Supplementary Materials

Controlling Eutrophication of Aquaculture Production Water Using Biochar: Correlation of Molecular Composition with Adsorption Characteristics as Revealed by FT-ICR Mass Spectrometry

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Table S1. Biochar results before and after water treatment

Biochar Sample	Mass in Filter Bag (gram)	Residence Time (hour)	Water Flow Rate (gal/min)	Nitrate-N + Nitrite-N (µg/g)	Nitrogen-Ammonia (µg/g)	Total Phosphorus (µg/g)	pH
Untreated IB	-	-	-	1.0	< 0.72	500	7.8
IB 1	300	0.5	2	0.96	< 0.72	310	7.2
IB 2	300	0.5	2	1.3	1.1	350	7.8
IB 3	300	0.5	2	1.4	0.73	200	7.4
IB 1.1	450	12	1-2	2.1	0.87	380	8.3
IB 1.2	450	12	1-2	1.4	0.76	160	7.8
IB 1.3	450	12	1-2	20	0.90	180	8.4
IB 2.1	450	24	1-2	60	1.6	350	7.8
IB 2.2	450	24	1-2	2.4	1.4	400	7.5
IB 2.3	450	24	1-2	1.6	2.8	400	7.6
IB 3.1	450	48	1-2	140	15	560	6.9
IB 3.2	450	48	1-2	29	1.5	440	7.8
IB 3.3	450	48	1-2	19	2.6	300	7.4
Untreated OB	-	-	-	1.1	< 0.72	1,200	11
OB 1	300	0.5	2	4.4	< 0.72	940	9.8
OB 2	300	0.5	2	3.6	< 0.72	950	10
OB 3	300	0.5	2	3.3	< 0.72	840	10
OB 1.1	450	12	1-2	42	< 0.72	560	8.9
OB 1.2	450	12	1-2	26	< 0.72	540	8.9
OB 1.3	450	12	1-2	22	0.73	720	9.0
OB 2.1	450	24	1-2	37	1.1	500	8.7
OB 2.2	450	24	1-2	140	0.93	590	8.5
OB 2.3	450	24	1-2	90	< 0.72	520	8.7
OB 3.1	450	48	1-2	59	< 0.72	370	8.5
OB 3.2	450	48	1-2	69	1.1	380	8.4
OB 3.3	450	48	1-2	62	1.0	420	8.5

IB: Idaho biochar; OB: Oregon biochar.

Table S2. Water results before and after 0.5 hr treatment with IB and OB

Water Sample	Nitrate (mg/L)	Total Phosphorus (mg/L)
BT #1	2.26	0.15
BT #2	2.34	0.14
AT IB #1	2.36	0.14
AT IB #2	2.25	0.15
AT IB #3	2.35	0.15
AT OB #1	2.31	0.85
AT OB #2	2.34	0.41
AT OB #3	2.33	0.75

BT: before treatment; AT: after treatment; IB: Idaho biochar; OB: Oregon biochar.