg_3906	0.00	-3.91	0.01	2.61	0.00	Depleted	Valienone
neg_6739	0.00	-2.12	0.01	21.35	5.22	Depleted	Pennogenin

							3-O-beta-chacotrioside
neg_1946	0.00	-3.41	0.01	28.04	2.69	Depleted	Songorine
pos_1743	0.02	-1.14	0.01	953.37	452.86	Depleted	(3b,16a,21b,22a)-12-Oleanene-3,16,21,23,28-pentol-22-angeloyloxy-23-al
pos_6669	0.00	-3.54	0.02	14.64	1.49	Depleted	3-Methoxytyramine-beta-xanthin
pos_6525	0.01	-1.88	0.02	511.85	141.10	Depleted	Blue pigment
pos_4410	0.05	-1.98	0.02	2584.57	676.12	Depleted	Isoquinoline
pos_8356	0.01	-0.37	0.02	536.69	436.42	Depleted	Santonine Oxime
neg_4935	0.00	-4.10	0.02	3.02	0.00	Depleted	Reduced riboflavin
neg_6938	0.00	-3.84	0.02	141.16	11.31	Depleted	19-Oxoandrost-4-ene-3,17-dione
pos_7250	0.02	-1.99	0.02	825.02	225.93	Depleted	Chenodeoxycholate
neg_2857	0.00	-3.74	0.02	2.19	0.00	Depleted	2-Furoate
pos_5987	0.00	-3.14	0.02	2.95	0.25	Depleted	Eriodictyol
neg_3457	0.24	-1.93	0.03	12227.58	3305.17	Depleted	C20913
neg_3426	0.00	-3.26	0.03	1.56	0.00	Depleted	Oxytetracycline
neg_3304	0.00	-3.25	0.03	1.53	0.00	Depleted	L-Arginine phosphate
pos_481	0.00	-1.94	0.03	13.42	3.58	Depleted	Fumarate
pos_5848	0.00	-3.79	0.03	2.26	0.00	Depleted	Glycitin
pos_4678	0.00	-3.43	0.03	3.48	0.41	Depleted	4'-O-Methylnorbelladine
pos_7432	0.00	-0.86	0.03	179.19	103.74	Depleted	Isotabtoxin
pos_4738	0.00	-3.56	0.03	2.14	0.00	Depleted	Pavetannin B2
pos_7840	0.00	-2.69	0.03	262.65	41.44	Depleted	Gravacridonol
pos_6883	0.06	-1.10	0.04	2779.42	1350.12	Depleted	Psilocin
neg_4433	0.00	-3.23	0.04	1.75	0.00	Depleted	Delphinidin 3-O-(6"-O-malonyl)-beta-glucoside-3'-O-beta-glucoside
pos_1471	0.00	-2.93	0.04	1.21	0.00	Depleted	N-octanoyl-L-Homoserine lactone
pos_5368	0.00	-2.54	0.04	3.46	0.71	Depleted	5-Hydroxykynurenamine
pos_3974	0.01	-2.24	0.04	434.99	97.13	Depleted	4-(3-Hydroxy-2-naphthyl)-2-oxobut-3-enoic acid
neg_6415	0.01	-2.72	0.04	528.92	85.42	Depleted	Haemanthamine
pos_780	0.00	-4.38	0.04	3.66	0.00	Depleted	UDP-3-O-(3-hydroxytetradecanoyl)-N-acetylglucosamine
pos_5108	0.00	-3.22	0.04	1.68	0.00	Depleted	Tetracenomycin D3
neg_5266	0.00	-2.84	0.04	43.76	6.86	Depleted	N-Acetylbialaphos
pos_7221	0.03	-0.93	0.04	1356.65	746.79	Depleted	Deoxyguanosine
pos_4243	0.00	-2.94	0.04	1.48	0.01	Depleted	Thr Ala Ala Arg
pos_6936	0.72	-1.25	0.04	32934.71	14368.04	Depleted	Cycluron
pos_4281	0.00	-2.29	0.05	8.10	1.73	Depleted	4'-Methoxy-2',3,7-trihydroxyisoflavanone
pos_7946	0.00	-2.90	0.05	189.81	27.00	Depleted	4-(3-Methyl-1-butenyl)-3,3',4',5-tetrahydroxystilbene

pos_6527	0.26	-0.96	0.05	11041.84	5930.03	Depleted	3-Acrylamidopropyl trimethylammonium
neg_3962	0.00	18.22	0.00	0.00	3.48	Enriched	2-Hydroxy-6-oxo-6-(2-hydroxyphenyl)-hexa-2,4-dienoate
neg_910	0.00	23.07	0.00	0.00	124.70	Enriched	PtdIns-(3,4)-P2 (1,2-dihexanoyl)
pos_7157	0.00	21.77	0.00	0.02	42.01	Enriched	Phenylacetyl glycine
neg_1298	0.00	9.20	0.00	0.00	111.40	Enriched	dTDP-4-oxo-2-deoxy-beta-L-xylose
pos_5106	0.00	15.68	0.00	0.00	0.77	Enriched	5-Methylthiopentanal doxime
pos_7700	0.22	4.57	0.00	547.98	14013.08	Enriched	Mucronine B
pos_5667	0.00	9.94	0.00	0.00	182.12	Enriched	Plaunotol
pos_7697	0.00	2.33	0.00	28.33	154.18	Enriched	Corticosterone
pos_7692	0.01	6.20	0.00	5.98	464.11	Enriched	Cysterone
neg_5649	0.00	6.38	0.00	0.00	15.68	Enriched	(R)(-)-Allantoin
pos_553	0.01	3.42	0.00	54.65	644.45	Enriched	2-Aminomuconate semialdehyde
pos_2795	0.00	1.24	0.00	45.77	112.49	Enriched	Stigmastan-3,5-diene
pos_6744	0.00	5.25	0.00	3.12	127.35	Enriched	1-(5-Phospho-D-ribosyl)-5-amino-4-imidazolecarboxylate
neg_845	0.00	5.79	0.00	1.25	81.89	Enriched	3-Dehydro-D-glucose 6-phosphate
pos_7698	0.00	2.67	0.00	31.16	215.69	Enriched	Ajmalicine
neg_5992	0.00	6.90	0.00	0.00	23.87	Enriched	Phylloquinol
pos_1319	0.00	5.59	0.00	0.00	9.11	Enriched	DL-o-Tyrosine
pos_8017	0.00	4.28	0.00	13.83	282.44	Enriched	Daucosterol
neg_7100	0.00	2.48	0.00	26.91	164.79	Enriched	Alisol C monoacetate
neg_1019	0.00	4.30	0.00	2.29	47.50	Enriched	Aconitic acid
pos_6942	0.00	5.65	0.00	0.46	19.14	Enriched	Glycoursodeoxycholic acid
pos_7680	0.01	3.18	0.00	31.46	302.03	Enriched	Testosterone
neg_6120	0.00	4.67	0.00	0.00	5.17	Enriched	Lasalocid (sodium)
pos_7695	0.00	1.58	0.00	28.91	91.98	Enriched	5-Hydroxyindoleacetyl glycine
pos_4593	0.00	3.22	0.00	14.55	147.15	Enriched	N-decanoyl-L-Homoserine lactone
pos_980	0.00	4.97	0.00	0.33	12.45	Enriched	QUINAMIDE ISOPROPYLIDENE
pos_7408	0.00	3.81	0.00	1.38	19.77	Enriched	20alpha,22beta-Dihydroxycholesterol
pos_7242	0.01	7.18	0.00	4.36	674.03	Enriched	5-O-beta-D-Mycaminosyltylactone
pos_613	0.07	1.44	0.00	1144.13	3345.27	Enriched	Betaine
pos_7087	0.00	5.84	0.00	0.00	10.56	Enriched	20,21-Diprenylterpendole I
pos_3006	0.27	0.97	0.00	5674.00	11991.02	Enriched	Ergosta-5,7,22,24(28)-tetraen-3beta-ol
pos_740	0.00	1.34	0.00	8.85	24.25	Enriched	L-Noradrenaline
pos_6580	0.00	5.85	0.00	0.00	11.71	Enriched	Neriifolin
pos_3060	0.02	1.42	0.00	322.93	898.26	Enriched	(22E,

							24x)-Ergosta-4,6,8,22-tetraen-3-one
neg_6859	0.00	3.34	0.00	18.34	211.58	Enriched	Demethyl-desacetyl-rifamycin S
neg_7172	0.00	2.86	0.00	17.13	137.92	Enriched	Streptomycin
pos_6252	0.00	2.70	0.00	1.53	11.28	Enriched	Ovalitenin B
neg_6215	0.00	5.90	0.00	0.00	12.43	Enriched	Gentamicin C1
neg_3271	0.00	4.37	0.00	0.00	4.05	Enriched	Methyl jasmonate
neg_6804	0.00	5.16	0.01	0.00	6.60	Enriched	Bergamottin
neg_5122	0.00	3.80	0.01	0.00	2.81	Enriched	Genipin 1-????-D-gentiobioside
pos_8388	0.00	8.83	0.01	0.00	89.07	Enriched	ADP
pos_7623	0.00	1.40	0.01	61.23	170.36	Enriched	Phylloquinone
pos_7938	0.01	3.94	0.01	28.66	479.00	Enriched	(1R,10aS)-1,4,10,10a-Tetrahydrop henazine-1-carboxylate
neg_1230	0.00	3.96	0.01	0.75	11.29	Enriched	D-Glucuronolactone
neg_6868	0.05	1.91	0.01	623.75	2614.26	Enriched	1-Oleoyl-sn-glycero-3-phosphoch oline
pos_7272	0.00	7.86	0.01	0.50	89.89	Enriched	Avermectin A1a
pos_8383	0.00	8.13	0.01	0.00	54.14	Enriched	Ethanolamine phosphate
pos_992	0.00	1.85	0.01	4.07	15.25	Enriched	2-Deoxy-scylo-inosamine
neg_6146	0.00	4.13	0.01	0.00	3.36	Enriched	19-Oxotestosterone
neg_2184	0.00	4.38	0.01	0.48	7.39	Enriched	Antheraxanthin
pos_1311	0.00	1.97	0.01	5.38	22.42	Enriched	N-(5-Methyl-3-oxohexyl)alanine
pos_9283	0.00	4.82	0.01	0.00	5.17	Enriched	2-C-Methyl-D-erythritol 4-phosphate
pos_590	0.00	1.40	0.01	29.08	81.16	Enriched	L-Carnitine
pos_7362	0.00	3.38	0.01	1.04	11.15	Enriched	Calcitriol
neg_4629	0.00	3.62	0.01	0.00	2.20	Enriched	8-O-?Acetylharpagide
neg_6199	0.01	1.22	0.01	231.45	575.46	Enriched	3alpha,7alpha,12alpha-Trihydroxy -5beta-cholestanoate
neg_7235	0.00	2.04	0.01	37.49	166.19	Enriched	Neomycin B
pos_8387	0.00	4.79	0.01	6.25	176.70	Enriched	N3-Fumaroyl-L-2,3-diaminopropa noate
neg_5036	0.00	3.59	0.01	0.00	2.19	Enriched	Pentalenolactone
neg_3284	0.00	4.13	0.01	0.00	3.44	Enriched	Pelargonidin 3-O-(6-O-malonyl-beta-D-glucosi de)
neg_5550	0.00	4.42	0.02	0.00	3.85	Enriched	Pelargonidin 3-O-glucoside
pos_860	0.01	1.42	0.02	112.47	330.68	Enriched	Benz[c]acridine
neg_1215	0.00	1.64	0.02	5.99	19.43	Enriched	Malonylglycitin
pos_7947	0.78	2.96	0.02	5424.45	45807.71	Enriched	Khellol glucoside
neg_6292	0.07	1.83	0.02	958.70	3775.12	Enriched	Salmeterol
pos_7943	0.20	2.89	0.02	1460.28	11703.91	Enriched	Leflunomide
pos_5888	0.00	3.37	0.02	0.15	1.83	Enriched	(1'S,5'S)-5'-Hydroxyaverantin

pos_7451	0.00	3.54	0.02	24.24	286.90	Enriched	2'-N-Acetylparomamine
neg_4971	0.00	3.39	0.02	0.00	2.16	Enriched	Curcumin
neg_1064	0.00	3.10	0.02	0.00	1.60	Enriched	Quercetin 3-O-(6-O-malonyl-beta-D-glucosi de)
pos_1188	0.00	3.88	0.02	0.27	5.43	Enriched	Terbutaline-1-sulfate
pos_5213	0.00	2.82	0.02	0.63	5.01	Enriched	His-Tyr-OH
neg_1408	0.00	2.32	0.02	6.71	36.36	Enriched	7,8-Dihydroxanthopterin
pos_7349	0.00	0.96	0.02	79.58	165.08	Enriched	((2S,3S,4R,7S,10S)-4-ethyl-3,7,10 -trimethyldodecahydrocyclopenta[b]quinolizin-2-yl)methanol
pos_6606	0.00	3.11	0.03	0.00	1.79	Enriched	28-Homobrassinolide
neg_1921	0.00	2.97	0.03	13.88	120.31	Enriched	7alpha,12alpha-Dihydroxy-5beta-c holestan-3-one
neg_6582	0.00	4.65	0.03	0.00	4.77	Enriched	Germacrene A acid
neg_6771	0.02	1.43	0.03	382.43	1092.10	Enriched	Traumatatin
pos_2786	0.01	0.65	0.03	144.25	235.65	Enriched	Gypenoside XVII
neg_4136	0.00	4.40	0.03	0.00	4.49	Enriched	Nebramycin factor 4
pos_8306	0.06	1.16	0.03	1122.54	2742.10	Enriched	PC(18:1(9E)/0:0)[U]
neg_4021	0.00	1.79	0.03	1.72	5.76	Enriched	3,6,8-Trimethylallantoin
neg_6187	0.00	3.63	0.03	0.00	2.26	Enriched	Bryostatin 1
neg_1274	0.00	3.81	0.03	0.00	2.77	Enriched	5-Phosphooxy-L-lysine
pos_5017	0.01	0.46	0.03	327.56	476.26	Enriched	Elenaic acid
pos_6897	0.00	2.80	0.03	5.59	40.09	Enriched	Prolyl-2-naphthylamide
pos_1539	0.00	2.31	0.03	5.84	29.08	Enriched	7-Ethyl-2,3,4,5,6,7-hexahydrocycl opent[b]azepin-8(1H)-one
neg_7311	0.00	3.56	0.03	4.66	58.41	Enriched	Diosgenin glucoside
pos_8093	0.00	3.32	0.03	0.00	1.94	Enriched	7-Dehydrosmosterol
neg_7249	0.00	1.80	0.03	11.01	41.26	Enriched	27-O-Demethyl-25-O-desacetylrif amycin SV
neg_6578	0.00	1.50	0.04	16.11	50.52	Enriched	Brassinolide
pos_7675	0.00	3.25	0.04	0.80	10.81	Enriched	PE(P-16:0/0:0)
pos_1340	0.00	3.39	0.04	0.07	2.00	Enriched	Isopentenyladenine-9-N-glucoside
neg_7273	0.01	2.05	0.04	162.42	706.16	Enriched	Nebramycin 5'
pos_1881	0.00	3.07	0.04	0.00	1.59	Enriched	Clavaminic acid
neg_7122	0.06	0.97	0.04	1218.44	2537.41	Enriched	2,2'-Diketospirilloxanthin
neg_4565	0.00	3.12	0.04	0.00	1.67	Enriched	Rutaevin
pos_9124	0.01	2.29	0.04	153.15	790.91	Enriched	Sipeimine-3beta-D-glucoside
pos_8543	0.00	0.82	0.04	86.71	164.72	Enriched	D-Urobilinogen
pos_6219	0.00	1.91	0.05	2.64	10.57	Enriched	7-Hydroxy-6-methyl-8-ribitylluma zine
pos_2819	0.00	1.01	0.05	105.51	223.35	Enriched	14-Demethylstanosterol
neg_3603	0.00	2.79	0.05	0.00	1.21	Enriched	Cyanidin

							3-O-(6-O-p-coumaroyl)glucoside
neg_5947	0.01	3.81	0.05	41.71	580.54	Enriched	Dethiobiotin
pos_1321	0.00	1.28	0.05	9.73	24.94	Enriched	2-Hydroxycinnamic acid

Table S3A Bacterial 16S rRNA Sequencing Data Quality Assessment.

Sample ID	Raw Reads	Clean Reads	Effective Reads	AvgLen(bp)	GC(%)	Q20(%)	Q30(%)	Effective(%)	OTU_Num	Coverage
FR01	79866	79577	65999	402	54.66	99.31	96.99	82.64	1612	0.9985
FR02	79849	79546	69421	402	54.86	99.31	97	86.94	852	0.9987
FR03	80242	79978	67377	401	53.96	99.31	96.96	83.97	1767	0.9983
FRh01	79494	79196	76161	416	57.22	99.12	96.38	95.81	824	0.9975
FRh02	80040	79727	77684	417	57.21	99.12	96.37	97.06	894	0.9979
FRh03	80280	80026	78390	418	57.3	99.11	96.34	97.65	1521	0.998
MR01	80189	79917	65546	401	54.42	99.33	97.02	81.74	844	0.9987
MR02	80319	80010	65421	402	54.25	99.33	97.04	81.45	1700	0.9981
MR03	80018	79699	60171	402	53.85	99.31	96.95	75.2	1690	0.9976
MRh01	79598	79317	75799	417	56.15	99.12	96.34	95.23	879	0.9979
MRh02	79900	79581	76706	416	55.64	99.11	96.34	96	1662	0.9979
MRh03	80167	79841	77543	417	56.19	99.1	96.28	96.73	869	0.9976

Table S3B. Fungi ITS1 Sequencing Data Quality Assessment.

Sample ID	Raw Reads	Clean Reads	Effective Reads	AvgLen(bp)	GC(%)	Q20(%)	Q30(%)	Effective(%)	OTU_Num	Coverage
FR01	54094	53834	53604	299	40.85	99.74	98.34	99.09	294	0.9995
FR02	51183	50930	50705	231	47.48	99.96	99.67	99.07	320	0.999
FR03	62096	61796	61626	278	48.87	99.68	98.42	99.24	303	0.9997
FRh01	27594	27432	27080	243	45.29	99.85	99.12	98.14	503	0.9967
FRh02	33624	33414	33069	249	45.82	99.84	99.06	98.35	557	0.9991
FRh03	26284	26121	25765	236	46.09	99.89	99.32	98.03	420	0.9976
MR01	69543	69125	68487	261	42.95	99.9	99.29	98.48	291	0.9991
MR02	48795	48575	48131	233	49.57	99.92	99.52	98.64	268	0.999
MR03	37503	37310	37086	253	44.35	99.9	99.3	98.89	270	0.9988
MRh01	27518	27366	26999	236	46.49	99.89	99.31	98.11	599	0.9962
MRh02	44845	44448	43983	252	45.37	99.85	99.07	98.08	638	0.9993
MRh03	28306	28143	27796	239	46.01	99.88	99.27	98.2	619	0.9969
Sum/ave	511385	508494	504331	251	45.76	99.86	99.14	98.53	1021	0.9984

Table S4. Comparison of relative abundance of bacteria and fungi in each group.

	phyla	FR	FRh	MR	MRh
Bacteria	Proteobacteria	49.9 a	11.1 b	55.1 a	10.8 b
Bacteria	Acidobacteriota	12.6 b	39.3 a	4.4 b	31.9 a
Bacteria	Actinobacteriota	17.4 a	14.7 a	28.2 a	14.8 a
Bacteria	Firmicutes	2.6 a	4.4 a	1.2 a	17.6 a
Bacteria	Gemmatimonadota	3.8 a	6.9 a	1.8 a	6.2 a
Bacteria	Verrucomicrobiota	0 a	4.7 a	0 a	5.4 a
Bacteria	Myxococcota	7 a	0.8 bc	4.5 ab	0.4 c
Bacteria	Chloroflexi	1.4 ab	4.7 a	0.4 b	4.3 ab
Bacteria	Patescibacteria	1.2 a	0.5 a	0.9 a	1.4 a
Bacteria	Others	4.2 b	12.9 a	3.4 b	7.3 ab
Fungi	Aphelidiomycota	0 a	0 a	0 a	0 a
Fungi	Ascomycota	59.5 a	66.3 a	66.7 a	66 a
Fungi	Basidiomycota	33.3 a	17.1 a	30.8 a	15.2 a
Fungi	Chytridiomycota	0.5 b	3.5 a	0.2 b	2.6 a
Fungi	Glomeromycota	0.1 ab	0.2 a	0 b	0.2 ab
Fungi	Kickxellomycota	0.1 a	0.1 a	0.2 a	0.2 a
Fungi	Mortierellomycota	1 a	5 a	0.5 a	9.8 a
Fungi	Mucoromycota	0 a	0.1 a	0 a	0.1 a
Fungi	Olpidiomycota	0 a	0 a	0 a	0.1 a
Fungi	Others	5.6 a	7.7 a	1.6 a	5.9 a

Table S5A Differential analysis of bacteria in roots between sexes.

otu_id	baseMean	log2FC	lfcSE	stat	pvalue	padj	
unclassified_Xanthomonadaceae	96.53	-6.60	2.01	-3.29	0.00	0.06	Depleted
unclassified_Gammaproteobacteria	7.32	-3.00	1.10	-2.72	0.01	0.16	Depleted
Candidatus_Solibacter	848.59	-1.22	0.54	-2.24	0.02	0.26	Depleted
Dactylosporangium	74.93	-2.44	1.09	-2.23	0.03	0.26	Depleted
Escherichia_Shigella	29.84	-1.33	0.60	-2.21	0.03	0.26	Depleted
Parabacteroides	6.86	-2.59	1.17	-2.22	0.03	0.26	Depleted
Rodentibacter	52.84	-1.87	0.83	-2.25	0.02	0.26	Depleted
unclassified_A4b	47.32	-2.32	1.04	-2.23	0.03	0.26	Depleted
unclassified_Burkholderiales	4.61	-5.77	2.55	-2.27	0.02	0.26	Depleted
uncultured_proteobacterium	16.15	-2.78	1.22	-2.28	0.02	0.26	Depleted
Polycyclovorans	3.53	-3.68	1.77	-2.07	0.04	0.32	Depleted
unclassified_Myxococcales	3.82	-4.21	2.12	-1.98	0.05	0.36	Depleted
Mitsuaria	261.05	4.30	0.95	4.50	0.00	0.00	Enriched
Streptomyces	2063.24	3.03	0.77	3.95	0.00	0.01	Enriched
Brevundimonas	20.15	4.12	1.27	3.24	0.00	0.06	Enriched
Methylophilus	47.67	4.95	1.50	3.29	0.00	0.06	Enriched
Shimazuella	9.27	4.31	1.33	3.25	0.00	0.06	Enriched
Chryseobacterium	424.98	4.65	1.48	3.15	0.00	0.07	Enriched
Allorhizobium_Neorhizobium_Para rhizobium_Rhizobium	2241.32	2.46	0.80	3.06	0.00	0.07	Enriched
Mycobacterium	371.19	1.38	0.45	3.06	0.00	0.07	Enriched
Agromyces	6.24	4.74	1.68	2.82	0.00	0.15	Enriched
Actinocorallia	9.42	4.77	1.79	2.67	0.01	0.16	Enriched
Hirschia	38.45	5.20	1.97	2.63	0.01	0.16	Enriched
Roseomonas	19.02	3.51	1.31	2.69	0.01	0.16	Enriched
Sandaracinus	14.24	2.86	1.06	2.70	0.01	0.16	Enriched
Uliginosibacterium	12.47	2.57	0.98	2.63	0.01	0.16	Enriched
Dyadobacter	34.74	2.51	0.99	2.54	0.01	0.20	Enriched
Niastella	1558.09	2.44	0.97	2.51	0.01	0.20	Enriched
Micromonospora	28.06	2.61	1.06	2.47	0.01	0.22	Enriched
Edaphobaculum	18.48	3.34	1.51	2.21	0.03	0.26	Enriched
Microvirga	7.72	2.73	1.23	2.23	0.03	0.26	Enriched
Pseudonocardia	37.26	1.44	0.65	2.23	0.03	0.26	Enriched
unclassified_Acidobacterium_sp._ WY65	8.06	2.92	1.24	2.35	0.02	0.26	Enriched
unclassified_env.OPS_17	96.93	3.15	1.42	2.22	0.03	0.26	Enriched
AAP99	118.84	2.22	1.02	2.17	0.03	0.27	Enriched
Virgisporangium	13.78	3.15	1.46	2.17	0.03	0.27	Enriched
unclassified_Hyphomicrobiaceae	3.91	4.18	1.96	2.13	0.03	0.29	Enriched
unclassified_Methylophilaceae	42.29	1.88	0.91	2.06	0.04	0.32	Enriched
Massilia	167.79	2.27	1.12	2.02	0.04	0.35	Enriched

uncultured_Caldilineaceae_bacterium	3.57	4.11	2.06	2.00	0.05	0.36	Enriched
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Table S5B Differential analysis of bacteria in rhizosphere soils between sexes.

otu_id	aseMean	log2FC	lfcSE	stat	pvalue	padj	
unclassified_KF_JG30_B3	108.70	-1.74	0.45	-3.84	0.00	0.01	Depleted
uncultured_Holophaga_sp.	157.22	-2.19	0.57	-3.82	0.00	0.01	Depleted
P3OB_42	86.78	-1.84	0.49	-3.76	0.00	0.01	Depleted
unclassified_Elsterales	665.66	-1.65	0.46	-3.60	0.00	0.01	Depleted
unclassified_Ktedonobacteraceae	75.52	-3.93	1.25	-3.15	0.00	0.03	Depleted
uncultured_proteobacterium	361.20	-2.02	0.64	-3.14	0.00	0.03	Depleted
unclassified_Bacteria	2877.17	-1.20	0.39	-3.10	0.00	0.03	Depleted
unclassified_Armatimonadales	4.51	-6.28	2.05	-3.06	0.00	0.03	Depleted
unclassified_Alphaproteobacteria	326.82	-1.26	0.42	-3.01	0.00	0.03	Depleted
uncultured_gamma_proteobacterium	69.33	-1.41	0.48	-2.96	0.00	0.04	Depleted
unclassified_A21b	235.10	-1.89	0.65	-2.89	0.00	0.04	Depleted
Haliangium	1018.48	-1.20	0.42	-2.88	0.00	0.04	Depleted
unclassified_Rokubacteriales	71.48	-1.67	0.59	-2.86	0.00	0.04	Depleted
ADurb.Bin063_1	329.82	-1.39	0.49	-2.82	0.00	0.05	Depleted
unclassified_Isosphaeraceae	100.42	-2.00	0.72	-2.80	0.01	0.05	Depleted
unclassified_Subgroup_2	194.55	-1.82	0.65	-2.78	0.01	0.05	Depleted
Candidatus_Solibacter	1932.80	-0.94	0.35	-2.68	0.01	0.06	Depleted
Tumebacillus	78.19	-2.23	0.83	-2.69	0.01	0.06	Depleted
uncultured_Desulfovira_sp.	395.73	-2.00	0.74	-2.69	0.01	0.06	Depleted
Ellin516	117.57	-1.31	0.49	-2.66	0.01	0.06	Depleted
MND1	470.05	-1.07	0.41	-2.60	0.01	0.07	Depleted
Roseiarcus	116.43	-1.90	0.73	-2.60	0.01	0.07	Depleted
uncultured_actinobacterium	235.20	-2.04	0.80	-2.57	0.01	0.07	Depleted
unclassified_Subgroup_17	55.16	-2.00	0.81	-2.46	0.01	0.08	Depleted
Sumerlaea	143.68	-1.77	0.74	-2.40	0.02	0.09	Depleted
uncultured_forest_soil_bacterium	581.51	-1.72	0.72	-2.39	0.02	0.09	Depleted
unclassified_Vicinamibacterales	2428.79	-0.88	0.37	-2.39	0.02	0.09	Depleted
unclassified_Acidobacteriales	3937.21	-0.84	0.36	-2.37	0.02	0.10	Depleted
unclassified_JG30_KF_AS9	443.19	-1.22	0.52	-2.36	0.02	0.10	Depleted
uncultured_Firmicutes_bacterium	83.97	-1.85	0.79	-2.33	0.02	0.10	Depleted
uncultured_Ferrimicrobium_sp.	79.09	-1.24	0.53	-2.33	0.02	0.10	Depleted
Anaeromyxobacter	52.83	-1.58	0.69	-2.29	0.02	0.11	Depleted
unclassified_Gemmataceae	155.37	-0.88	0.39	-2.27	0.02	0.11	Depleted
unclassified_Xanthobacteraceae	1189.36	-0.72	0.32	-2.26	0.02	0.11	Depleted
unclassified_Gemmatimonadaceae	1362.16	-1.07	0.47	-2.25	0.02	0.12	Depleted
unclassified_Methylobacteriaceae	81.59	-0.90	0.41	-2.19	0.03	0.13	Depleted
unclassified_SC_I_84	1825.06	-0.83	0.38	-2.18	0.03	0.13	Depleted
unclassified_Subgroup_13	75.94	-2.46	1.13	-2.17	0.03	0.13	Depleted
unclassified_Simkaniaceae	34.40	-1.89	0.89	-2.12	0.03	0.14	Depleted
SM1A02	59.42	-1.08	0.52	-2.09	0.04	0.15	Depleted

Nitrospira	539.27	-0.78	0.38	-2.02	0.04	0.17	Depleted
Rhodoplanes	241.27	-0.94	0.47	-2.02	0.04	0.17	Depleted
uncultured_Alphaproteobacteria_bacterium	26.71	-1.85	0.92	-2.02	0.04	0.17	Depleted
uncultured_Solibacterales_bacterium	11.15	-1.95	0.97	-2.01	0.04	0.17	Depleted
unclassified_IMCC26256	306.09	-0.95	0.48	-1.97	0.05	0.18	Depleted
Allorhizobium_Neorhizobium_Pararhizobium_Rhizobium	227.47	2.67	0.57	4.68	0.00	0.00	Enriched
Flavitalea	23.75	4.97	1.03	4.83	0.00	0.00	Enriched
Ramlibacter	211.47	2.23	0.47	4.70	0.00	0.00	Enriched
Variovorax	70.38	2.61	0.57	4.56	0.00	0.00	Enriched
Paenibacillus	27.25	3.02	0.71	4.26	0.00	0.00	Enriched
Flavisolibacter	312.68	1.91	0.45	4.22	0.00	0.00	Enriched
Caulobacter	24.03	2.98	0.75	3.99	0.00	0.00	Enriched
Devosia	88.28	1.63	0.44	3.68	0.00	0.01	Enriched
Luteimonas	15.75	4.89	1.32	3.70	0.00	0.01	Enriched
Dyadobacter	36.55	4.29	1.18	3.63	0.00	0.01	Enriched
Lysobacter	121.92	1.99	0.55	3.60	0.00	0.01	Enriched
Bosea	27.65	3.42	0.97	3.52	0.00	0.01	Enriched
unclassified_Rhodanobacteraceae	18.31	4.51	1.28	3.53	0.00	0.01	Enriched
Hirschia	11.48	5.13	1.50	3.43	0.00	0.01	Enriched
unclassified_Intrasporangiaceae	233.73	1.32	0.39	3.36	0.00	0.02	Enriched
Aridibacter	162.06	2.26	0.68	3.30	0.00	0.02	Enriched
Luteitalea	11.78	5.33	1.62	3.30	0.00	0.02	Enriched
Pseudorhodoferrax	9.50	4.97	1.52	3.27	0.00	0.02	Enriched
Rhodocytophaga	6.18	5.97	1.85	3.23	0.00	0.02	Enriched
Bacteroides	47.60	2.86	0.90	3.20	0.00	0.02	Enriched
Segetibacter	18.21	2.95	0.93	3.19	0.00	0.02	Enriched
Olivibacter	14.07	3.86	1.25	3.10	0.00	0.03	Enriched
unclassified_Sandaracinaceae	42.08	2.81	0.92	3.05	0.00	0.03	Enriched
unclassified_Oxalobacteraceae	36.82	2.68	0.88	3.04	0.00	0.03	Enriched
Aliihoeflea	11.74	2.96	0.98	3.01	0.00	0.03	Enriched
Cupriavidus	275.12	1.57	0.53	2.96	0.00	0.04	Enriched
Bifidobacterium	27.89	3.82	1.30	2.94	0.00	0.04	Enriched
unclassified_Microscillaceae	18.85	3.36	1.16	2.89	0.00	0.04	Enriched
Achromobacter	19.66	3.85	1.35	2.86	0.00	0.04	Enriched
Faecalibacterium	26.24	3.04	1.07	2.84	0.00	0.05	Enriched
Filimonas	16.21	2.21	0.78	2.83	0.00	0.05	Enriched
unclassified_Oscillospiraceae	20.24	2.99	1.06	2.81	0.00	0.05	Enriched
Lactobacillus	79.85	1.58	0.57	2.79	0.01	0.05	Enriched
Muribaculum	6.08	5.53	2.00	2.76	0.01	0.05	Enriched
Nocardioides	165.91	1.05	0.39	2.71	0.01	0.06	Enriched
uncultured_Bacteroidales_bacterium	34.11	2.34	0.86	2.72	0.01	0.06	Enriched

Ohtaekwangia	7.86	5.87	2.20	2.67	0.01	0.06	Enriched
unclassified_Micrococcaceae	163.48	1.19	0.45	2.67	0.01	0.06	Enriched
Chryseolinea	4.27	5.44	2.06	2.65	0.01	0.06	Enriched
Aeromicrobium	22.24	1.99	0.77	2.57	0.01	0.07	Enriched
JGI_0001001_H03	155.30	1.85	0.72	2.58	0.01	0.07	Enriched
Sphingobium	12.83	2.60	1.00	2.59	0.01	0.07	Enriched
unclassified_Sphingobacteriaceae	4.71	6.23	2.42	2.58	0.01	0.07	Enriched
unclassified_env.OPS_17	7.78	5.11	1.99	2.57	0.01	0.07	Enriched
Paracoccus	15.86	3.72	1.45	2.56	0.01	0.07	Enriched
Bacillus	1814.90	2.08	0.82	2.53	0.01	0.07	Enriched
unclassified_Enterobacteriaceae	79.01	1.75	0.71	2.46	0.01	0.08	Enriched
Colidextribacter	16.67	3.36	1.39	2.42	0.02	0.09	Enriched
Microvirga	14.78	2.48	1.03	2.41	0.02	0.09	Enriched
unclassified_Saprospiraceae	4.03	3.35	1.39	2.40	0.02	0.09	Enriched
unclassified_mle1_27	5.36	4.47	1.85	2.41	0.02	0.09	Enriched
Novosphingobium	48.49	1.41	0.60	2.36	0.02	0.10	Enriched
unclassified_Lachnospiraceae	13.33	1.98	0.84	2.36	0.02	0.10	Enriched
Rummeliibacillus	5.92	4.49	1.91	2.35	0.02	0.10	Enriched
Arenimonas	11.41	2.28	0.98	2.33	0.02	0.10	Enriched
Niabella	5.39	3.57	1.56	2.28	0.02	0.11	Enriched
Stenotrophobacter	7.81	2.85	1.28	2.22	0.03	0.12	Enriched
YC_ZSS_LKJ147	61.96	2.67	1.20	2.23	0.03	0.12	Enriched
Pseudoxanthomonas	17.69	2.45	1.11	2.21	0.03	0.13	Enriched
Brevundimonas	37.85	2.53	1.17	2.17	0.03	0.13	Enriched
unclassified_Burkholderiales	14.53	2.37	1.09	2.17	0.03	0.13	Enriched
Prevotellaceae_UCG_001	13.28	2.04	0.94	2.16	0.03	0.13	Enriched
unclassified_A4b	146.38	2.21	1.03	2.15	0.03	0.13	Enriched
Pseudofulvimonas	4.28	5.99	2.80	2.14	0.03	0.14	Enriched
unclassified_Caldilineaceae	9.63	2.04	0.96	2.13	0.03	0.14	Enriched
unclassified_Vampirovibrionaceae	5.36	3.69	1.73	2.14	0.03	0.14	Enriched
unclassified_Rhizobiaceae	46.83	1.72	0.83	2.08	0.04	0.15	Enriched
Rothia	6.69	5.30	2.55	2.08	0.04	0.15	Enriched
Thermomonas	4.72	4.23	2.06	2.05	0.04	0.16	Enriched
unclassified_Blastocatellaceae	411.39	1.38	0.67	2.04	0.04	0.16	Enriched
Chitinophaga	108.16	1.47	0.74	2.00	0.05	0.17	Enriched
Lachnospiraceae_NK4A136_group	31.87	1.41	0.71	2.00	0.05	0.17	Enriched
uncultured_Bacteroidetes_bacterium	4.44	3.08	1.56	1.97	0.05	0.18	Enriched
unclassified_Muribaculaceae	98.85	1.20	0.61	1.96	0.05	0.18	Enriched

Table S5C. Differential analysis of fungi in roots between sexes.

otu_id	baseMean	log2FC	lfcSE	stat	pvalue	padj	
unclassified_Basidiomycota	543.89	-3.87	0.83	-4.65	0.00	0.00	Depleted
unclassified_Sordariomycetes	377.32	-3.60	1.09	-3.31	0.00	0.02	Depleted
Candida	56.87	-2.05	0.66	-3.11	0.00	0.03	Depleted
Solicoccozyma	34.39	-3.21	1.05	-3.05	0.00	0.03	Depleted
Trechispora	64.98	-6.40	2.14	-2.99	0.00	0.04	Depleted
Rhodotorula	36.04	-2.39	0.82	-2.90	0.00	0.05	Depleted
unclassified_Chytridiomycota	32.20	-4.38	1.53	-2.87	0.00	0.05	Depleted
unclassified_Mortierellaceae	13.92	-4.51	1.69	-2.67	0.01	0.08	Depleted
Malassezia	21.45	-4.90	1.87	-2.62	0.01	0.08	Depleted
Sporidiobolus	7.97	-5.36	2.19	-2.45	0.01	0.11	Depleted
Acremonium	494.92	-1.77	0.84	-2.11	0.03	0.23	Depleted
unclassified_Auriculariales	10.13	-4.57	2.17	-2.11	0.03	0.23	Depleted
Filobasidium	95.70	-1.91	0.91	-2.09	0.04	0.23	Depleted
Ilyonectria	25.72	-1.96	0.99	-1.99	0.05	0.26	Depleted
Conocybe	25.30	-2.21	1.12	-1.96	0.05	0.27	Depleted
unclassified_Ceratobasidiaceae	9076.97	9.65	1.46	6.62	0.00	0.00	Enriched
unclassified_Plectosphaerellaceae	151.83	4.26	1.02	4.18	0.00	0.00	Enriched
Cladosporium	4199.83	2.88	0.77	3.73	0.00	0.01	Enriched
unclassified_Fungi	978.09	2.07	0.58	3.56	0.00	0.01	Enriched
Paraconiothyrium	26.62	5.42	1.72	3.15	0.00	0.03	Enriched
unclassified_Ascomycota	1689.24	3.71	1.20	3.10	0.00	0.03	Enriched
Xenomyrothecium	89.07	5.18	1.87	2.76	0.01	0.06	Enriched
Gibellulopsis	1063.37	2.93	1.11	2.64	0.01	0.08	Enriched
Wallemia	274.26	4.51	1.78	2.53	0.01	0.10	Enriched
Curvularia	45.17	2.08	0.88	2.36	0.02	0.14	Enriched
Colletotrichum	13.50	4.20	1.91	2.19	0.03	0.20	Enriched
Neomicrosphaeropsis	6.58	4.64	2.25	2.06	0.04	0.24	Enriched
Vishniacozyma	45.32	3.01	1.47	2.04	0.04	0.24	Enriched

Table S5D. Differential analysis of fungi in rhizosphere soils between sexes.

otu_id	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj	
Cymostachys	40.34133543	19.39697989	3.226643235	6.011504365	1.84E-09	5.40E-07	Enriched
Exserohilum	161.9406826	9.655372301	1.780498753	5.42284699	5.87E-08	8.62E-06	Enriched
Acrocalymma	249.8620315	14.99039183	3.235066476	4.633719877	3.59E-06	0.00035197	Enriched
Cortinarius	17.3373386	7.098561819	1.942158786	3.654985303	0.000257197	0.018903958	Enriched
Sampaiozyma	7.325896093	6.342913496	1.963570769	3.230295335	0.001236624	0.072713495	Enriched
Inocybe	44.22730949	5.061234659	1.87741042	2.69585947	0.007020728	0.344015668	Enriched
Olpidium	4.982613145	4.028810706	1.745043997	2.308715833	0.020959355	0.768209918	Enriched
Pseudaleuria	16.63474315	3.19929882	1.412534106	2.264935626	0.02351663	0.768209918	Enriched
unclassified_Auriculariales	10.12997938	4.957998009	2.138867253	2.318048492	0.020446686	0.768209918	Enriched

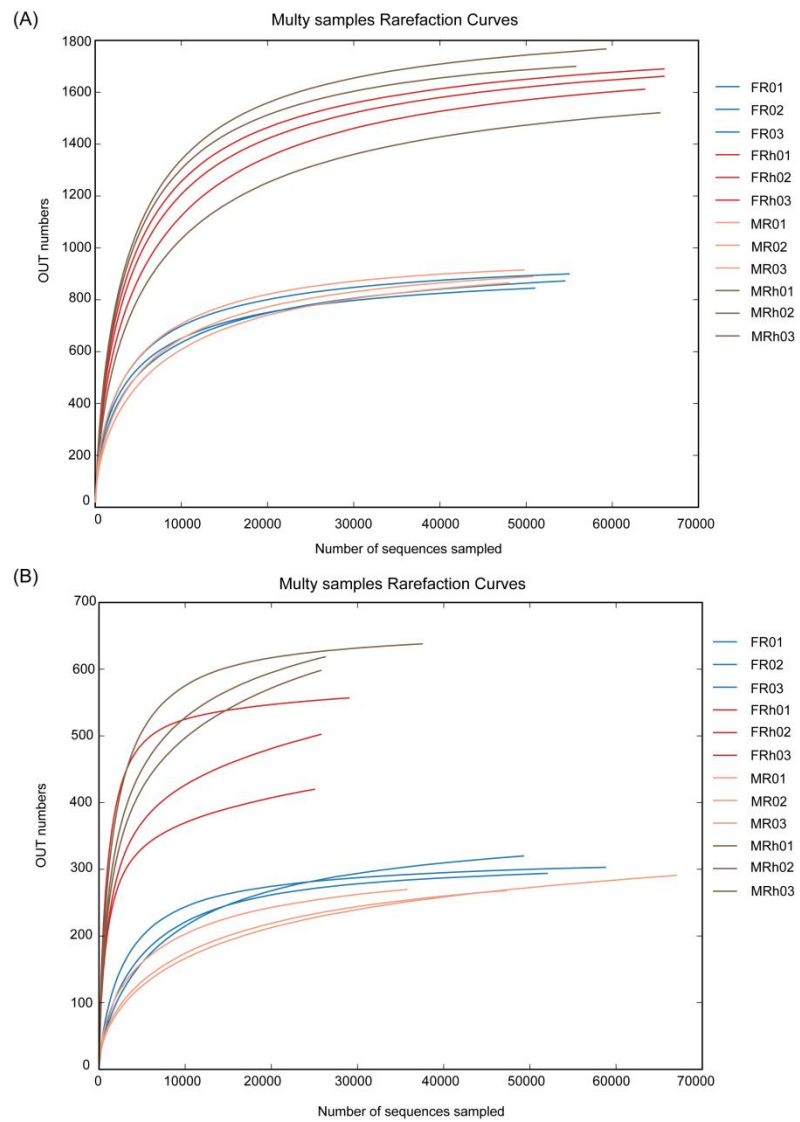


Figure S1 Rarefaction curves for bacterial (A) and fungal (B) OTUs.