

Table S1. Site information and Sample type.

S.I. No.	Location	Sample count	Latitude	Longitude	Zone	Elevation	Average Humidity	Average Precipitation	Average Temperature at sampling
1.	Sihdar, Jaisalmer	6 (soil)	26.2154° N	70.6336° E	Arid	224m	40%	2mm	55°C
2.	Lakh granite mine, Jaisalmer	6 (soil)	26.15511 N	70.90740 E	Arid	224m	50%	6mm	53°C
3.	Thumbli Coal Plant, Barmer	6 (soil)	26.2032° N	72.4791° E	Arid	207m	53%	2.5mm	56°C
4.	Pachpdara lake, Barmer	6 (soil)	25.9351° N	72.2455° E	Semi-Arid	102m	40%	4mm	55°C
5.	Khetolai, Jaisalmer	6 (soil)	27.0240714° N	71.7097069° E	Semi-Arid	215m	65%	0mm	55°C
6.	Loharki, Jaisalmer	6 (water)	27.1475960° N	71.7649355° E	Semi-Arid	238m	62%	0.5mm	56°C

Table S2. Soil profiling of soil and water samples

Samples	pH	EC (dSm ⁻¹)	OC (g kg ⁻¹)	TP (g kg ⁻¹)	K (g kg ⁻¹)	Zn (ppm)	Fe (ppm)	Cu (ppm)	Mn (ppm)
1.	8.45	0-09	0.16	30	230	0.48	3.84	0.22	2.18
2.	8.08	0-81	0.18	32	245	0.52	4.64	0.18	3.24
3.	7.72	1-96	0.19	28	182	0.76	5.25	0.16	2.98
4.	9.05	13.89	0.26	32	200	0.36	5.24	0.28	2.14
5.	8.36	0.23	0.18	40	350	0.46	4.32	0.72	2.34
6.	8.22	0.72	7.00 ppm	0.001 mg/ml	245	0.62	0.19	2.32	0.09

Table S3. Library quantity estimate using Qubit HS kit

S. No.	Sample ID	Qubit conc. (ng/ µl)	QC status
1	Sample 1	110	passed
2	Sample 2	120	passed
3	Sample 3	114	passed
4	Sample 4	108	passed
5	Sample 5	114	passed
6	Sample 6	102	Passed

Table S4. Summary of Raw sequence data and quality

Sample-ID	Number of reads	Read Length	GC%	% Bases > Q20
Sample-1	185546	301	57.5	98.71
Sample-2	210502	301	53.5	98.58
Sample-3	203750	301	56	98.78
Sample-4	150900	301	57	98.21
Sample-5	151590	301	57	98.47
Sample-6	459788	301	50	98.51

Table S5. Top 10 OTU's abundance among the samples

Phylum	Class	Order	Family	Genus	1	2	3	4	5	6
Proteobacteria	Alphaproteobacteria	-	-	-	558	356	1050	630	697	298
Planctomycetes	Planctomycetacia	Gemmatales	Gemmataceae	uncultured	1303	65	155	230	682	341
Actinobacteria	Actinobacteria	-	-	-	699	481	647	255	615	55
Proteobacteria	Gammaproteobacteria	Betaproteo bacteriales	Burkholderiaceae	Curvibacter	0	0	1	0	0	2378
Patescibacteria	Parcubacteria	Candidatus_ Kaiserbacteria	Candidatus_ Kaiserbacteria_fa	Candidatus_Kaiserbacteria_ ge	11	17	138	52	15	2136
Chlamydiae	Chlamydiae	Chlamydiales	cvE6	cvE6_ge	0	0	2	0	0	2320
Planctomycetes	Phycisphaerae	Tepidisphaerales	WD2101_soil_group	WD2101_soil_group_ge	653	104	639	148	665	45
Chloroflexi	Chloroflexia	Chloroflexales	Roseiflexaceae	uncultured	963	28	437	240	460	50
Actinobacteria	-	-	-	-	649	275	476	179	489	26
Proteobacteria	Alphaproteobacteria	Rhizobiales	Beijerinckiaceae	Microvirga	599	234	591	184	420	32

Table S6. Top 10 Phyla abundance among the samples

Phylum	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6
Proteobacteria	5789	4850	7368	3615	4828	8764
Actinobacteria	5544	5365	4916	1918	3990	876
Planctomycetes	3547	1442	2398	1309	3062	1489
Chloroflexi	2735	3064	3088	1034	2441	463
Bacteroidetes	1454	1677	813	1509	1021	3260
Euryarchaeota	870	139	1107	4836	1097	277
Firmicutes	2221	1281	1448	686	771	1844
Patescibacteria	162	178	1227	315	323	2896
Acidobacteria	895	219	648	296	944	365
Chlamydiae	42	17	36	17	43	2453