

Electronic supplementary data (D.S. Urgast et al.)

Table S1: Arsenic concentration in two pooled whelks (*Buccinum undatum*) samples (n=10) from each location in mg/kg fresh and dry weight as well as the water content in %. The date of sampling and the description of the location are given as well.

Nr of Location	Sampling site	Day of sampling	As conc. (mg/kg) f.w.	As conc. (mg/kg) d.w.	Moisture content (%)
1	Rothesay (Outer Clyde)	25/10/06	37.5 ± 0.3	142	73.6
2a	Kirkwall (Orkney)	19/10/06	12.9 ± 0.1	45.9	71.9
2b	Shapinsay (Orkney)	12/10/06	14.9 ± 0.5	51.4	71.1
3	Inverness (Moray Firth)	11/11/06	22.1 ± 0.7	88.8	75.1
4	Grimsby (Humber)	18/10/06	43.7 ± 0.2	163	73.2
5	Lerwick (Shetland)	11/10/06	13.7 ± 2.3	45.3	69.8
6	Eyemouth	14/11/06	13.1 ± 0.6	48.9	73.3
7	Campeltown (Kintyre)	05/10/06	31.3 ± 0.6	111	71.9
8	Mallaig (Argyll)	05/12/06	12.4 ± 0.4	51.4	75.9
9	Tayinloan (Kintyre)	28/10/06	18.0 ± 0.2	64.1	71.9

Table S2: Arsenic concentration of male and female whelks collected at Grimsby. SD is standard deviation of the means (n=3).

Sex	Mass of whelk tissue (g)	Arsenic conc. (mg/kg f.w.)
Male	11.3	7.7 ± 1.3
	14.1	13.5 ± 1.9
	26.1	22.1 ± 2.5
<i>Mean ± SD</i>	<i>17.2 ± 7.9</i>	<i>14.4 ± 7.2</i>
Female	13.3	7.1 ± 1.4
	18.7	12.4 ± 2.0
	26.9	12.9 ± 1.2
<i>Mean ± SD</i>	<i>19.6 ± 6.8</i>	<i>10.8 ± 3.2</i>

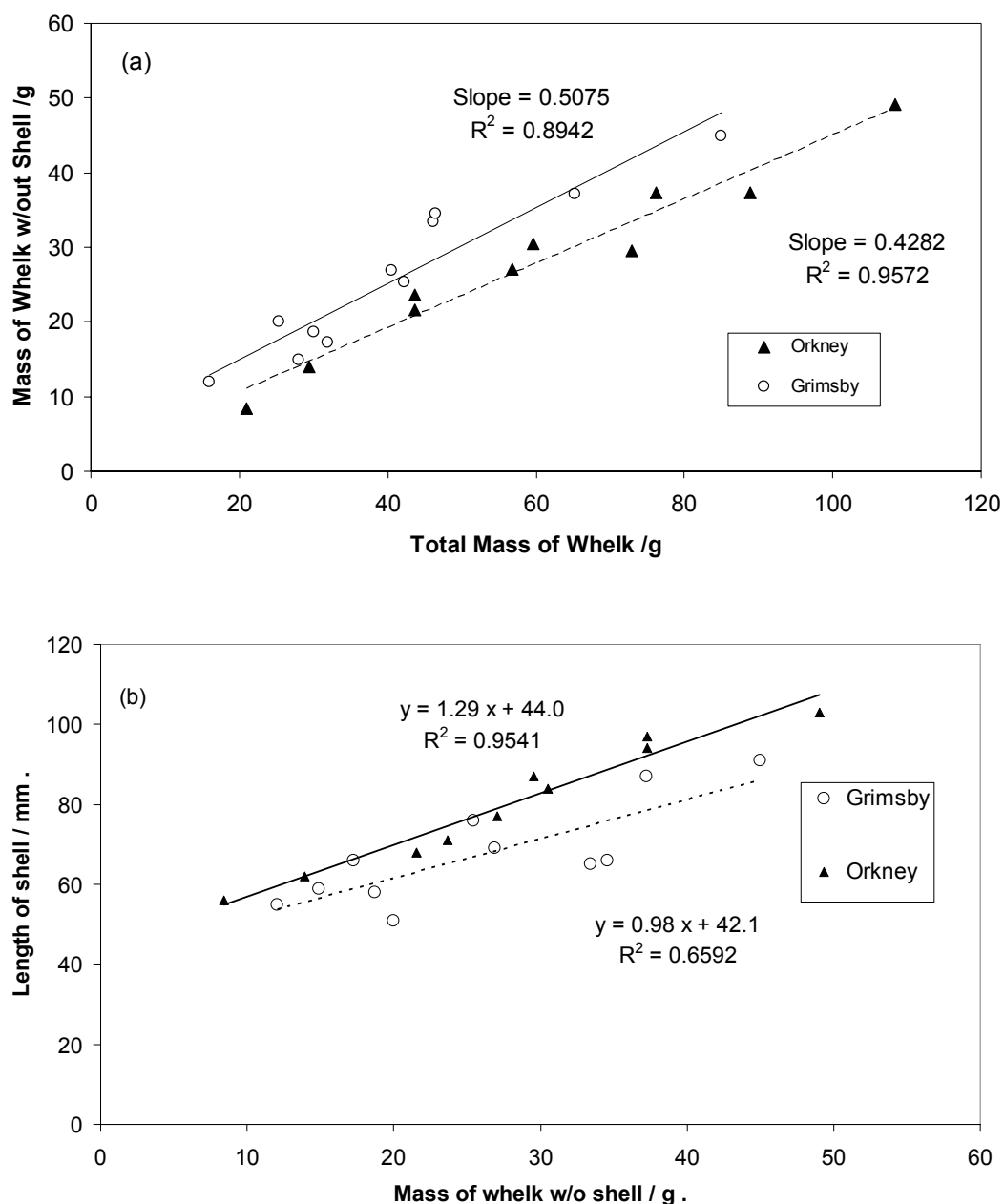


Figure S1: (a) shows the relationship of tissue mass in relation to the total weight including the shell. Total whelk without shell is not significantly different between Orkney (27.8 ± 11.9 g) and Grimsby (25.9 ± 10.5 g) although the total whelk mass is significantly different (Orkney(Kirkwall): 60.0 ± 27.1 g and Grimsby 41.5 ± 19.5 g). Shell length in relation to mass of whelk without shell is shown in (b). The caught whelks are heavier in relation to the length of the shell. The length of the shells of the Orkney whelks were 79.9 ± 15.7 mm and significantly larger ($p < 0.05$) as the Grimsby shells (67.5 ± 12.7 mm).

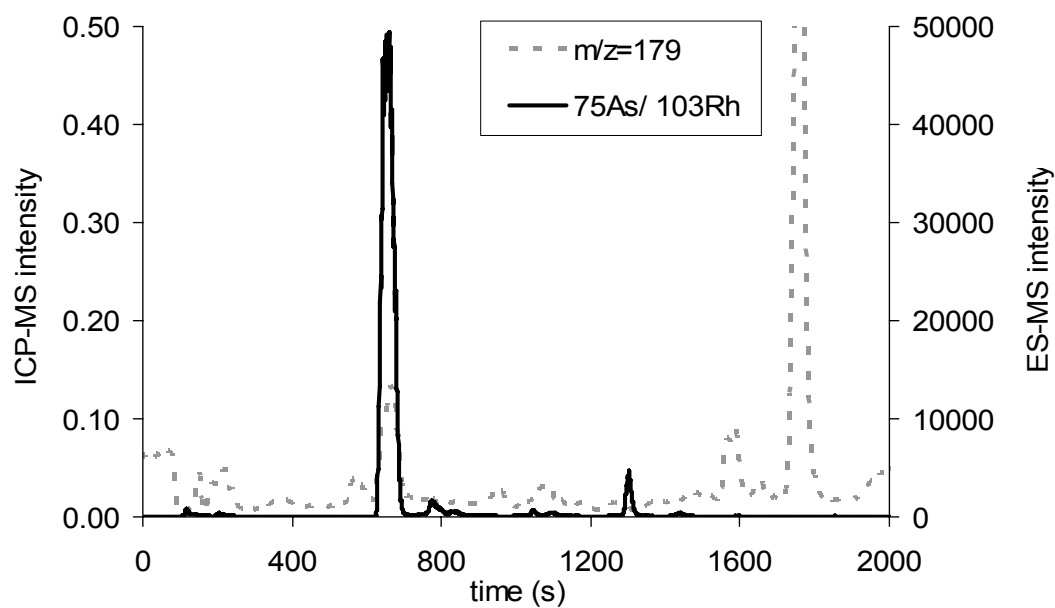


Figure S2: Arsenic speciation using cation exchange HPLC-ICP-MS/ ES-MS for the identification of arsenobetaine at retention time 650 s using both elemental identification on m/z 75 (normalised by ^{103}Rh) for arsenic using ICP-MS (solid line) and m/z 179 for arsenobetaine using ES-MS (dotted line).

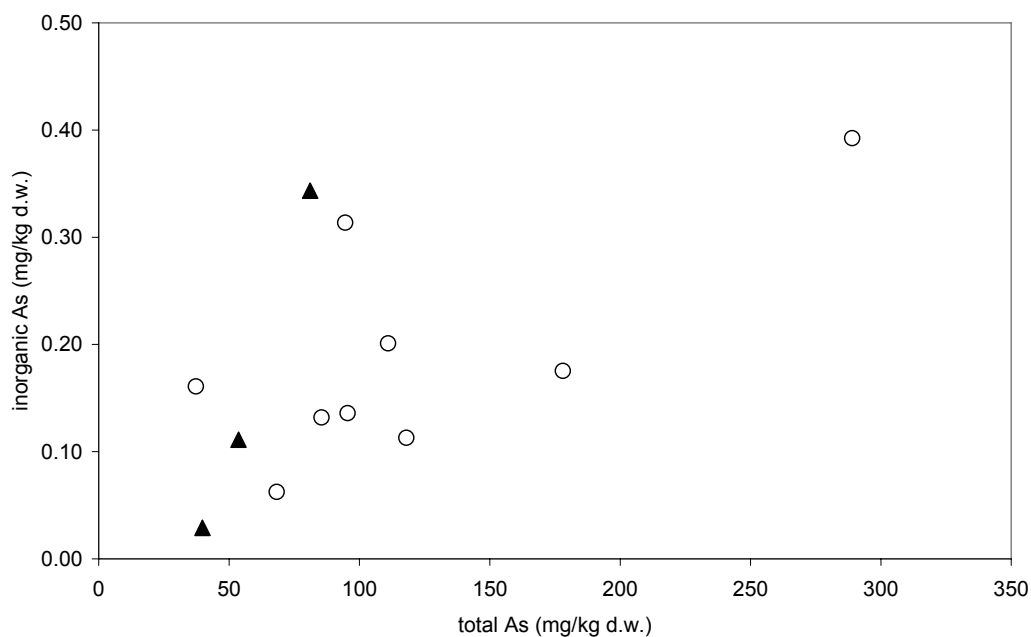


Figure S3: correlation of inorganic arsenic with total arsenic in whelks expressed as mg/kg d.w.. (Triangles from Kirkwall and Circles from Grimsby).