

**Table S5 : Distribution of rare OTUs across four study groups**

Sr. No.	Taxonomy	ND Rare OTUs %	Sr. No.	Taxonomy	PreDMs Rare OTUs %
1	Bacteroidetes	64.09225114	1	Bacteroidetes	61.99431899
3	Firmicutes	17.65432127	2	Firmicutes	22.26860734
7	Proteobacteria	6.040022573	3	Proteobacteria	8.182144818
2	Verrucomicrobia	5.989933739	4	Actinobacteria	3.404605821
4	Actinobacteria	2.897845018	5	Cyanobacteria	2.001640578
6	Cyanobacteria	1.9811662	6	Verrucomicrobia	1.133151198
5	Elusimicrobia	1.073389111	7	Elusimicrobia	0.661044411
8	Lentisphaerae	0.117449681	8	Lentisphaerae	0.166159353
9	Synergistetes	0.04852771	9	Tenericutes	0.08962165
11	Tenericutes	0.036071933	10	[Thermi]	0.036743521
10	Spirochaetes	0.02075963	11	Synergistetes	0.026439065
12	Crenarchaeota	0.012123624	12	Chloroflexi	0.008541852
13	[Thermi]	0.009798545	13	Fusobacteria	0.007728342
17	Acidobacteria	0.006676297	14	Acidobacteria	0.004948851
18	Nitrospirae	0.005148388	15	FBP	0.003457416
20	Chloroflexi	0.004982311	16	Spirochaetes	0.002508322
14	Planctomycetes	0.004085495	17	Planctomycetes	0.002101567
15	Fusobacteria	0.001727201	18	TM7	0.001559227
16	NC10	0.001727201	19	Nitrospirae	0.001423642
19	TM6	0.001195755	20	Euryarchaeota	0.00108468
21	Gemmatimonadetes	0.00079717	21	Crenarchaeota	0.001016887
			22	GAL15	0.000338962
			23	Gemmatimonadet	6.77925E-05

Sr. No.	Taxonomy	NewDMs Rare OTUs %	Sr. No.	Taxonomy	KnownDMs Rare OTUs %
1	Bacteroidetes	41.31654216	1	Firmicutes	55.1049318
3	Firmicutes	38.46668832	2	Proteobacteria	20.06765739
2	Proteobacteria	16.14309512	3	Bacteroidetes	13.87723439
5	Actinobacteria	2.659067336	4	Actinobacteria	6.838666859
4	Cyanobacteria	0.906995505	5	Cyanobacteria	0.803807087
6	Tenericutes	0.289375255	6	Verrucomicrobia	0.483889573
7	Elusimicrobia	0.194558237	7	Acidobacteria	0.424645589
8	Euryarchaeota	0.013620124	8	Crenarchaeota	0.423881151
9	Lentisphaerae	0.006705292	9	Planctomycetes	0.377632621
10	Fusobacteria	0.001571553	10	[Thermi]	0.327561899
11	TM7	0.001047702	11	Tenericutes	0.318770856
13	Verrucomicrobia	0.000314311	12	Nitrospirae	0.24003369
12	Synergistetes	0.000314311	13	Chloroflexi	0.215953877
14	[Thermi]	0.00010477	14	Lentisphaerae	0.091350401
			15	Euryarchaeota	0.089821524
			16	Gemmatimonadet	0.060008423
			17	Synergistetes	0.055421792
			18	Fusobacteria	0.043572995

19	TM7	0.042044118
20	NC10	0.028284225
21	WS3	0.017582086
22	WPS-2	0.012231016
23	GAL15	0.011848797
24	KSB3	0.009555481
25	Thermotogae	0.009555481
26	Spirochaetes	0.00535107
27	SBR1093	0.004586631
28	Deferribacteres	0.004586631
29	Elusimicrobia	0.003822193
30	Chlorobi	0.002293316
31	Armatimonadetes	0.001528877
32	GN02	0.000764439
33	AD3	0.000764439
34	NKB19	0.000382219