

Supplementary Material

Community structure of thermophilic photosynthetic microbial mats and flocs at Sembawang Hot Spring, Singapore

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Table S1. Aqueous geochemical variables at Sembawang Hot Spring. N/D denotes not below detection limits.

Location	Lower channel	Mid channel	Upper channel	Source
Growth form	Mat	Mat	Mat	Floc
Sample codes	A1-A10, ABR1-ABR3	B1-B10, BBR1- BBR3	C1-C10, CBR1- CBR3	D1-D10, DBR1-DBR3
Temperature (°C)	45.7	51.0	55.3	61.4
Sulfide (mg/L)	0.0	0.3	0.5	1.0
pH	6.8	6.8	6.8	6.8
Alkalinity (mg/L)	40	40	40	40
Carbonate (mg/L)	40	40	40	80
Conductivity (µS)	1,920	1,900	1,920	1,905
Iron (mg/L)	N/D	N/D	N/D	N/D
Nitrate (mg/L)	N/D	N/D	N/D	N/D
Nitrite (mg/L)	N/D	N/D	N/D	N/D
Phosphate (ng/L)	100	100	100	100

Table S2. Taxonomic assignment of ASVs with $\geq 1\%$ relative abundance in at least one sample using the SILVA 138 database, and additional query where necessary using NCBI BLASTn.

ASV number	Class	ASV identity
ASV0	Cyanobacteriia	MTP1
ASV1	Chloroflexia	<i>Chloroflexus</i> sp.
ASV2	Verrucomicrobiae	Methylacidiphilaceae
ASV3	Chloroflexia	<i>Roseiflexus</i> sp.
ASV4	Cyanobacteriia	<i>Thermosynechococcus elongatus</i>
ASV5	Bacteroidia	<i>Raineyia orbicula</i>
ASV6	Ignavibacteria	<i>Ignavibacterium album</i>
ASV7	Gammaproteobacteria	Hydrogenophilaceae
ASV8	Bacteroidia	Microsillaceae
ASV9	Gammaproteobacteria	<i>Tepidomonas</i> sp.
ASV10	Chloroflexia	<i>Candidatus Chloroploca</i> sp.
ASV108	Synergistia	<i>Aminiphilus</i> sp.
ASV11	Chloroflexia	<i>Chloroflexus aurantiacus</i>
ASV114	Nitrospira	<i>Candidatus Nitrosotenuis aquarius</i>
ASV12	Thermodesulfobacteria	<i>Thermodesulfobacterium</i> sp.
ASV13	Planctomycetes	<i>Telmatocola</i> sp.
ASV138	Bacteroidia	Blvii_watsewater-sludge_group sp.
ASV14	Gammaproteobacteria	<i>Methylothermus</i> sp.
ASV15	Alphaproteobacteria	Alphaproteobacteria
ASV155	Thermotogae	<i>Fervidobacterium riparium</i>
ASV16	Myxococcia	Myxococcaceae

ASV17	Bacteroidia	Saprospiraceae
ASV18	Chloroflexia	Chloroflexaceae
ASV19	Bacteroidia	Microsillaceae
ASV20	Anaerolineae	Anaerolineaceae
ASV21	Chloroflexia	<i>Roseiflexus</i> sp.
ASV22	Anaerolineae	OLB13 sp.
ASV23	Leptospirae	<i>Turneriella</i> sp.
ASV24	Cyanobacteriia	<i>Fischerella</i> sp. PCC9339
ASV25	Bacteroidia	Bacteroidia
ASV26	Gammaproteobacteria	DSSD61 sp.
ASV27	Bacteroidia	Bacteroidales
ASV28	Bacteria	Unidentified sp.
ASV29	Armatimonadota	Hot springs ASV
ASV30	Alphaproteobacteria	<i>Microvirga</i> sp.
ASV31	Bacteroidia	<i>Ignavibacterium album</i>
ASV32	Chloroflexia	<i>Chloroflexus</i> sp.
ASV33	Alphaproteobacteria	Alphaproteobacteria
ASV34	Chloroflexia	<i>Chloroflexus</i> sp.
ASV35	Acidobacteriae	<i>Paludibaculum</i> sp.
ASV36	Gammaproteobacteria	Comamonadaceae
ASV37	Bacteroidia	<i>Thermoflexibacter ruber</i>
ASV38	Gammaproteobacteria	Sutterelaceae
ASV39	Anaerolineae	SJA-15 sp.
ASV40	Gammaproteobacteria	Gammaproteobacteria
ASV41	Aquificae	<i>Venevibrio</i> sp.
ASV42	Gammaproteobacteria	Gammaproteobacteria
ASV43	Deinococci	<i>Meiothermus hypogaeus</i>
ASV44	Spirochaetota	Spirochaetota
ASV45	Cyanobacteriia	<i>Geitlerinema</i> PCC-8501
ASV46	Polyangia	mle1-27
ASV47	Ignavibacteria	<i>Ignavibacterium album</i>
ASV48	Anaerolineae	RBG-13-54-9 sp.
ASV50	Alphaproteobacteria	<i>Sandaracinobacter</i> sp.
ASV51	Anaerolineae	A4b sp.
ASV52	Alphaproteobacteria	Alphaproteobacteria
ASV53	Planctomycetes	<i>Gemmata</i> sp.
ASV54	Gemmatimonadetes	Gemmatimonadaceae
ASV55	Bacteria	Unidentified sp.
ASV56	Bacteroidia	Bacteroidia
ASV57	Bacteroidia	Cytophagales
ASV58	Thermodesulfobivibrionia	<i>Thermodesulfobivibrio</i> sp.
ASV59	Phycisphaerae	WD2101 sp.
ASV61	Kryptonia	BSV26 sp.
ASV62	Alphaproteobacteria	Alphaproteobacteria
ASV63	Acidobacteriae	Acidobacteriae
ASV64	Gammaproteobacteria	Hydrogenophilaceae
ASV65	Alphaproteobacteria	<i>Candidatus Alysosphaera</i> sp.
ASV66	Chloroflexia	<i>Roseiflexus</i> sp.
ASV68	Nanoarchaea	<i>Woesarchaeales</i> sp.

ASV71	Anaerolineae	A4b sp.
ASV72	Gammaproteobacteria	Hydrogenophilaceae
ASV73	Planctomycetes	Gemmataceae
ASV75	Gemmatimonadetes	Gemmatimonadetes
ASV77	Deinococci	<i>Meiothermus hypogaeus</i>
ASV81	Alphaproteobacteria	<i>Defluvicoccus</i> sp.
ASV82	Anaerolineae	RGB-13-54-9 sp.
ASV84	Kapabacteria	Kapabacteriales
ASV85	Bacilli	<i>Streptococcus</i> sp.
ASV87	Cyanobacteriia	<i>Leptolyngbya</i> ANT.L52.2 sp.
ASV88	Bacteroidia	<i>Petrimonas</i> sp.
ASV89	Spirochaetia	Spirochaetaceae
ASV90	Bacteroidia	Bacteroidia
ASV93	Verrucomicrobiae	Methylacidiphilaceae
ASV97	Armatimonadota	Armatimonadota
ASV98	Cyanobacteriia	<i>Leptolyngbya</i> sp.

Fig. S1. Distribution of ASVs with $\geq 1\%$ relative abundance at Sembawang Hot Spring.

