



Supplement of

Distribution and degradation of terrestrial organic matter in the sediments of peat-draining rivers, Sarawak, Malaysian Borneo

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Table S1 Bulk and lignin phenols parameters of sediments collected from the Rajang and small rivers

No.	Area	Time	latitude(N)	longitude(E)	Mean Size(μm)	DO (mg/L)	Salinity	pH	OC%	TN%	C/N	$\delta^{13}\text{C}$	Σ8	A8	P	V	S	C	S/V	C/V	(Ad/Al)v	(Ad/Al)s	P/(V+S)	DHBV	DHBV/V	LPVI	Clay%	Silt%
1	Lower Rajang	2017.03	2.2	111.6	25.7	4.55	0.0	7.12	1.71	0.14	13.96	-29.17	9.72	5.68	1.03	2.97	2.46	0.24	0.83	0.08	0.39	0.25	0.19	0.08	0.03	52.78	31.70	55.17
2	Lower Rajang	2017.03	2.3	111.8	19.5	6.67	0.0	6.47	1.39	0.15	10.73	-29.29	12.63	9.08	1.44	4.77	4.07	0.24	0.85	0.05	0.45	0.40	0.16	0.36	0.07	46.48	32.80	59.51
3	Lower Rajang	2017.03	2.5	111.8	40.7	6.09	0.0	6.57	0.80	0.10	9.06	-29.06	7.50	9.36	1.40	4.80	4.20	0.36	0.88	0.08	0.37	0.20	0.16	0.17	0.03	54.94	26.87	52.76
4	Lower Rajang	2017.03	2.5	111.8	27.2	5.82	0.0	6.59	0.96	0.10	11.74	-29.29	9.52	9.94	1.46	4.97	4.54	0.43	0.91	0.09	0.34	0.23	0.15	0.25	0.05	62.07	29.78	54.34
5	Lower Rajang	2017.03	2.4	111.7	41.6	5.96	0.4	6.53	1.42	0.13	12.91	-28.90	12.25	8.61	1.67	4.57	3.86	0.18	0.84	0.04	0.51	0.44	0.20	0.29	0.06	43.81	25.56	52.84
1	Lower Rajang	2016.08	02°09.976'	111°33.15'	27.2	2.73	27.7	7.29	1.48	0.11	15.77	-28.71	12.72	8.58	1.46	4.56	3.73	0.29	0.82	0.06	0.39	0.28	0.18	0.12	0.03	46.90	30.15	54.69
2	Lower Rajang	2016.08	02°14.550'	111°39.143'	158.1	3.01	4.8	6.66	0.23	0.02	13.16	-28.40	1.43	6.08	1.02	3.36	2.54	0.18	0.76	0.05	0.53	0.31	0.17	0.07	0.02	39.79	10.05	12.99
3	Lower Rajang	2016.08	2°14.977'	111°45.267'	43.3	4.10	0.0	6.51	0.63	0.06	12.56	-29.33	3.28	5.19	0.79	2.67	2.33	0.18	0.87	0.07	0.42	0.32	0.16	0.14	0.05	52.70	23.84	41.24
4	Lower Rajang	2016.08	02°26.278'	111°48.451'	23.2	3.67	0.0	6.74	1.24	0.14	10.70	-29.27	10.84	8.75	1.06	4.14	4.21	0.40	1.02	0.10	0.36	0.33	0.13	0.32	0.08	76.57	32.33	57.63
5	Lower Rajang	2016.08	02°49.495'	111°41.890'	11.8	4.28	6.5	7.12	1.54	0.15	11.60	-29.00	9.94	6.46	0.68	3.45	2.96	0.05	0.86	0.02	0.37	0.18	0.11	0.37	0.11	41.59	41.65	55.60
6	Lower Rajang	2016.08	02°51.844'	111°38.389'	22.4	4.49	10.1	7.84	1.32	0.15	10.18	-28.87	10.37	7.86	1.19	4.31	3.54	0.02	0.82	0.00	0.39	0.12	0.15	0.42	0.10	38.18	41.47	49.80
7	Lower Rajang	2016.08	02°51.878'	111°35.999'	9.9	4.57	21.2	8.12	1.22	0.15	9.77	-27.55	6.15	5.02	0.56	2.77	2.23	0.02	0.81	0.01	0.44	0.17	0.11	0.30	0.11	37.36	45.86	52.70
8	Lower Rajang	2016.08	02°51.686'	111°34.767'	28.7	4.91	24.9	8.09	1.21	0.15	9.40	-27.48	5.26	4.35	0.69	2.31	1.99	0.05	0.86	0.02	0.42	0.20	0.16	0.21	0.09	42.11	43.09	46.55
9	Lower Rajang	2016.08	02°35.679'	111°23.855'	14.1	3.41	19.1	7.36	1.56	0.17	10.98	-28.80	9.63	6.16	0.95	3.19	2.92	0.05	0.91	0.02	0.40	0.17	0.16	0.29	0.09	45.63	41.05	55.06
10	Lower Rajang	2016.08	02°29.975'	111°25.342'	23.8	3.28	15.9	7.22	1.28	0.13	11.15	-28.95	8.86	6.92	1.01	3.32	3.34	0.26	1.00	0.08	0.38	0.27	0.15	0.30	0.09	67.22	33.57	57.59
11	Lower Rajang	2016.08	02°26.459'	111°24.262'	47.4	2.98	19.4	7.43	1.42	0.13	13.18	-28.38	12.96	9.13	1.17	4.61	4.27	0.26	0.93	0.06	0.35	0.32	0.13	0.40	0.09	53.76	34.31	45.29
12	Lower Rajang	2016.08	02°20.997'	111°30.216'	32.3	3.21	1.1	6.69	0.96	0.11	10.36	-29.42	7.67	8.03	1.14	4.05	3.77	0.21	0.93	0.05	0.39	0.29	0.15	0.41	0.10	52.65	32.22	49.22
13	Lower Rajang	2016.08	02°22.426'	111°25.655'	138.3	3.47	12.8	7.08	0.10	0.01	12.61	-27.68	0.11	1.07	0.44	0.62	0.40	0.04	0.65	0.07	0.84	0.41	0.43	0.08	0.13	34.50	5.40	6.54
14	Lower Rajang	2016.08	02°20.789'	111°21.864'	44.8	2.95	19.9	7.31	0.46	0.05	10.09	-28.67	2.76	6.04	0.81	3.04	2.83	0.17	0.93	0.05	0.56	0.43	0.14	0.47	0.15	53.73	25.49	43.49
15	Lower Rajang	2016.08	02°22.317'	111°20.326'	34.4	3.40	32.0	7.93	1.06	0.11	11.73	-29.01	9.57	9.05	1.20	4.83	4.16	0.07	0.86	0.01	0.31	0.15	0.13	0.38	0.08	41.71	29.54	47.73
16	Lower Rajang	2016.08	02°13.856'	111°16.822'	10.4	3.85	30.6	7.81	1.43	0.17	9.77	-28.31	9.26	6.45	0.96	3.50	2.94	0.01	0.84	0.00	0.41	0.13	0.15	0.36	0.10	39.47	46.79	50.90
1	Upper Rajang	2016.08	02°10.829'	111°56.552'	204.1	4.29	0.0	6.67	0.11	0.02	6.98	-28.24	0.12	1.12	0.49	0.74	0.34	0.04	0.46	0.05	0.84	0.20	0.45	0.07	0.09	18.37	9.57	9.88
2	Upper Rajang	2016.08	02°04.455'	111°13.529'	151.9	4.83	0.0	6.77	0.14	0.02	7.51	-28.31	0.28	2.00	0.98	1.30	0.61	0.10	0.47	0.08	0.85	0.48	0.51	0.13	0.10	22.58	13.30	14.67
3	Upper Rajang	2016.08	02°01.593'	112°29.325'	261.9	4.34	0.0	6.79	0.12	0.01	11.55	-27.35	0.09	0.71	0.39	0.62	0.09	0.00	0.14	0.00	1.28	0.35	0.56	0.03	0.05	2.94	7.97	8.26
4	Upper Rajang	2016.08	02°00.580'	112°41.735'	233.5	4.65	0.0	6.73	0.11	0.02	7.72	-28.32	0.15	1.43	0.67	0.91	0.42	0.10	0.46	0.11	1.18	0.53	0.50	0.03	0.03	27.63	8.11	8.59
5	Upper Rajang	2016.08	02°01.053'	112°53.814'	38.6	4.42	0.0	6.67	1.00	0.11	10.79	-29.01	8.60	8.60	1.34	4.53	3.72	0.35	0.82	0.08	0.34	0.22	0.16	0.19	0.04	50.49	27.05	50.73
1	Mahudam	2017.03	1.6358	111.0489	12.4	1.18	0.0	3.74	3.37	0.26	14.95	-28.35	23.64	7.02	1.49	4.22	2.79	0.01	0.66	0.00	0.62	0.08	0.21	0.56	0.13	27.55	38.14	58.76
2	Mahudam	2017.03	1.6493	111.0435	6.8	1.91	0.0	3.71	1.76	0.19	10.58	-27.62	9.34	5.32	1.14	3.03	2.23	0.06	0.73	0.02	0.88	0.56	0.22	0.54	0.18	33.15	43.39	56.61
3	Mahudam	2017.03	1.6591	111.0365	7.3	2.40	0.0	3.88	2.30	0.22	12.05	-27.49	18.91	8.22	1.53	5.01	3.19	0.02	0.64	0.00	0.46	0.17	0.19	0.47	0.09	26.07	41.31	58.69
4	Mahudam	2017.03	1.6632	111.0254	9.9	3.90	16.1	5.74	2.08	0.17	14.38	-26.93	9.87	4.74	0.92	2.56	2.06	0.12	0.80	0.05	0.44	0.35	0.20	0.32	0.12	42.21	37.77	60.88
5	Mahudam	2017.03	1.6639	111.0187	10.3	6.83	20.0	7.56	1.61	0.15	12.19	-26.81	9.32	5.78	1.09	3.28	2.38	0.12	0.73	0.04	0.50	0.34	0.19	0.28	0.09	34.48	37.12	61.70
6	Mahudam	2017.09	1°40.204'	111°01.026'	12.9	4.96	9.5	6.69	2.17	0.19	13.06	-28.38	13.01	5.99	0.90	2.64	0.39	0.09	0.38	0.26	0.16	0.16	0.05	81.06	37.32	59.73		
7	Mahudam	2017.09	1°39.553'	111°01.20'90	11.2	None	13.5	None	2.70	0.16	19.36	-27.95	25.66	9.52	1.22	5.90	3.61	0.02	0.61	0.00	0.49	0.27	0.13	0.39	0.07	24.45	38.44	57.81
1	Sebuyau	2017.03	1.4369	110.9539	16.6	1.39	0.0	4.46	3.26	0.15	25.44	-27.68	13.27	4.07	0.60	2.33	1.65	0.08	0.71	0.03	0.41	0.33	0.15	0.19	0.08	33.07	38.64	57.12
2	Sebuyau	2017.03	1.4591	110.9661	17.7	1.62	0.0	4.32	2.09	0.19	12.78	-27.66	14.25	6.83	1.38	3.71	2.89	0.24	0.78	0.06	0.43	0.38	0.21	0.36	0.10	43.66	28.14	67.08
3	Sebuyau	2017.03	1.5067	110.9247	17.8	2.25	0.0	4.83	1.78	0.15	13.94	-27.50	14.59	8.18	1.11	4.72	3.30	0.16	0.70	0.03	0.44	0.37	0.14	0.34	0.07	32.30	32.61	62.32
4	Sebuyau	2017.03	1.5192	110.925	62.1	4.23	6.6	6.35	1.49	0.11	16.27	-28.24	12.00	8.07	1.66	4.67	3.21	0.18	0.69	0.04	0.59	0.41	0.21	0.31	0.07	32.21	21.82	43.78
5	Sebuyau	2017.03	1.5211	110.9239	19.3	5.86	12.7	7.04	2.88	0.20	16.41	-28.01	28.34	9.84	1.70	5.70	4.05	0.08	0.71	0.01	0.46	0.29	0.17	0.42	0.07	31.26	29.8	

Table S2 Bulk and lignin phenols parameters of plants and detritus/litter collected from the Rajang and small rivers

Latin name	Parts	Type	OC%	TN%	C/N	$\delta^{13}\text{C}$	ΣS	ΔS	P	V	S	C	S/V	C/V	(Ad/Al)v	(Ad/Al)s	P/(V+S)	DHBA	DHBA/V	LPVI
<i>Acrostichaceae</i>	Leaf	Tree	47.21	1.19	46.37	-29.01	448.47	9.50	0.86	2.69	4.99	1.82	1.85	0.68	0.19	0.19	0.10	0.21	0.08	1376
<i>Dipterocarpaceae</i>	Leaf	Tree	53.52	1.61	38.81	-30.36	100.11	1.87	0.60	0.57	0.84	0.46	1.48	0.81	0.41	0.19	0.43	0.15	0.27	1423
<i>Ctenolophonaceae</i>	Leaf	Tree	49.98	1.55	37.53	-33.90	193.73	3.88	0.73	1.20	1.85	0.82	1.54	0.68	0.31	0.33	0.24	0.16	0.13	1153
<i>Hibiscus tiliaceus L.</i>	Leaf	Tree	50.85	2.05	28.96	-28.72	201.15	3.96	0.55	1.57	1.81	0.59	1.15	0.37	0.26	0.20	0.16	0.19	0.12	361
<i>Poaceae</i>	Leaf	Grass	44.65	2.63	19.80	-29.00	286.06	6.41	1.04	1.91	2.61	1.88	1.37	0.98	0.43	0.24	0.23	0.17	0.09	1674
<i>Bruguiera gymnorhiza (L.) Poir.</i>	Leaf	Tree	47.99	1.04	53.79	-35.45	201.54	4.20	1.14	1.01	2.35	0.84	2.32	0.83	0.54	0.35	0.34	0.11	0.11	2254
<i>Pandanaceae</i>	Leaf	Tree	48.97	1.58	36.13	-29.91	585.31	11.95	1.02	3.94	7.62	1.37	2.38	0.43	0.27	0.19	0.24	0.09	0.06	558
<i>Nepenthes sp.</i>	Leaf	Tree	49.02	0.70	81.59	-33.53	463.18	9.45	0.65	4.25	4.51	0.69	1.06	0.16	0.46	0.44	0.07	0.18	0.04	120
<i>Aegiceras corniculatum (L.) Blanco</i>	Leaf	Tree	44.58	2.48	20.96	-29.70	381.93	8.57	1.35	1.57	3.18	1.50	2.37	1.49	0.59	0.35	0.18	0.18	0.20	2424
<i>Elaeis guineensis Jacq.</i>	Leaf	Tree	33.05	1.17	32.95	None	339.47	10.27	4.50	2.34	5.99	1.94	2.56	0.83	0.32	0.32	0.54	0.16	0.07	2441
<i>Elaeis guineensis Jacq.</i>	Wood	Tree	43.84	0.44	115.04	None	340.96	7.78	5.13	2.37	4.87	0.54	2.05	0.23	0.31	0.22	0.71	0.12	0.05	353
<i>Avicennia marina Vierh.</i>	Wood	Tree	46.35	0.57	95.32	-34.42	429.38	9.26	0.34	3.59	5.40	0.27	1.50	0.08	0.26	0.14	0.04	0.04	0.01	113
Unrecognizable	Wood		42.59	0.77	64.65	-29.18	940.60	22.09	0.80	8.97	11.96	1.16	1.33	0.13	0.28	0.34	0.04	0.05	0.01	130
Unrecognizable	Wood		53.38	0.43	143.80	-30.55	1044.29	19.56	0.68	8.39	10.96	0.21	1.31	0.03	0.39	0.36	0.03	0.18	0.02	78
Unrecognizable	Wood		44.51	0.32	164.25	-32.84	856.05	19.23	0.85	9.64	8.94	0.66	0.93	0.07	0.39	0.12	0.05	0.12	0.01	57
<i>Elaeis guineensis Jacq.</i>	Root	Tree	43.71	1.80	28.36	None	309.44	7.08	5.52	1.93	4.80	0.35	2.49	0.18	0.38	0.29	0.82	0.26	0.13	340
<i>Aegiceras corniculatum (L.) Blanco</i>	New root	Tree	37.89	0.67	66.35	-28.52	270.34	7.14	0.38	2.43	4.16	0.55	1.71	0.23	0.30	0.39	0.06	0.06	0.02	291
<i>Aegiceras corniculatum (L.) Blanco</i>	Old root	Tree	34.19	0.72	55.57	-28.00	359.16	10.50	0.36	3.53	6.51	0.47	1.84	0.13	0.36	0.42	0.04	0.01	0.00	193
Detritus/ Litter																				
Lower Rajang		2016.08	52.01	1.48	40.90	-32.65	520.38	10.01	1.63	5.02	4.31	0.67	0.86	0.13	0.41	0.42	0.17	0.19	0.04	76.92
Lower Rajang		2016.08	29.07	1.10	30.73	-31.38	386.89	13.31	2.16	6.73	5.72	0.86	0.85	0.13	0.43	0.17	0.17	0.30	0.04	72.70
Lower Rajang		2016.08	32.24	0.76	49.77	-29.48	270.15	8.38	1.23	3.96	3.92	0.50	0.99	0.13	0.41	0.20	0.16	0.28	0.07	87.39
Lower Rajang		2016.08	19.39	0.51	44.05	-28.89	482.79	24.90	7.51	10.33	13.59	1.19	1.32	0.09	0.16	0.13	0.31	0.26	0.02	105.31
Lower Rajang		2016.08	41.83	0.70	70.04	-25.73	617.96	14.77	6.34	6.80	7.01	0.97	1.03	0.14	0.35	0.23	0.46	0.25	0.04	102.56
Lower Rajang		2016.08	45.03	1.10	47.76	-29.38	137.20	3.05	0.73	1.64	1.32	0.09	0.49	0.22	0.30	0.22	0.25	0.64	0.39	43.49
Lower Rajang		2017.03	62.93	None	None	-30.78	474.89	7.55	1.49	3.73	3.21	0.61	0.86	0.16	0.38	0.44	0.21	0.14	0.04	92.26
Lower Rajang		2017.03	43.57	None	None	-30.84	461.56	10.59	1.81	5.01	3.67	1.99	0.73	0.40	0.34	0.37	0.21	0.03	0.02	228.71
Sebuyau		2017.03	20.21	0.83	28.55	-28.20	370.95	18.36	3.36	9.55	7.67	1.14	0.80	0.12	0.26	0.39	0.20	0.15	0.02	63.96
Sebuyau		2017.03	23.32	0.47	57.69	-27.50	388.71	16.67	4.27	8.02	7.92	0.73	0.99	0.09	0.55	0.50	0.27	0.20	0.03	71.05
Sebuyau		2017.09	44.71	0.88	59.18	-29.42	881.78	19.72	2.71	7.40	11.47	0.85	1.55	0.12	0.35	0.36	0.14	0.09	0.01	144.25
Sebuyau		2017.09	16.12	0.92	20.52	-30.14	370.62	23.00	2.88	12.24	8.66	2.10	0.71	0.17	0.31	0.32	0.14	0.32	0.03	75.39
Sebuyau		2017.09	48.79	0.56	100.99	-25.10	1180.01	24.18	0.39	10.96	12.79	0.43	1.17	0.04	0.22	0.26	0.02	0.05	0.00	69.22
Simunjan		2017.03	46.13	0.69	77.75	-30.25	868.79	18.84	0.40	10.62	7.72	0.50	0.73	0.05	0.34	0.30	0.02	0.16	0.01	36.24
Simunjan		2017.03	29.80	None	None	-29.29	656.18	22.02	0.51	8.98	12.49	0.55	1.39	0.06	0.25	0.25	0.02	0.15	0.02	95.89
Simunjan		2017.03	28.82	1.24	27.22	-30.62	333.79	11.58	1.36	6.00	3.15	2.43	0.52	0.40	0.30	0.31	0.15	0.15	0.02	150.49
Simunjan		2017.03	29.08	1.34	25.36	-29.39	279.75	9.62	1.18	5.57	3.53	0.52	0.63	0.09	0.40	0.12	0.13	0.11	0.02	39.11

Table S3 Bulk and lignin phenols parameters of soils collected from the Rajang River

Area	Time	OC%	TN%	C/N	$\delta^{13}\text{C}$	ΣS	ΔS	P	V	S	C	S/V	C/V	(Ad/Al)v	(Ad/Al)s	P/(V+S)	DHBV	DHBV/V	LPVI
Lower Rajang	2017.09	2.30	0.16	17.22	-28.65	22.03	9.58	2.07	4.57	4.78	0.23	1.05	0.05	0.42	0.37	0.22	0.43	0.10	62.35
Lower Rajang	2017.09	4.09	0.20	24.05	-28.23	33.51	8.19	1.97	3.85	4.10	0.24	1.07	0.06	0.36	0.30	0.25	0.38	0.10	67.50
Lower Rajang	2017.09	3.33	0.19	20.59	-28.45	28.54	8.57	2.20	3.86	4.38	0.33	1.13	0.08	0.35	0.27	0.27	0.37	0.10	82.07
Lower Rajang	2017.09	4.19	0.20	24.42	-28.34	38.90	9.29	2.85	4.22	4.71	0.36	1.12	0.09	0.32	0.27	0.32	0.36	0.09	80.98
Lower Rajang	2017.09	3.84	0.21	21.36	-28.13	32.27	8.40	2.62	4.22	3.98	0.20	0.94	0.05	0.35	0.19	0.32	0.31	0.07	52.58
Lower Rajang	2017.09	3.91	0.19	23.95	-28.46	26.88	6.87	1.71	3.30	3.30	0.27	1.00	0.08	0.41	0.34	0.26	0.33	0.10	67.92
Lower Rajang	2017.09	4.06	0.20	23.66	-28.31	28.41	6.99	2.02	3.26	3.47	0.26	1.07	0.08	0.44	0.33	0.30	0.45	0.14	73.34
Lower Rajang	2017.09	3.32	0.19	20.58	-28.48	26.81	8.08	2.30	3.80	4.04	0.23	1.06	0.06	0.40	0.32	0.29	0.36	0.09	66.93