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Supplementary material

The degradation of arsenoribosides from *Ecklonia radiata* tissues decomposed in natural and microbially manipulated microcosms

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Table S1. HPLC column conditions for the separation and quantification of arsenic species

Column	Hamilton PRP-X100	Supelocosil LC-SCX	Supelocosil LC-SCX	Atlantis C-18 reverse phase
Size	150 or 250 mm × 4.6 mm	250 mm × 4.6 mm	250 mm × 4.6 mm	150 mm × 4.6 mm
Particle size	10 µm	10 µm	10 µm	5 µm
Buffer	20 mM $NH_4H_2PO_4$, 1% CH_3OH	20 mM pyridine	20 mM pyridine	20 mM $NH_4H_2PO_4$
pH	5.6	2.6	3	3
Flow rate	1.5 ml min^{-1}	1.5 ml min^{-1}	1.5 ml min^{-1}	1.0 ml min-1
Temperature	40 °C	40 °C	40 °C	25 °C
Arsenic species	As^V, DMA, MA, PO_4-, SO_3- and OSO_3- arsenoribosides	DMAE, glycerol trimethyl arsenoriboside, TETRA, AC and TMAP	AB and Gly-arsenoriboside	Thio arsenoribosides, Thio-DMAE, Thio-DMA, Thio-MA

Table S2. Total arsenic concentrations in decomposing *E. radiata* tissue

Values are means ± standard deviations, $n = 3$. Different superscript letters indicate significance at $\alpha = 0.05$, i.e. A > B

	E. radiata total arsenic (µg As g^{-1} dry mass)							
Treatment	Day 0	Day 5	Day 10	Day 15	Day 20	Day 30	Day 45	Day 60
Unaltered	25 ± 2^{A}	4 ± 1^{B}	5 ± 3^{B}	2 ± 1^{B}	2 ± 1^{B}	2 ± 1^{B}	2 ± 1^{B}	2 ± 0.4^{B}
Autoclaved seawater	25 ± 2^{A}	7 ± 4^{B}	6 ± 1^{B}	3 ± 1^{B}	1 ± 0.3^{B}	2 ± 0.2^{B}	3 ± 1^{B}	3 ± 1^{B}
Autoclaved sand	25 ± 2^{A}	5 ± 2^{B}	5 ± 1^{B}	5 ± 2^{B}	2 ± 1^{B}	2 ± 1^{B}	2 ± 1^{B}	2 ± 0.3^{B}
Autoclaved seawater + Autoclaved sand	25 ± 2^{A}	5 ± 2^{B}	5 ± 1^{B}	2 ± 1^{B}	2 ± 1^{B}	2 ± 0.4^{B}	2 ± 0.4^{B}	1 ± 1^{B}

Table S3. Total arsenic concentrations in seawater

Values are means ± standard deviations, $n = 3$. Different superscript letters indicate significance at $\alpha = 0.05$, i.e. A > B

	Seawater total arsenic (µg As L^{-1})							
Treatment	Day 0	Day 5	Day 10	Day 15	Day 20	Day 30	Day 45	Day 60
Unaltered	5 ± 3^{B}	13 ± 3^{B}	25 ± 12^{B}	19 ± 8^{B}	11 ± 4^{B}	9 ± 7^{B}	18 ± 8^{B}	12 ± 5^{B}
Autoclaved seawater	5 ± 3^{B}	14 ± 7^{B}	13 ± 1^{B}	16 ± 7^{B}	12 ± 3^{B}	15 ± 2^{B}	12 ± 3^{B}	14 ± 4^{B}
Autoclaved sand	5 ± 3^{B}	8 ± 2^{B}	10 ± 2^{B}	15 ± 2^{B}	17 ± 2^{B}	11 ± 2^{B}	18 ± 3^{B}	14 ± 2^{B}
Autoclaved seawater + Autoclaved sand	5 ± 3^{B}	11 ± 4^{B}	15 ± 6^{B}	19 ± 4^{B}	20 ± 8^{B}	23 ± 10^{B}	43 ± 16^{A}	36 ± 13^{A}

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Table S4. Total arsenic concentrations in sand porewaters

Values are means ± standard deviations, $n = 3$. Different superscript letters indicate significance at $\alpha = 0.05$, i.e. A > B > C

	Sand porewater total arsenic (µg As L^{-1})							
Treatment	Day 0	Day 5	Day 10	Day 15	Day 20	Day 30	Day 45	Day 60
Unaltered	5 ± 3^{C}	30 ± 6^{B}	42 ± 9^{B}	$28.\pm 2^{B}$	25 ± 1^{B}	26 ± 5^{B}	6 ± 1^{C}	6 ± 1^{C}
Autoclaved seawater	5 ± 3^{C}	31 ± 8^{B}	35 ± 5^{B}	25 ± 6^{B}	23 ± 4^{B}	24 ± 1^{B}	7 ± 1^{C}	10 ± 2^{C}
Autoclaved sand	5 ± 3^{C}	34 ± 1^{B}	48 ± 7^{B}	34 ± 5^{B}	26 ± 3^{B}	25 ± 2^{B}	11 ± 1^{C}	12 ± 1^{C}
Autoclaved seawater + Autoclaved sand	5 ± 3^{C}	42 ± 14^{B}	67 ± 3^{A}	44 ± 11^{B}	32 ± 13^{B}	39 ± 2^{B}	24 ± 6^{B}	40 ± 10^{B}

Table S5. Total arsenic concentrations in sand particles

Values are means ± standard deviations, $n = 3$. Different superscript letters indicate significance at $\alpha = 0.05$, i.e. A > B

	Sand particles total arsenic (µg As g^{-1} dry mass)							
Treatment	Day 0	Day 5	Day 10	Day 15	Day 20	Day 30	Day 45	Day 60
Unaltered	0.9 ± 0.02^{A}	0.7 ± 0.1^{B}	0.7 ± 0.1^{B}	0.7 ± 0.1^{B}	0.6 ± 0.01^{B}	0.7 ± 0.2^{B}	0.7 ± 0.1^{B}	0.5 ± 0.1^{B}
Autoclaved seawater	0.9 ± 0.02^{A}	0.7 ± 0.1^{B}	0.7 ± 0.1^{B}	0.6 ± 0.02^{B}	0.6 ± 0.02^{B}	0.6 ± 0.1^{B}	0.6 ± 0.1^{B}	0.5 ± 0.1^{B}
Autoclaved sand	0.5 ± 0.01^{A}	0.5 ± 0.02^{B}	0.4 ± 0.1^{B}	0.6 ± 0.1^{B}	0.4 ± 0.01^{B}	0.4 ± 0.01^{B}	0.4 ± 0.02^{B}	0.4 ± 0.01^{B}
Autoclaved seawater + Autoclaved sand	0.5 ± 0.01^{A}	0.6 ± 0.1^{B}	0.5 ± 0.01^{B}	0.5 ± 0.2^{B}	0.4 ± 0.01^{B}	0.3 ± 0.03^{B}	0.4 ± 0.02^{B}	0.4 ± 0.03^{B}

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Table S6. Dissolved oxygen concentrations (mg L^{-1}) in seawater of *E. radiata* decomposition microcosms

Values are means ± standard deviation (n = 3)

	Seawater dissolved oxygen concentrations (mg L^{-1})							
Treatment	Day 0	Day 5	Day 10	Day 15	Day 20	Day 30	Day 45	Day 60
Unaltered	9.0	2.1 ± 1.0	4.0 ± 2.7	6.6 ± 0.9	7.0 ± 0.1	5.8 ± 0.1	3.8 ± 0.1	5.2 ± 0.1
Autoclaved seawater	9.0	2.3 ± 0.1	4.1 ± 1.9	6.0 ± 0.3	6.8 ± 0.3	5.6 ± 0.2	3.8 ± 0.1	5.1 ± 0.1
Autoclaved sand	9.0	4.2 ± 1.2	5.6 ± 1.7	6.0 ± 0.3	6.7 ± 0.3	5.5 ± 0.1	4.3 ± 0.5	5.3 ± 0.1
Autoclaved seawater + Autoclaved sand	9.0	6.3 ± 1.5	6.2 ± 1.0	6.8 ± 0.1	6.1 ± 1.0	5.0 ± 0.2	3.8 ± 0.3	5.4 ± 0.1

Table S7. pH of seawater of *E. radiata* decomposition microcosms

Values are means ± standard deviation (n = 3)

	Seawater pH							
Treatment	Day 0	Day 5	Day 10	Day 15	Day 20	Day 30	Day 45	Day 60
Unaltered	8.3	7.3 ± 0.1	7.7 ± 0.1	8.1 ± 0.1	8.0 ± 0.1	8.4 ± 0.1	8.2 ± 0.2	8.2 ± 0.2
Autoclaved seawater	8.3	7.2 ± 0.1	7.6 ± 0.1	7.9 ± 0.1	8.0 ± 0.1	8.3 ± 0.1	8.1 ± 0.1	8.2 ± 0.1
Autoclaved sand	8.3	7.3 ± 0.2	7.7 ± 0.1	7.9 ± 0.1	8.1 ± 0.1	8.3 ± 0.1	8.2 ± 0.2	8.2 ± 0.1
Autoclaved seawater + Autoclaved sand	8.3	7.4 ± 0.6	7.2 ± 0.3	8.0 ± 0.1	8.0 ± 0.1	8.3 ± 0.1	8.3 ± 0.1	8.3 ± 0.3

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Table S8a. Concentrations of arsenic species in decomposing *E. radiata* tissues in unaltered microcosms (*n* = 1)

N.D < 0.01 μg g^{-1}

Treatment + day	Arsenic species in *E. radiata* tissues (μg g^{-1} dry mass)										
	Total arsenic	Extracted arsenic	Arsenoribosides			DMAE	DMA	As^V	Thios		Column recovery %
			SO_3-	PO_4-	Gly-				SO_3-	Gly-	
Initial	25 ± 2	21	14	4	2	N.D	N.D	0.1	N.D	N.D	100
Unaltered 5	4 ± 1	3	N.D	1	0.3	0.1	N.D	1	N.D	0.03	87
Unaltered 10	5 ± 3	4	N.D	0.3	0.04	0.1	0.03	2	N.D	N.D	53
Unaltered 15	2 ± 1	1	N.D	1	0.1	0.03	N.D	1	N.D	N.D	136
Unaltered 20	2 ± 1	1	N.D	0.2	0.04	0.1	0.1	0.3	N.D	N.D	71
Unaltered 30	2 ± 1	3	N.D	1	0.2	N.D	0.4	2	N.D	N.D	124
Unaltered 45	2 ± 1	1	N.D	0.4	N.D	N.D	N.D	1	N.D	0.002	118
Unaltered 60	2 ± 0.4	1	N.D	0.4	N.D	N.D	N.D	0.4	N.D	N.D	78

Table S8b. Concentrations of arsenic species in decomposing *E. radiata* tissues in microcosms containing autoclaved seawater (*n* = 1)

N.D < 0.01 μg g^{-1}

Treatment + day	Arsenic species in *E. radiata* tissues (μg g^{-1} dry mass)										
	Total arsenic	Extracted arsenic	Arsenoribosides			DMAE	DMA	As^V	Thios		Column recovery %
			SO_3-	PO_4-	Gly-				SO_3-	Gly-	
Initial	25 ± 2	21	14.1	4	2	N.D	N.D	0.1	N.D	N.D	100
Autoclaved seawater 5	7 ± 4	5	N.D	1	3	0.1	N.D	1	N.D	0.1	100
Autoclaved seawater 10	6 ± 1	4	N.D	0.3	1	N.D	N.D	3	N.D	N.D	94
Autoclaved seawater 15	3 ± 1	1	N.D	N.D	0.2	N.D	N.D	1	N.D	N.D	100
Autoclaved seawater 20	1 ± 0.3	1	N.D	0.1	0.2	0.1	0.2	1	N.D	N.D	123
Autoclaved seawater 30	2 ± 0.2	2	N.D	0.2	1	N.D	N.D	1	N.D	N.D	100
Autoclaved seawater 45	3 ± 1	1	N.D	N.D	0.2	N.D	N.D	0.4	N.D	N.D	89
Autoclaved seawater 60	3 ± 1	1	N.D	0.1	0.3	N.D	0.2	0.2	N.D	N.D	49

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Table S8c. Concentrations of arsenic species in decomposing *E. radiata* tissues in microcosms containing autoclaved sand (*n* = 1)

N.D < 0.01 μg g^{-1}

Treatment + day	Arsenic species in *E. radiata* tissues (μg g^{-1} dry mass)										
	Total arsenic	Extracted arsenic	Arsenoribosides			DMAE	DMA	As^V	Thios		Column recovery %
			SO_3-	PO_4-	Gly-				SO_3-	Gly-	
Initial	25 ± 2	21	14	4	2	N.D	N.D	0.1	N.D	N.D	100
Autoclaved sand 5	6 ± 2	2	N.D	0.4	1	N.D	N.D	1	N.D	0.03	100
Autoclaved sand 10	5 ± 1	1	N.D	0.1	0.4	0.03	0.01	1	N.D	0.02	55
Autoclaved sand 15	5 ± 2	6	N.D	0.2	2	0.02	0.1	3	N.D	N.D	139
Autoclaved sand 20	2 ± 1	1	N.D	0.04	0.4	0.04	0.1	1	N.D	N.D	59
Autoclaved sand 30	2 ± 1	1	N.D	0.02	1	0.02	0.2	0.3	0.01	N.D	100
Autoclaved sand 45	2 ± 1	1	N.D	0.03	0.4	N.D	N.D	1	N.D	N.D	84
Autoclaved sand 60	2 ± 0.3	1	N.D	N.D	0.4	N.D	N.D	1	N.D	N.D	100

Table S8d. Concentrations of arsenic species in decomposing *E. radiata* tissues in microcosms containing autoclaved seawater and autoclaved sand (*n* = 1)

N.D < 0.01 μg g^{-1}

Treatment + day	Arsenic species in *E. radiata* tissue (μg g^{-1} dry mass)										
	Total arsenic	Extracted arsenic	Arsenoribosides			DMAE	DMA	As^V	Thios		Column recovery %
			SO_3-	PO_4-	Gly-				SO_3-	Gly-	
Initial	25 ± 2	21	14	4	2	N.D	N.D	0.1	N.D	N.D	100
Autoclaved sand + seawater 5	5 ± 2	4	N.D	1	2	N.D	N.D	1	N.D	N.D	97
Autoclaved sand + seawater 10	5 ± 1	6	N.D	1	1	N.D	N.D	3	N.D	N.D	100
Autoclaved sand + seawater 15	2 ± 1	1	N.D	0.03	0.1	0.1	0.04	1	N.D	N.D	85
Autoclaved sand + seawater 20	2 ± 1	1	N.D	0.1	0.1	0.1	0.1	0.3	N.D	N.D	67
Autoclaved sand + seawater 30	2 ± 0.4	2	N.D	0.03	0.1	0.3	0.5	1	N.D	N.D	91
Autoclaved sand + seawater 45	2 ± 0.4	2	N.D	0.02	1	0.1	0.2	1	N.D	N.D	86
Autoclaved sand + seawater 60	1 ± 1	1	N.D	N.D	0.1	0.2	0.3	0.1	N.D	N.D	73

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Table S9a. Concentrations of arsenic species in seawater in unaltered microcosms (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Total arsenic	As^V	As^{III}	MA	DMA	Arsenoribosides Gly-	Arsenoribosides PO_4-	DMAE	Thios Gly-	Thios PO_4-	Thios DMAE	Column recovery (%)
	Arsenic species in seawater (μg L^{-1})											
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	56
Unaltered 5	13 ± 3	6	N.D	N.D	N.D	1	N.D	4	N.D	N.D	N.D	76
Unaltered 10	25 ± 12	10	2	N.D	N.D	N.D	N.D	3	N.D	2	5	88
Unaltered 15	19 ± 8	9	N.D	N.D	3	N.D	N.D	2	N.D	N.D	N.D	76
Unaltered 20	11 ± 4	5	N.D	1	3	N.D	N.D	2	N.D	N.D	N.D	100
Unaltered 30	9 ± 7	4	0.3	0.2	3	N.D	N.D	N.D	N.D	N.D	N.D	78
Unaltered 45	18 ± 8	14	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	79
Unaltered 60	12 ± 5	11	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	89

Table S9b. Concentrations of arsenic species in seawater in microcosms containing autoclaved seawater (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Total arsenic	As^V	As^{III}	MA	DMA	Arsenoribosides Gly-	Arsenoribosides PO_4-	DMAE	Thios Gly-	Thios PO_4-	Thios DMAE	Column recovery (%)
	Arsenic species in seawater (μg L^{-1})											
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	56
Autoclaved seawater 5	14 ± 7	5	4	N.D	N.D	N.D	1	7	N.D	N.D	N.D	123
Autoclaved seawater 10	13 ± 1	10	2	1	4	N.D	N.D	N.D	N.D	N.D	2	144
Autoclaved seawater 15	16 ± 7	8	N.D	N.D	3	N.D	N.D	3	N.D	N.D	N.D	78
Autoclaved seawater 20	12 ± 3	5	N.D	1	1	1	N.D	1	N.D	N.D	N.D	77
Autoclaved seawater 30	15 ± 2	6	1	0.4	N.D	N.D	N.D	N.D	2	N.D	N.D	54
Autoclaved seawater 45	12 ± 3	15	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	124
Autoclaved seawater 60	14 ± 4	10	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	68

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Table S9c. Concentrations of arsenic species in seawater in microcosms containing autoclaved sand (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Total arsenic	As^V	As^{III}	MA	DMA	Arsenoribosides Gly-	Arsenoribosides PO_4-	DMAE	Thios Gly-	Thios PO_4-	Thios DMAE	Column recovery (%)
	Arsenic species in seawater (μg L^{-1})											
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	56
Autoclaved sand 5	8 ± 2	4	2	N.D	N.D	1	N.D	1	N.D	N.D	N.D	109
Autoclaved sand 10	10 ± 2	6	4	1	N.D	N.D	N.D	1	N.D	N.D	1	126
Autoclaved sand 15	15 ± 2	10	N.D	1	4	N.D	N.D	3	N.D	N.D	N.D	124
Autoclaved sand 20	17 ± 2	13	N.D	0.4	5	N.D	N.D	4	N.D	N.D	N.D	132
Autoclaved sand 30	11 ± 2	4	N.D	0.1	4	N.D	N.D	4	N.D	N.D	N.D	100
Autoclaved sand 45	18 ± 3	19	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	109
Autoclaved sand 60	14 ± 2	11	1	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	87

Table S9d. Concentrations of arsenic species in seawater in microcosms containing autoclaved seawater and autoclaved sand (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Total arsenic	As^V	As^{III}	MA	DMA	Arsenoribosides Gly-	Arsenoribosides PO_4-	DMAE	Thios Gly-	Thios PO_4-	Thios DMAE	Column recovery (%)
	Arsenic species in seawater (μg L^{-1})											
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	56
Autoclaved seawater + sand 5	11 ± 4	5	2	N.D	N.D	2	N.D	3	N.D	N.D	N.D	113
Autoclaved seawater + sand 10	15 ± 6	9	5	N.D	4	N.D	N.D	4	N.D	N.D	N.D	142
Autoclaved seawater + sand 15	19 ± 4	9	N.D	N.D	4	N.D	N.D	9	N.D	N.D	N.D	115
Autoclaved seawater + sand 20	20 ± 8	16	N.D	2	4	N.D	N.D	10	N.D	N.D	N.D	158
Autoclaved seawater + sand 30	23 ± 10	4	N.D	0.4	N.D	N.D	N.D	16	N.D	N.D	N.D	91
Autoclaved seawater + sand 45	43 ± 16	18	4	N.D	3	N.D	N.D	4	N.D	N.D	N.D	69
Autoclaved seawater + sand 60	36 ± 13	12	7	N.D	6	N.D	N.D	12	N.D	N.D	N.D	101

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Table S10a. Concentrations of arsenic species in sand porewaters in unaltered microcosms (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Arsenic species in sand porewaters (μg L^{-1})								
	Total arsenic	As^{V}	As^{III}	MA	DMA	Arsenoribosides		DMAE	Column recovery (%)
						Gly-	PO_4-		
Initial	5.± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	56
Unaltered 5	30 ± 6	14	9	1	3	N.D	N.D	2	91
Unaltered 10	42 ± 9	27	5	1	N.D	N.D	N.D	3	84
Unaltered 15	28 ± 2	26	N.D	N.D	7	N.D	N.D	3	127
Unaltered 20	25 ± 1	15	5	N.D	6	N.D	N.D	N.D	104
Unaltered 30	26 ± 5	23	1	2	N.D	1	N.D	N.D	105
Unaltered 45	6 ± 1	4	N.D	N.D	N.D	N.D	N.D	N.D	69
Unaltered 60	6 ± 1	6	N.D	N.D	N.D	N.D	N.D	N.D	101

Table S10b. Concentrations of arsenic species in sand porewaters in microcosms containing autoclaved seawater (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Arsenic species in sand porewaters (μg L^{-1})								
	Total arsenic	As^{V}	As^{III}	MA	DMA	Arsenoribosides		DMAE	Column recovery (%)
						Gly-	PO_4-		
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	56
Autoclaved Seawater 5	31 ± 8	11	6	1	N.D	N.D	N.D	3	70
Autoclaved Seawater 10	35 ± 5	14	3	1	N.D	N.D	N.D	0.3	51
Autoclaved Seawater 15	25 ± 6	18	0.1	2	1	N.D	N.D	1	84
Autoclaved Seawater 20	23 ± 4	23	N.D	N.D	8	N.D	N.D	N.D	132
Autoclaved Seawater 30	24 ± 1	20	6	N.D	N.D	2	N.D	N.D	114
Autoclaved Seawater 45	7 ± 1	4	N.D	N.D	N.D	N.D	N.D	N.D	68
Autoclaved Seawater 60	10 ± 2	12	N.D	N.D	N.D	N.D	N.D	N.D	121

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Table S10c. Concentrations of arsenic species in sand porewaters in microcosms containing autoclaved sand (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Arsenic species in sand porewaters (μg L^{-1})								
	Total arsenic	As^{V}	As^{III}	MA	DMA	Arsenoribosides Gly-	Arsenoribosides PO_4-	DMAE	Column recovery (%)
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	56
Autoclaved sand 5	34 ± 1	12	6	0.4	N.D	0.3	0.4	1	60
Autoclaved sand10	48 ± 7	39	10	N.D	N.D	N.D	N.D	3	107
Autoclaved sand15	34 ± 5	22	N.D	2	8	N.D	N.D	2	99
Autoclaved sand 20	26 ± 3	15	N.D	3	9	N.D	N.D	3	109
Autoclaved sand 30	25 ± 2	5	N.D	N.D	N.D	N.D	N.D	14	75
Autoclaved sand 45	11 ± 1	7	N.D	N.D	N.D	N.D	N.D	N.D	65
Autoclaved sand 60	12 ± 1	11	N.D	N.D	4	N.D	N.D	N.D	124

Table S10d. Concentrations of arsenic species in sand porewaters in microcosms containing autoclaved seawater and autoclaved sand (*n* = 1)

N.D < 0.05 μg L^{-1}

Treatment + day	Arsenic species in sand porewaters (μg L^{-1})								
	Total arsenic	As^{V}	As^{III}	MA	DMA	Arsenoribosides Gly-	Arsenoribosides PO_4-	DMAE	Column recovery (%)
Initial	5 ± 3	3	N.D	N.D	N.D	N.D	N.D	N.D	56
Autoclaved seawater + sand 5	42 ± 14	18	10	N.D	N.D	N.D	N.D	6	60
Autoclaved seawater + sand10	67 ± 3	53	18	0.4	N.D	N.D	N.D	13	107
Autoclaved seawater + sand15	44 ± 11	11	N.D	N.D	4	N.D	N.D	6	99
Autoclaved seawater + sand 20	32 ± 13	18	N.D	4	6	N.D	N.D	13	109
Autoclaved seawater + sand 30	39 ± 2	11	12	1	N.D	N.D	N.D	1	75
Autoclaved seawater + sand 45	24 ± 6	8	2	N.D	3	N.D	N.D	6	65
Autoclaved seawater + sand 60	40 ± 10	19	5	N.D	8	N.D	N.D	15	124