Supporting Information

Performance and Long Distance Data Acquisition via LoRa Technology of a Tubular Plant Microbial Fuel Cell Located in a Paddy Field in West Kalimantan, Indonesia

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Commented [m1]: Please carefully check the accuracy of names and affiliations. Changes will not be possible after proofreading.

S1A. Soil was manually hoed about 10-15 cm deep.

S1B. Tubular Plant-MFCs were installed in the soil by David Strik (left) and Emilius Sudirjo (right). Both silicone tube ends were supported with bamboo sticks.

S1C. Plant-MFC after installation. From left to right: Plant-MFC1, Plant-MFC2, Plant-MFC3, and two other Plant-MFCs that are not related to this study.

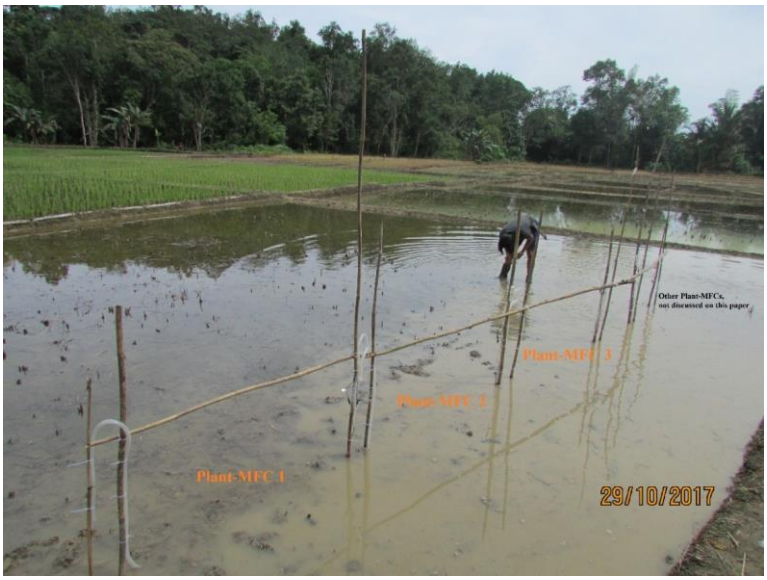


Figure S1. Plant-MFC installation in the paddy field. Tububar Plant-MFCs were installed prior to paddy transplantation.

S2A. Harvesting aboveground biomass at one square meter area (marked with bamboo sticks) on top of Plant-MFC1.

S2B. Plant-MFCs reactor (under soil marked with bamboo sticks) after biomass collection.

S2C. Nine 1-square meter plots for aboveground biomass collection.

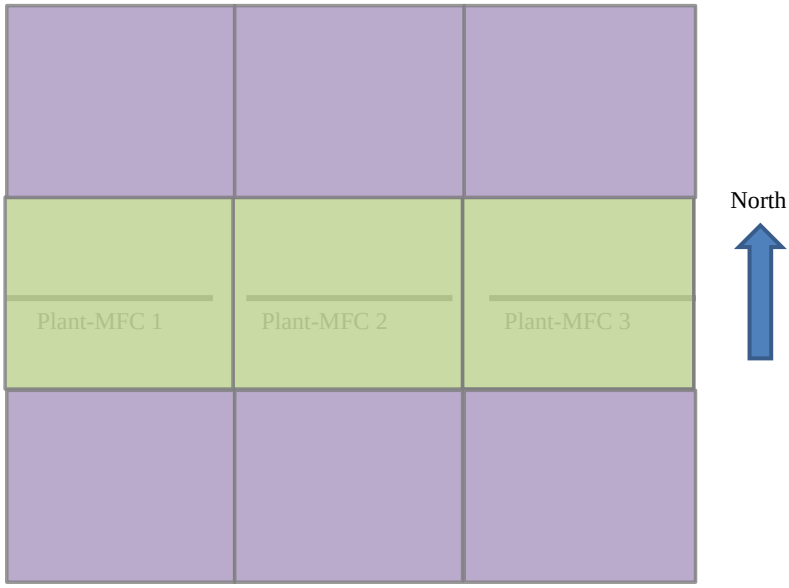
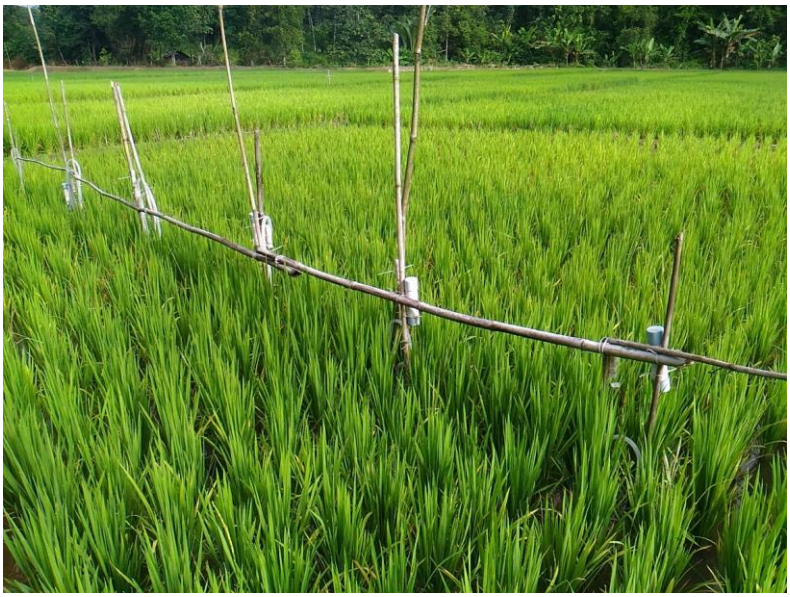


Figure S2. Aboveground biomass collection during the third crop season (on 13 February 2019)

S3A. 29 November 2017

S3B. 30 June 2018

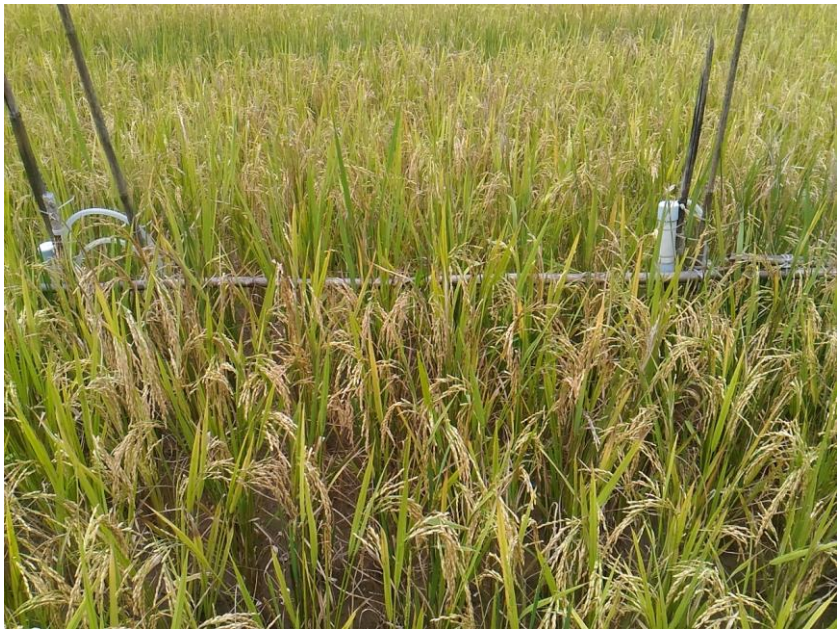


S3C. 17 July 2018

S3D. 13 February 2019 (Plant-MFC1)

S3E. 13 February 2019 (Plant-MFC2)

S3F. 13 February 2019 (Plant-MFC31)



S3G. 5 August 2019 (the LoRa sensor is under the small roof)

Figure S3. Rice paddy visual observations during different stages of growth

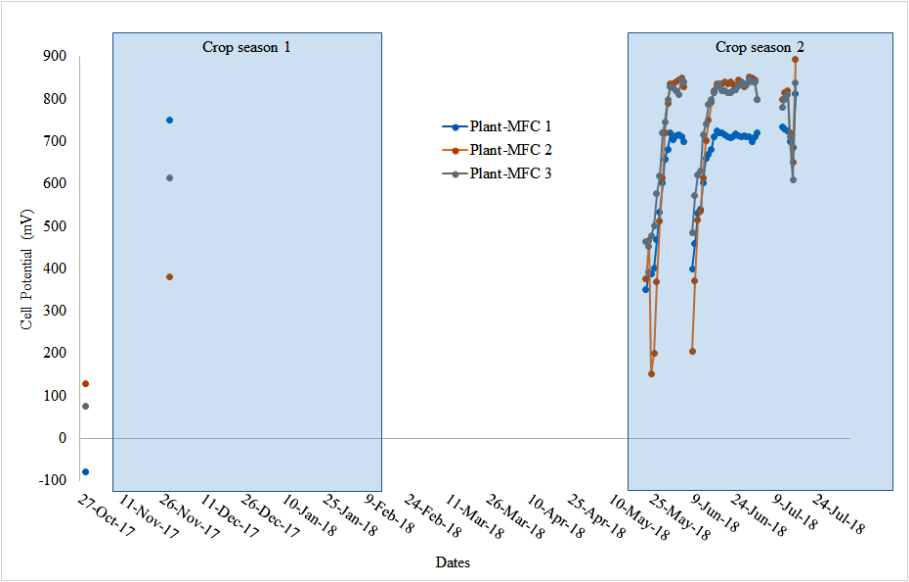


Figure S4. Plant-MFC performance manually measured with a multimeter before LoRa data acquisition installation.

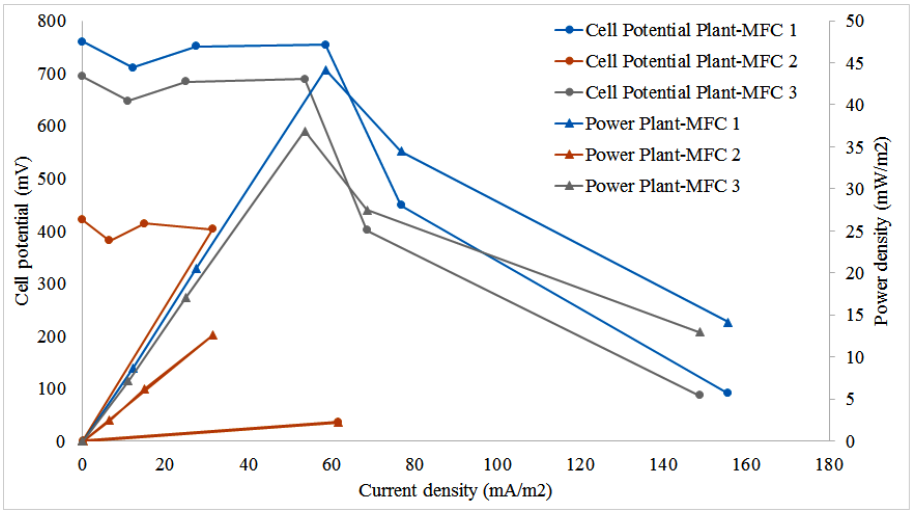


Figure S5. Polarizarion curve on 29 November 2017. Current density, cell potential and power density.

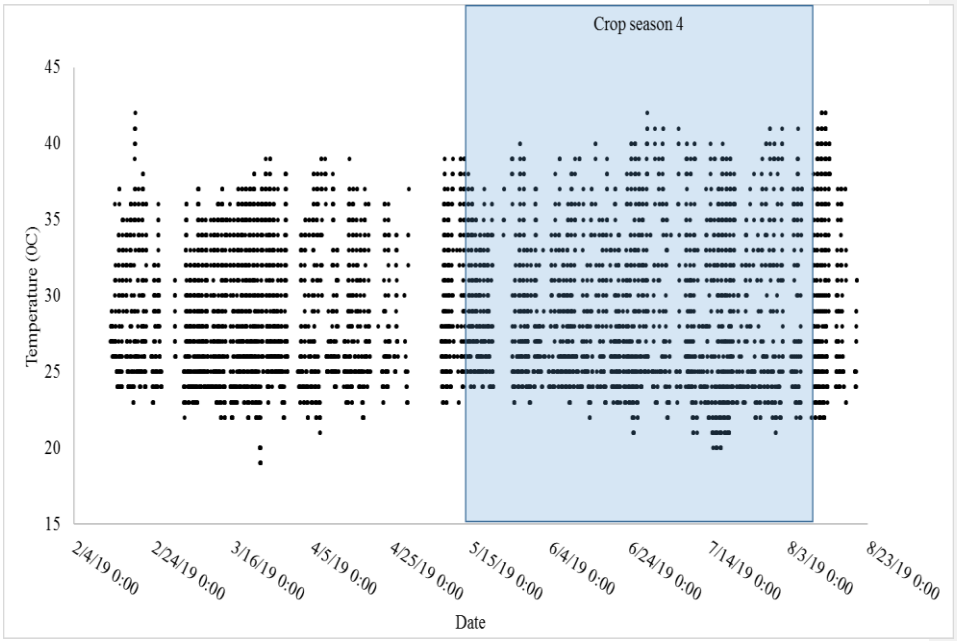


Figure S6. Temperature fluctuations during the fourth crop season.

Table S1. Microbial Relative abundance for classes, orders, families and genera.

Table S1.A Classes

Kingdom	Phyla	Classes	Group I (From Mid reactor)		Group II (end of reactor)		Group III (Far from reactor)	
			A	C	B	D	F	E
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	9.75	11.67	6.38	14.03	19.35	17.60
k__Bacteria	p__Acidobacteria	c__Solibacteres	7.15	7.37	8.63	8.32	9.41	7.65
k__Bacteria	p__Nitrospirae	c__Nitrospira	3.78	3.66	6.39	4.19	7.26	6.11
k__Bacteria	p__Acidobacteria	c__Acidobacteria-6	4.45	7.26	5.93	6.31	7.97	5.89
k__Bacteria	p__Planctomycetes	c__Planctomycetia	5.27	6.04	5.28	4.30	4.73	3.78
k__Bacteria	p__Verrucomicrobia	c__[Methylacidiphilae]	3.81	3.90	3.74	4.09	3.79	3.64
k__Bacteria	p__Acidobacteria	c__Acidobacteriia	5.29	4.23	5.43	4.64	3.31	3.63
k__Bacteria	p__Planctomycetes	c__Phycisphaerae	7.08	6.89	4.42	6.48	2.75	3.34
k__Bacteria	p__Proteobacteria	c__Alphaproteobacteria	1.76	2.52	1.61	2.12	2.86	3.32
k__Bacteria	p__AC1	c__HDBW-WB69	0.75	1.21	0.41	0.84	2.55	2.92
k__Bacteria	p__Planctomycetes	c__BD7-11	1.44	1.89	2.07	1.97	1.99	2.84
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	3.89	4.06	2.74	4.64	2.20	2.74
k__Bacteria	p__Proteobacteria	c__Deltaproteobacteria	2.54	2.54	2.41	2.86	2.69	2.47
k__Bacteria	p__Acidobacteria	c__BPC102	3.06	2.21	3.19	2.85	1.70	2.26
k__Bacteria	p__WS3	c__PRR-12	4.10	2.90	3.89	3.35	1.40	2.25
k__Bacteria	p__Acidobacteria	c__DA052	3.03	2.41	3.81	2.42	2.05	1.99
k__Bacteria	p__OD1	c__ZB2	1.46	1.72	2.02	1.03	0.94	1.53
k__Bacteria	p__Verrucomicrobia	c__[Spartobacteria]	0.61	0.81	0.60	0.73	1.27	1.45
k__Bacteria	p__Chloroflexi	c__Ellin6529	3.75	2.55	1.13	2.39	0.77	1.25
k__Bacteria	p__Chloroflexi	c__Anaerolineae	3.01	2.13	3.12	1.75	0.55	1.02
k__Bacteria	p__Firmicutes	c__Clostridia	0.22	0.18	0.15	0.35	0.69	1.01
k__Bacteria	p__AD3	c__ABS-6	0.57	0.42	0.96	0.37	0.81	1.00

k__Bacteria	p__GAL15	c__unknown	0.31	0.45	1.35	0.51	1.70	0.92
k__Bacteria	p__Chloroflexi	c__Ktedonobacteria	2.60	1.51	3.49	0.84	0.21	0.79
k__Bacteria	p__Gemmatimonadetes	c__Gemm-1	1.03	1.32	0.64	1.16	0.41	0.60
k__Bacteria	p__NC10	c__12-24	0.66	0.55	1.14	0.64	0.51	0.49
		Others classes <1%	18.65	17.59	19.07	16.82	16.11	17.52
		TOTAL	100	100	100	100	100	100

Table S1. B Orders

Kingdom	**Phyla**	**Clases**	**Orders**	**Group I (From Mid reactor)**		**Group II (end of reactor)**		**Group III (Far from reactor)**	
				A	C	B	D	F	E
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Burkholderiales	1.687	1.197	0.828	4.738	16.184	8.949
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	6.923	7.027	8.420	7.878	9.210	7.426
k__Bacteria	p__Nitrospirae	c__Nitrospira	o__Nitrospirales	3.783	3.658	6.389	4.186	7.264	6.114
k__Bacteria	p__Acidobacteria	c__Acidobacteria-6	o__iii1-15	3.959	6.498	5.551	5.826	7.913	5.779
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Neisseriales	2.544	5.136	1.846	2.090	0.209	3.749
k__Bacteria	p__Acidobacteria	c__Acidobacteriia	o__Acidobacteriales	5.287	4.225	5.428	4.637	3.308	3.627
k__Bacteria	p__Verrucomicrobia	c__[Methylacidiphilae]	o__S-BQ2-57	3.806	3.893	3.715	4.081	3.742	3.553
k__Bacteria	p__AC1	c__HDBW-WB69	o__unknown	0.752	1.210	0.412	0.838	2.552	2.924
k__Bacteria	p__Planctomycetes	c__BD7-11	o__unknown	1.440	1.895	2.069	1.968	1.994	2.835
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	3.891	4.062	2.740	4.637	2.203	2.741
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Rhodocyclales	2.896	2.944	1.755	3.055	0.815	2.678
k__Bacteria	p__Planctomycetes	c__Planctomycetia	o__Gemmatales	3.756	4.285	4.152	3.249	3.431	2.608
k__Bacteria	p__Planctomycetes	c__Phycisphaerae	o__WD2101	5.201	5.020	3.408	4.857	2.128	2.439
k__Bacteria	p__WS3	c__PRR-12	o__Sediment-1	4.077	2.886	3.878	3.342	1.399	2.251
k__Bacteria	p__Acidobacteria	c__BPC102	o__MVS-40	3.012	2.157	3.084	2.745	1.571	2.135
k__Bacteria	p__Proteobacteria	c__Alphaproteobacteria	o__Rhodospirillales	0.767	1.348	0.881	1.103	1.260	2.038

k__Bacteria	p__Acidobacteria	c__DA052	o__Ellin6513	3.029	2.413	3.810	2.424	2.048	1.988
k__Bacteria	p__OD1	c__ZB2	o__unknown	1.456	1.722	2.020	1.030	0.943	1.531
k__Bacteria	p__Verrucomicrobia	c__[Spartobacteria]	o__[Chthoniobacterales]	0.608	0.809	0.603	0.734	1.265	1.451
k__Bacteria	p__Chloroflexi	c__Ellin6529	o__unknown	3.746	2.545	1.126	2.389	0.772	1.254
k__Bacteria	p__Proteobacteria	c__Deltaproteobacteria	o__Myxococcales	1.481	1.480	1.096	1.353	0.734	1.108
k__Bacteria	p__AD3	c__ABS-6	o__unknown	0.566	0.419	0.957	0.368	0.815	1.000
k__Bacteria	p__GAL15	c__unknown	o__unknown	0.307	0.454	1.347	0.510	1.699	0.919
k__Bacteria	p__Chloroflexi	c__Anaerolineae	o__A31	2.466	1.461	2.676	1.281	0.477	0.828
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Methylophilales	0.865	0.095	0.115	1.784	1.421	0.792
k__Bacteria	p__Gemmatimonadetes	c__Gemm-1	o__unknown	1.028	1.323	0.643	1.159	0.407	0.595
k__Bacteria	p__Chloroflexi	c__Ktedonobacteria	o__Thermogemmatisporales	1.815	0.888	2.885	0.494	0.107	0.518
k__Bacteria	p__Planctomycetes	c__Phycisphaerae	o__CPla-3	1.199	1.009	0.320	0.821	0.172	0.382
			Other orders <1%	27.655	27.939	27.848	26.423	23.957	25.785
			TOTAL	100	100	100	100	100	100

Table S1.C Families

Kingdom	Phyla	Classes	Orders	Families	Group I (from mid-reactor)		Group II (end of reactor)		Group III (Far from reactor)	
					A	C	B	D	F	E
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Burkholderiales	f__Comamonadaceae	1.3	0.6	0.4	4.5	15.9	8.6
k__Bacteria	p__Acidobacteria	c__Acidobacteria-6	o__iii1-15	f__	3.6	5.9	5.3	5.3	7.6	5.4
Unassigned	Other	Other	Other	Other	5.4	5.3	5.7	4.5	4.3	5.3
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	f__	2.6	2.9	3.8	3.7	4.9	3.8
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Neisseriales	f__Neisseriaceae	2.5	5.1	1.8	2.1	0.2	3.7
k__Bacteria	p__Acidobacteria	c__Acidobacteriia	o__Acidobacteriales	f__Koribacteraceae	5.2	4.2	5.4	4.5	3.3	3.6
k__Bacteria	p__Verrucomicrobia	c__[Methylacidiphilae]	o__S-BQ2-57	f__	3.8	3.9	3.7	4.1	3.7	3.6

k__Bacteria	p__Nitrospirae	c__Nitrospira	o__Nitrospirales	f__0319-6A21	1.9	1.9	3.4	1.9	4.0	3.1
k__Bacteria	p__AC1	c__HDBW-WB69	o__	f__	0.8	1.2	0.4	0.8	2.6	2.9
k__Bacteria	p__Planctomycetes	c__BD7-11	o__	f__	1.4	1.9	2.1	2.0	2.0	2.8
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Rhodocyclales	f__Rhodocyclaceae	2.9	2.9	1.8	3.1	0.8	2.7
k__Bacteria	p__Planctomycetes	c__Phycisphaerae	o__WD2101	f__	5.2	5.0	3.4	4.9	2.1	2.4
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	f__Solibacteraceae	3.4	3.1	3.3	3.0	2.3	2.2
k__Bacteria	p__Acidobacteria	c__BPC102	o__MVS-40	f__	3.0	2.2	3.1	2.7	1.6	2.1
k__Bacteria	p__Planctomycetes	c__Planctomycetia	o__Gemmatales	f__Gemmataceae	2.8	3.4	3.1	2.7	3.1	2.1
k__Bacteria	p__Proteobacteria	c__Alphaproteobacteria	o__Rhodospirillales	f__Rhodospirillaceae	0.7	1.3	0.9	1.1	1.3	2.0
k__Bacteria	p__Acidobacteria	c__DA052	o__Ellin6513	f__	3.0	2.4	3.8	2.4	2.0	2.0
k__Bacteria	p__WS3	c__PRR-12	o__Sediment-1	f__PRR-10	3.1	2.1	3.0	2.5	1.1	1.7
k__Bacteria	p__Nitrospirae	c__Nitrospira	o__Nitrospirales	f__[Thermodesulfovibrionaceae]	1.0	0.9	1.5	1.4	1.5	1.6
k__Bacteria	p__OD1	c__ZB2	o__	f__	1.5	1.7	2.0	1.0	0.9	1.5
k__Bacteria	p__Verrucomicrobia	c__[Spartobacteria]	o__[Chthoniobacterales]	f__[Chthoniobacteraceae]	0.6	0.8	0.6	0.7	1.3	1.5
k__Bacteria	p__Chloroflexi	c__Ellin6529	o__	f__	3.7	2.5	1.1	2.4	0.8	1.3
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	f__	1.2	1.2	0.9	1.8	0.8	1.2
k__Bacteria	p__AD3	c__ABS-6	o__	f__	0.6	0.4	1.0	0.4	0.8	1.0
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	f__auto67_4W	1.3	1.5	0.6	1.7	0.7	0.9
k__Bacteria	p__GAL15	c__	o__	f__	0.3	0.5	1.3	0.5	1.7	0.9
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	f__PAUC26f	0.5	0.5	0.9	0.6	1.5	0.9
k__Bacteria	p__Nitrospirae	c__Nitrospira	o__Nitrospirales	f__Nitrospiraceae	0.3	0.5	0.8	0.3	1.1	0.9
k__Bacteria	p__Chloroflexi	c__Anaerolineae	o__A31	f__	2.4	1.4	2.7	1.2	0.5	0.8
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Methylophilales	f__Methylophilaceae	0.8	0.0	0.1	1.7	1.4	0.7
k__Bacteria	p__Gemmatimonadetes	c__Gemm-1	o__	f__	1.0	1.3	0.6	1.2	0.4	0.6
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	f__Ellin515	1.2	1.2	1.0	1.0	0.7	0.6
k__Bacteria	p__Chloroflexi	c__Ktedonobacteria	o__Thermogemmatisporales	f__Thermogemmatisporaceae	1.8	0.9	2.9	0.5	0.1	0.5
k__Bacteria	p__Planctomycetes	c__Planctomycetia	o__Gemmatales	f__Isosphaeraceae	1.0	0.9	1.0	0.6	0.3	0.5
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__MND1	f__	0.8	0.9	0.7	1.0	0.3	0.5

k__Bacteria	p__Planctomycetes	c__Phycisphaerae	o__CPla-3	f__	1.2	1.0	0.3	0.8	0.2	0.4
				Other Families <1%	26.0	26.5	25.4	25.3	22.2	23.6
				TOTAL	100	100	100	100	100	100

Table S1. D Genera

Kingdom	Phyla	Classes	Orders	Families	Genera	Group I (From Mid reactor)		Group II (end of reactor)		Group III (Far from reactor)	
						A	C	B	D	F	E
k__Bacteria	p__Acidobacteria	c__Acidobacteria-6	o__iii1-15	f__	g_unknown	3.60	5.87	5.35	5.29	7.61	5.44
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Burkholderiales	f__Comamonadaceae	g__unknown	1.00	0.37	0.34	0.93	1.75	4.06
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	f__	g_unknown	2.59	2.89	3.76	3.68	4.92	3.81
k__Bacteria	p__Verrucomicrobia	c__[Methylacidiphilae]	o__S-BQ2-57	f__	g_unknown	3.81	3.89	3.72	4.08	3.74	3.55
k__Bacteria	p__Nitrospirae	c__Nitrospira	o__Nitrospirales	f__0319-6A21	g_unknown	1.86	1.88	3.38	1.93	3.98	3.13
k__Bacteria	p__AC1	c__HDBW-WB69	o__	f__	g_unknown	0.75	1.21	0.41	0.84	2.55	2.92
k__Bacteria	p__Planctomycetes	c__BD7-11	o__	f__	g_unknown	1.44	1.89	2.07	1.97	1.99	2.84
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Burkholderiales	f__Comamonadaceae	g__Hydrogenophaga	0.21	0.11	0.03	3.00	12.38	2.80
k__Bacteria	p__Acidobacteria	c__Acidobacteriia	o__Acidobacteriales	f__Koribacteraceae	g_unknown	4.54	3.49	4.61	3.61	2.47	2.64
k__Bacteria	p__Planctomycetes	c__Phycisphaerae	o__WD2101	f__	g_unknown	5.20	5.02	3.41	4.86	2.13	2.44
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	f__Solibacteraceae	g__Candidatus Solibacter	3.35	3.06	3.26	2.98	2.32	2.22
k__Bacteria	p__Acidobacteria	c__BPC102	o__MVS-40	f__	g_unknown	3.01	2.16	3.08	2.75	1.57	2.13
k__Bacteria	p__Proteobacteria	c__Alphaproteobacteria	o__Rhodospirillales	f__Rhodospirillaceae	g_unknown	0.71	1.30	0.86	1.04	1.16	2.01
k__Bacteria	p__Acidobacteria	c__DA052	o__Ellin6513	f__	g_unknown	3.03	2.41	3.81	2.42	2.05	1.99
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Neisseriales	f__Neisseriaceae	g__Vogesella	0.75	1.03	0.60	0.38	0.10	1.91

k__Bacteria	p__Planctomycetes	c__Planctomycetia	o__Gemmatales	f__Gemmataceae	g_unknown	2.47	2.84	3.04	2.42	2.96	1.87
k__Bacteria	p__WS3	c__PRR-12	o__Sediment-1	f__PRR-10	g_unknown	3.11	2.10	3.02	2.50	1.10	1.70
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Neisseriales	f__Neisseriaceae	Other	1.63	3.77	1.13	1.57	0.11	1.55
k__Bacteria	p__OD1	c__ZB2	o__	f__	g_unknown	1.46	1.72	2.02	1.03	0.94	1.53
k__Bacteria	p__Chloroflexi	c__Ellin6529	o__	f__	g_unknown	3.75	2.55	1.13	2.39	0.77	1.25
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Rhodocyclales	f__Rhodocyclaceae	g_unknown	2.30	2.45	1.52	2.43	0.40	1.22
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	f__	g_unknown	1.24	1.21	0.94	1.83	0.79	1.16
k__Bacteria	p__AD3	c__ABS-6	o__	f__	g_unknown	0.57	0.42	0.96	0.37	0.81	1.00
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	f__auto67_4W	g_uknown	1.29	1.50	0.63	1.70	0.69	0.93
k__Bacteria	p__GAL15	c__	o__	f__	g_unknown	0.31	0.45	1.35	0.51	1.70	0.92
k__Bacteria	p__Acidobacteria	c__Solibacteres	o__Solibacterales	f__PAUC26f	g__	0.46	0.47	0.94	0.65	1.49	0.85
k__Bacteria	p__Chloroflexi	c__Anaerolineae	o__A31	f__	g_unknown	2.42	1.44	2.66	1.24	0.47	0.81
k__Bacteria	p__Proteobacteria	c__Betaproteobacteria	o__Methylophilales	f__Methylophilaceae	g__	0.80	0.05	0.10	1.69	1.38	0.74
k__Bacteria	p__Gemmatimonadetes	c__Gemm-1	o__	f__	g_unknown	1.03	1.32	0.64	1.16	0.41	0.60
k__Bacteria	p__Verrucomicrobia	c__[Pedosphaerae]	o__[Pedosphaerales]	f__Ellin515	g__	1.24	1.22	1.05	1.02	0.66	0.58
k__Bacteria	p__Chloroflexi	c__Ktedonobacteria	o__Thermogemmatisporales	f__Thermogemmatisporaceae	g__	1.81	0.89	2.88	0.49	0.11	0.52
k__Bacteria	p__Planctomycetes	c__Planctomycetia	o__Gemmatales	f__Isosphaeraceae	g__	0.97	0.89	1.01	0.56	0.31	0.49
k__Bacteria	p__Planctomycetes	c__Phycisphaerae	o__CPla-3	f__	g_unknown	1.20	1.01	0.32	0.82	0.17	0.38
Unassigned	Other	Other	Other	Other	Unassigned_Other	5.44	5.31	5.69	4.55	4.28	5.30
					Other genera <1%	30.65	31.81	30.28	31.31	29.74	32.72
					TOTAL	100	100	100	100	100	100

Table S2. Rainfall data vs peak at Plant-MFC during dry period between crop season 3 and 4

Date	Mempawah climatology station			Paloh climatology data			Rain possibility in the research site
	Rain (mm)	Wind direction	rain states	Rain (mm)	Wind Direction	Rain states	
14-Feb-19	2.80	NE	moderate rain	0	C	no rain	High possibility
15-Feb-19	4.00	C	moderate rain	0.1	C	drizzle	Low possibility
16-Feb-19	21.50	NE	heavy rain	8888	na	data not available	High possibility
17-Feb-19	14.30	C	heavy rain	1.8	C	drizzle	Low possibility
18-Feb-19	8888	C	data not available	0	C	no rain	unknown
19-Feb-19	0.00	E	no rain	0	C	no rain	unknown
20-Feb-19	0.00	NE	no rain	0	C	no rain	unknown
21-Feb-19	1.80	C	drizzle	0	C	no rain	unknown
22-Feb-19	113.00	E	storm	0	N	no rain	High possibility
23-Feb-19	0.00	NE	no rain	2.5	C	moderate rain	Low possibility
24-Feb-19	98.10	NE	storm	66.7	C	storm	High possibility
25-Feb-19	3.10	C	moderate rain	8888	na	data not available	Low possibility
26-Feb-19	9.30	E	moderate rain	8888	na	data not available	Low possibility
27-Feb-19	11.2	NE	heavy rain	3.4	C	moderate rain	High possibility

28-Feb-19	3.3	NE	moderate rain	8888	C	data not available	High possibility
1-Mar-19	10	C	heavy rain	0	C	no rain	Low possibility
2-Mar-19	1.5	W	drizzle	0	C	no rain	unknown
3-Mar-19	0	C	no rain	14	C	heavy rain	unknown
4-Mar-19	0	C	no rain	1.5	C	drizzle	unknown
5-Mar-19	0	C	no rain	0	C	no rain	unknown
6-Mar-19	0.2	C	drizzle	4.9	C	moderate rain	unknown
7-Mar-19	0	E	no rain	0.4	C	drizzle	unknown
8-Mar-19	na	W	data not available	8888	na	data not available	unknown
9-Mar-19	2.50	C	moderate rain	0	C	no rain	Low possibility
10-Mar-19	0.00	W	no rain	0.5	N	drizzle	unknown
11-Mar-19	na	C	data not available	4.7	C	moderate rain	unknown
12-Mar-19	na	na	data not available	8888	C	data not available	unknown
13-Mar-19	0	W	no rain	0	C	no rain	unknown
14-Mar-19	0	C	no rain	0	C	no rain	unknown
15-Mar-19	1	NE	drizzle	0	C	no rain	unknown
16-Mar-19	18.8	C	heavy rain	25.1	C	heavy rain	High possibility
17-Mar-19	0	NE	no rain	8888	C	data not available	unknown
18-Mar-19	8888	na	data not available	0	C	no rain	unknown
19-Mar-19	0	C	no rain	0	C	no rain	unknown
20-Mar-19	0	W	no rain	0	C	no rain	unknown
21-Mar-19	0	SW	no rain	0	C	no rain	unknown
22-Mar-19	8888	na	data not available	0	C	no rain	unknown
23-Mar-19	0	W	no rain	8888	na	data not available	unknown
24-Mar-19	0	W	no rain	0	C	no rain	unknown
25-Mar-19	0	SW	no rain	8888	N	data not available	unknown
26-Mar-19	0	NE	no rain	0	C	no rain	unknown
27-Mar-19	0.4	W	drizzle	0	C	no rain	High possibility
28-Mar-19	11.4	SW	heavy rain	8888	na	data not available	High possibility

29-Mar-19	1.3	SW	drizzle	3.8	C	moderate rain	High possibility
30-Mar-19	0	SW	no rain	0	C	no rain	unknown
31-Mar-19	0	W	no rain	0	C	no rain	unknown
1-Apr-19	8888	W	data not available	0	C	no rain	unknown
2-Apr-19	8888	na	data not available	8888	C	data not available	unknown
3-Apr-19	8888	na	data not available	8888	na	data not available	unknown
4-Apr-19	8888	na	data not available	8888	na	data not available	unknown
5-Apr-19	0	C	no rain	0	C	no rain	unknown
6-Apr-19	0	W	no rain	0	C	no rain	unknown
7-Apr-19	0	C	no rain	0	N	no rain	unknown
8-Apr-19	0	W	no rain	0	C	no rain	unknown
9-Apr-19	8888	na	data not available	0	C	no rain	unknown
10-Apr-19	8888	na	data not available	13.9	C	heavy rain	High possibility
11-Apr-19	0.4	C	drizzle	25.7	E	heavy rain	High possibility
12-Apr-19	1.5	SW	drizzle	1.8	C	drizzle	unknown
13-Apr-19	66.4	C	storm	0.1	C	drizzle	unknown
14-Apr-19	0.2	E	drizzle	8888	na	data not available	unknown
15-Apr-19	0	SW	no rain	1.3	N	drizzle	unknown

0mm = no rain; 0-2.5 mm= drizze; 2,5-10 = moderate rain; 10-50 = heavy rain; >50= storm; 8888 = data not available; na = not available;
C = calm (0m/s)
Rain possibility in the research site was predicted based on the rain state and the wind direction from the climatology stations.