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APPENDICES

Appendix: A

Preparation of reagent solution for four different extraction procedures

EDTA extractant: 0.05 mol/L EDTA

0.05 mol/l EDTA shall be prepared as an ammonium salt solution by adding in a fume cupboard 146.12 + 0.05 g of EDTA free acid to 800+20 mL distilled water and by partially dissolving by stirring in 130+5 mL of saturated ammonia solution (prepared by bubbling ammonia gas into distilled water). The addition of ammonia shall be continued until all the EDTA has dissolved. The obtained solution shall be filtered through a filter paper of porosity 1.4 to 2.0 μm (capable of retaining particles of 0.8 μm size) into a 10 L polyethylene container and diluted with water to 9.0+0.5 L. The pH shall be adjusted to 7.00+0.05 by addition of a few drops of either ammonia or hydrochloric acid as appropriate. The solution shall be diluted with distilled water to 10.0+0.1 L, well mixed and stored in stoppered polyethylene container.

The temperature of the room shall be measured at the beginning and at the end of the extraction as well as the temperature of the extracting solution in the bottle at the end of the shaking period. The extracts shall be separated immediately. To separate, decant a portion of the extract into a centrifuge tube and centrifuge for 10 min at about 3000 g. The supernatant liquid must be stored in polyethylene container at 4 °C until analysis. Alternatively, the separation can be performed by filtration through a filter paper (porosity 0.2 to 1.1 μm capable of retaining particles of 2.7 μm size) previously rinsed with 0.05 mol/l EDTA followed by distilled water. The filtrates shall be collected in polyethylene bottles and stored at 4 °C until analysis. Blank extraction (i.e. without soil) shall be carried out for each set of analysis using the same reagents as described above.

The same sample for analysis should be taken as it is. Before a bottle is opened it should be manually shaken for 5 min to rehomogenise the content. The results should be corrected for dry mass: this correction must be performed on a

separate portion of 1 g taken at the same time from the same bottle by drying in an oven at 105 ± 2 °C for 2-3 h until constant mass is attained (successive weightings should not differ by more than 1 mg).

DTPA extractant: 0.005 mol/L DTPA

The DTPA extracting solution shall be prepared containing 0.005 mol/l diethylenetriamine-pentaacetic acid (DTPA) [$C_{14}H_{23}N_3O_{10}$], 0.01 mol/l triethanolamine (TEA) [$(HOCH_2CH_2)_3N$] and adjusted to pH 7.3. To prepare 10 L of this solution, dissolve 149.2 g reagent grade TEA, 19.67 g DTPA and 14.7 g calcium chloride [$CaCl_2 \cdot 2H_2O$] in approximately 200 mL distilled water. Allow sufficient time for the DTPA to dissolve and dilute to approximately 9 L. Adjust the pH to 7.3 ± 0.5 with HCl while stirring and dilute to 10 L. This solution is stable for several months.

CaCl₂ extractant: 0.01 mol/L CaCl₂

0.01 mol/l CaCl₂ shall be by dissolve 1.47 g CaCl₂·H₂O in doubly distilled water or equivalent). Verify that the Ca concentration is 400 ± 10 mg/l by e.g. EDTA titration.

Manually shake the sample bottle for 1 min to homogenize contents and take sample for analysis directly from the bottle. Operations should be carried out at 20 ± 2 °C. Weigh 10.0 g soil into a 250 mL polyethylene bottle. Add 100 mL of 0.01 mol L⁻¹ CaCl₂ solution and extract on shaker for 3 hour at 30 rpm; decant about 60 mL into a centrifuge tube and centrifuge for 10 min at 3000 g. Measure and report the room temperature before and after the extraction and also the temperature of the extracting solution at the end of the extraction; measure pH in the extract before centrifugation; analyze immediately. Carry out two blank extractions (without soil) with each set of analyzes using the above procedure. Filtration is not recommended because of contamination risk. Dilutions, if required, are made with acidified (HNO₃) CaCl₂ solution. Correct the results to dry mass basis by drying a separate 1 g portion (taken at the same time as the analysis sample) at 105 ± 2 °C for 2-3 hours to constant (± 1 mg) mass

BCR 1: 0.11 molL⁻¹ Acetic acid solution

Add in a fume cupboard, 25 0.2 ml of glacial acetic acid too about 0.5 l of distilled water in a 1 l graduated polypropylene or polyethylene bottle and make up to volume with distilled water. Take 250 ml of this solution (acetic acid, 0.43molL⁻¹) and dilute to 1 l with distilled water to obtain an acetic acid solution of 0.11molL⁻¹

Appendix B:

Table B.1: Physicochemical characteristics of studied soils

Sampling Sites	pH	OM (mg/kg)	ORP (mV)
1E-1	7.75	3.57	207.7
1E-2	7.80	2.55	206.3
1E-3	7.75	3.21	201.0
1E-4	7.08	2.67	276.6
1E-5	7.71	1.78	240.4
1E-6	7.79	2.13	223.2
1E-7	7.90	2.30	216.5
1E-8	7.77	3.26	243.5
1E-9	8.07	2.67	192.1
1E-10	7.84	2.50	219.5
1E-11	7.78	2.99	200.7
1E-12	7.89	2.82	215.1
1E-13	7.29	0.52	252.5
1E-14	7.42	0.67	234.5
1E-15	7.96	2.55	188.8
1E-16	7.35	2.38	17.00
1E-17	7.60	1.83	250.0
1E-18	7.35	1.14	265.0
1E-19	6.65	2.28	264.9
1E-20	7.50	2.17	238.8
1E-21	7.58	2.82	247.9
1E-22	6.42	1.28	287.9
1E-23	7.10	0.99	265.3
1E-24	7.19	1.19	347.9
1HR-25	6.87	1.23	202.3
1HR-26	6.93	1.63	156.7
1HR-27	5.79	1.23	330.1
1HR-28	6.60	1.70	167.7

Sampling Sites	pH	OM (mg/kg)	ORP (mV)
1HR-29	7.01	1.90	115.5
1HR-30	7.09	1.33	-91.60
1HR-31	7.49	2.08	105.7
1HR-32	7.61	1.51	132.6
1HR-33	7.73	2.30	88.00
1HR-34	7.45	3.32	249.3
1HR-35	7.27	2.48	104.1
1HR-36	7.43	3.64	-119.9
1HR-37	7.78	3.78	74.5
1HR-38	7.46	3.68	-189.9
1HR-39	7.40	3.56	-157.4
1HR-40	6.95	0.79	62.1
1HR-41	6.52	0.57	98.2
1HR-42	7.33	1.90	-74.2
1HR-43	6.95	0.55	75.7
1HR-44	6.99	1.58	108.0
1HR-45	7.33	2.05	-111.8
1HR-46	7.57	3.63	94.05
1HR-47	7.67	3.51	246.4
1HR-48	7.88	3.47	247.5
1HR-49	7.51	3.74	-31.70
1HR-50	7.54	3.68	6.90
1HR-51	7.79	3.91	68.20
1ER-52	6.68	1.48	283.7
1ER-53	6.25	1.56	308.9
1ER-54	7.22	2.47	289.5
1ER-55	6.25	2.79	233.7
1ER-56	6.75	2.10	185.4
1ER-57	7.16	0.91	242.2
1ER-58	7.13	2.27	229.0
1ER-59	6.96	2.80	228.5
1ER-60	7.27	2.32	241.5
1ER-61	6.52	3.39	-142.9

Sampling Sites	pH	OM (mg/kg)	ORP (mV)
1ER-63	6.86	3.36	-120.7
1ER-64	6.90	3.59	-291.1
1ER-65	7.34	2.22	-158.7
1ER-66	7.19	4.06	-256.0
1ER-67	7.40	0.60	191.9
1ER-68	7.04	1.56	4.00
1ER-69	6.64	1.22	186.4
1ER-70	6.63	1.31	-48.90
1ER-71	7.06	1.29	90.90
1ER-72	7.34	2.25	-129.3
1ER-73	7.62	3.99	138.3
1ER-74	7.62	3.78	169.5
1ER-75	7.52	3.93	177.5
1ER-76	7.48	3.02	182.0
1ER-77	7.23	3.02	192.2
1ER-78	7.41	3.42	197.9

Appendix C:

Table C.1: Determination of Cadmium Concentration in soil

Samples (Soil)	Soil Extraction (mg/kg)				
	Total Cd	BCR	EDTA	DTPA	CaCl ₂
1E-1	26.28	7.0317	7.3312	3.6567	0.0470
1E-2	13.37	3.9214	2.1940	1.3245	0.0170
1E-3	7.9481	1.5537	2.3116	1.1940	0.0268
1E-4	2.4141	0.2752	0.3464	0.2760	0.0522
1E-5	2.5813	0.2871	0.3977	0.2377	0.0495
1E-6	4.7871	0.8017	1.1270	0.6522	0.0155
1E-7	3.6185	0.5585	0.8234	0.4746	0.0323
1E-8	4.8978	0.8768	1.2477	0.9418	0.0503
1E-9	9.1710	2.2027	3.2714	1.8346	0.0850
1E-10	6.1489	1.1776	1.8503	0.7509	0.0531
1E-11	11.62	2.6465	3.0805	1.2079	0.0334
1E-12	14.46	3.9372	7.5946	3.1296	0.1254
1E-13	1.0850	0.0513	0.0584	0.0258	0.0079
1E-14	1.2303	0.0456	0.0439	0.0179	0.0117
1E-15	42.87	18.7312	8.6154	2.7687	0.0043
1E-16	1.4427	0.0660	0.0577	2.8165	0.0043
1E-17	1.6200	0.0237	0.0201	0.0169	0.0000
1E-18	1.9261	0.0214	0.0095	0.0053	0.0057
1E-19	1.3472	0.0662	0.1185	0.0570	0.0096
1E-20	2.0356	0.1166	0.1663	0.1213	0.0082
1E-21	1.7252	0.0672	0.1630	0.0732	0.0049
1E-22	2.3954	0.9868	0.8553	0.4017	0.2136
1E-23	2.6662	0.9926	1.3581	0.3598	0.1328
1E-24	2.9620	0.9944	0.8781	0.4102	0.0528
1HR-25	fail	0.1068	0.5330	0.2309	0.0375
1HR-26	2.8653	0.0979	0.4406	0.2184	0.0364

Samples (Soil)	Soil Extraction (mg/kg)				
	Total Cd	BCR	EDTA	DTPA	CaCl ₂
1HR-27	1.8090	0.0638	0.2025	0.0895	0.0129
1HR-28	2.2934	0.0562	0.2504	0.1427	0.0164
1HR-29	2.9182	0.1699	0.5893	0.3126	0.0302
1HR-30	2.0977	0.0770	0.2472	0.0980	0.0112
1HR-31	117.9	5.6005	14.47	0.2927	0.0113
1HR-32	157.3	6.6710	14.38	0.1718	0.0065
1HR-33	172.7	9.1376	22.49	0.1980	0.0120
1HR-34	3.4246	0.1109	0.7015	0.7418	0.0131
1HR-35	1.8902	0.0566	0.3028	0.7509	0.0303
1HR-36	2.9019	0.0902	0.4986	0.5095	0.0383
1HR-37	6.6291	0.4530	1.4902	2.8020	0.1436
1HR-38	3.1791	0.2128	0.7500	5.5720	0.2021
1HR-39	3.4901	0.1616	0.7058	8.0195	0.2639
1HR-40	1.4176	0.1319	0.4166	4.7739	0.0571
1HR-41	0.8819	0.0433	0.1655	0.1493	0.0118
1HR-42	4.7759	0.0508	2.0524	0.7594	0.0634
1HR-43	2.4071	0.0572	1.1689	0.8798	0.2052
1HR-44	5.9448	0.0535	2.4906	0.7984	0.2181
1HR-45	4.9006	0.0468	1.4903	0.8292	0.0284
1HR-46	7.0020	0.0384	1.9698	0.8621	0.0191
1HR-47	5.2047	0.0344	1.6673	1.1667	0.0202
1HR-48	9.5728	0.0522	2.1038	0.0205	0.1860
1HR-49	3.4746	0.0609	1.0428	0.2670	0.0691
1HR-50	4.9224	0.6145	1.6447	0.6324	0.0199
1HR-51	6.4182	0.0499	1.8773	0.9071	0.0244
1ER-52	2.5739	0.4015	0.5391	0.1880	0.0916
1ER-53	2.9101	0.4631	0.5292	0.2145	0.0911
1ER-54	4.4289	0.8591	2.0624	0.6494	0.1556
1ER-55	5.1170	1.0801	1.9985	0.4545	0.1805
1ER-56	2.9135	0.4013	0.7732	0.1877	0.0732

Samples (Soil)	Soil Extraction (mg/kg)				
	Total Cd	BCR	EDTA	DTPA	CaCl ₂
1ER-57	1.2525	0.1424	0.0908	0.0382	0.0283
1ER-58	218.3	88.53	41.03	11.73	0.5117
1ER-59	228.4	69.88	32.1653	13.01	0.5586
1ER-60	291.3	100.8	34.79	13.18	0.6542
1ER-61	3.1165	0.3787	0.3615	0.1679	0.0592
1ER-62	2.9228	0.5421	0.6870	0.1625	0.0849
1ER-63	2.3321	0.2145	0.1524	0.2164	0.0157
1ER-64	4.1306	0.8376	0.9637	0.2164	0.0615
1ER-65	2.3800	0.2436	0.2910	0.0905	0.0225
1ER-66	3.5291	0.6535	0.6579	0.3450	0.0497
1ER-67	1.9854	0.6492	0.4073	0.1566	0.1214
1ER-68	4.7481	1.2944	2.8316	1.0729	0.8104
1ER-69	2.2463	0.2725	0.5893	0.2145	0.0654
1ER-70	4.0451	1.0431	2.6646	0.9369	1.0256
1ER-71	4.0200	1.5764	2.1525	0.8516	0.2342
1ER-72	5.8676	0.8644	2.7326	0.9451	0.2110
1ER-73	7.1184	2.8028	4.2606	1.4471	0.0077
1ER-74	5.5703	1.9184	3.2156	1.3520	0.0080
1ER-75	10.6750	4.5303	4.7874	1.5024	0.0633
1ER-76	3.8380	0.9894	1.9767	0.8245	0.0080
1ER-77	5.4880	2.9149	2.8330	2.0473	0.0066
1ER-78	4.7974	1.9000	2.9793	1.1815	0.0082

Table C.2: Determination of Zinc Concentration in soil

Samples (Soil)	Soil Extraction (mg/kg)				
	Total Zn	BCR	EDTA	DTPA	CaCl ₂
1E-1	1766	130.7	80.39	31.45	0.1582
1E-2	609.8	46.19	23.99	11.85	0.0857
1E-3	621.6	37.56	27.91	12.83	0.2240
1E-4	142.8	11.02	10.57	6.7143	0.0000
1E-5	151.1	8.4360	9.2587	3.9638	0.0000
1E-6	295.8	16.43	15.99	6.9436	0.2865
1E-7	229.9	20.82	14.49	8.2205	0.1863
1E-8	302.6	31.08	25.14	13.93	0.3556
1E-9	492.7	44.64	31.02	14.51	0.5296
1E-10	335.2	25.35	26.79	9.5576	0.1281
1E-11	444.5	39.55	40.07	14.96	0.0676
1E-12	630.7	64.91	59.38	19.83	0.2765
1E-13	54.75	1.7493	2.2587	0.7927	0.0337
1E-14	57.11	1.0939	2.2914	0.5918	0.1780
1E-15	1882	288.9	74.24	19.19	0.5315
1E-16	40.40	2.9400	2.7031	19.89	0.0962
1E-17	26.11	1.1172	0.8904	0.5762	0.0000
1E-18	29.03	1.0047	1.1629	0.1676	0.3298
1E-19	63.89	4.1419	4.2768	1.9076	0.3477
1E-20	109.7	2.8354	5.3705	1.8123	0.0599
1E-21	85.91	2.8902	4.3914	1.8635	0.0613
1E-22	232.7	40.04	26.39	11.31	3.8175
1E-23	312.4	22.78	34.75	10.32	1.5807
1E-24	175.3	61.57	14.82	6.7803	0.0000
1HR-25	fail	2.5032	8.4260	4.1079	0.3663
1HR-26	150.9	2.2792	7.6210	4.1329	0.4261
1HR-27	101.8	1.1080	3.1763	1.5869	0.1616
1HR-28	146.4	1.9037	7.2147	4.5159	0.4060

Samples (Soil)	Soil Extraction (mg/kg)				
	Total Zn	BCR	EDTA	DTPA	CaCl ₂
1HR-29	155.1	4.3295	9.4637	5.2540	0.3211
1HR-30	103.1	1.7245	3.7299	1.5763	0.2258
1HR-31	2544	148.5	167.0	3.9395	0.0677
1HR-32	3138	194.4	171.5	2.1164	0.1008
1HR-33	3123	184.9	197.9	3.1112	0.1871
1HR-34	159.5	2.7739	10.58	6.8956	0.0773
1HR-35	76.51	1.4197	4.8841	6.9760	0.1938
1HR-36	132.4	2.6594	8.5871	7.4453	0.3255
1HR-37	329.7	9.5963	18.01	23.86	0.6282
1HR-38	151.7	6.5805	12.51	44.22	1.3216
1HR-39	165.0	5.4537	11.86	48.12	1.0502
1HR-40	82.52	3.0436	7.0175	27.59	1.2434
1HR-41	3138	0.0000	2.6844	2.9050	0.3209
1HR-42	3123	0.9094	29.55	9.6535	0.4672
1HR-43	140.9	0.8042	16.85	12.65	3.7913
1HR-44	397.1	1.4293	37.75	13.09	2.5672
1HR-45	413.1	0.4686	27.50	14.06	0.4079
1HR-46	464.8	0.3179	20.4311	14.74	0.3051
1HR-47	365.1	0.0162	19.88	12.56	0.3277
1HR-48	522.6	1.0067	25.79	0.9296	0.5303
1HR-49	278.79	0.8733	14.97	5.1073	0.3065
1HR-50	371.6	1.7533	15.90	6.3275	0.1660
1HR-51	458.7	1.0335	17.11	8.1877	0.2909
1ER-52	71.75	19.11	17.82	6.2624	1.5088
1ER-53	82.46	24.23	19.07	6.9899	1.2097
1ER-54	132.7	43.39	69.31	19.41	2.2565
1ER-55	177.6	60.86	75.38	11.4505	3.2054
1ER-56	88.35	19.44	26.26	6.5094	1.0538
1ER-57	28.53	5.7922	4.5040	1.0132	0.7764
1ER-58	2629	2384	803.8	180.4	6.1923

Samples (Soil)	Soil Extraction (mg/kg)				
	Total Zn	BCR	EDTA	DTPA	CaCl ₂
1ER-59	2488	2641	811.2	168.9	4.8544
1ER-60	2666	2570	698.1	174.9	5.8383
1ER-61	73.54	25.63	18.29	6.9003	2.2224
1ER-62	85.12	37.19	30.07	5.4190	2.8184
1ER-63	42.14	12.47	8.6847	8.6980	0.5942
1ER-64	113.5	55.99	43.40	3.2540	1.8990
1ER-65	48.76	15.77	13.80	4.1436	0.5479
1ER-66	102.0	46.07	34.61	13.47	1.5461
1ER-67	40.73	28.83	17.23	7.2740	3.5228
1ER-68	177.8	59.19	125.6	40.72	36.4922
1ER-69	57.44	14.26	27.20	10.24	1.6517
1ER-70	119.3	54.52	101.98	32.32	41.5462
1ER-71	153.9	60.09	85.55	34.05	5.8954
1ER-72	277.3	37.01	126.99	36.38	6.1293
1ER-73	337.7	104.6	124.3	39.89	0.4012
1ER-74	246.6	72.56	92.12	31.01	0.7450
1ER-75	438.3	160.5	138.9	46.91	0.9384
1ER-76	195.6	40.57	64.64	23.26	0.5460
1ER-77	270.5	143.1	91.50	47.90	1.8557
1ER-78	215.6	74.17	75.74	27.91	0.8693

APPENDIX D:

Table D.1: Determination of Cadmium concentration in sugarcane samples

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1E-1	1.2225	11.6542	2.7330	0.3020	2.1907	2.5715	2.5746
1E-2	1.3736	8.4645	2.5979	0.2920	1.2583	4.2497	1.8667
1E-3	1.4765	12.7287	2.7985	0.3660	2.3253	4.0483	1.4544
1E-4	0.5406	1.5248	1.8654	0.2120	0.0000	0.0000	1.0567
1E-5	0.6434	1.2655	2.3997	0.1980	0.2634	0.0000	1.2550
1E-6	0.5282	5.0619	2.0642	0.1880	0.2650	0.0000	1.2548
1E-7	0.5179	3.1304	2.1977	0.1820	0.1990	0.0000	1.2648
1E-8	0.6042	4.5285	2.3315	0.2180	0.2663	0.2639	1.3332
1E-9	0.7523	5.4616	2.5310	0.2600	0.9922	0.5990	1.9812
1E-10	0.7536	3.2636	2.0656	0.1900	0.3978	1.7166	1.4655
1E-11	0.5390	2.2639	1.9310	0.2200	0.5290	0.1974	2.1811
1E-12	1.5436	10.7319	3.2641	0.3320	4.5105	2.8602	2.5845
1E-13	0.2516	1.7329	0.1992	0.2620	0.1996	0.0000	0.7287
1E-14	0.0000	13.3857	1.7287	0.3860	1.6567	0.0000	1.3298
1E-15	1.7041	17.0553	2.3844	0.4620	3.4446	0.7961	2.3281
1E-16	0.4737	1.3985	1.6000	0.1380	0.1329	0.0000	1.3922
1E-17	0.4543	1.2655	1.7978	0.1580	0.0000	0.0000	0.7933
1E-18	0.4564	1.9981	1.5983	0.2040	0.1322	0.0000	0.6636
1E-19	0.2157	1.5325	0.2636	0.1760	0.0000	0.0000	1.4608
1E-20	0.4900	2.6631	2.3997	0.1400	0.0000	0.0000	0.8574
1E-21	0.5139	2.4644	2.1982	0.1420	0.0000	0.0000	0.9245
1E-22	0.8899	4.1311	1.4585	0.3680	2.0427	0.0000	1.7144
1E-23	0.9008	3.9963	1.4552	0.4800	3.3856	0.0000	1.7306
1E-24	0.8506	4.2933	1.0592	0.3880	4.4643	0.0000	1.9968

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1HR-25	0.4146	2.9289	0.8653	0.1470	1.0651	1.7642	1.0984
1HR-26	0.4301	2.5883	0.7300	0.1840	1.5264	1.7919	0.9291
1HR-27	0.4452	1.7938	0.9965	0.1380	0.9301	1.5945	0.5979
1HR-28	0.3648	1.8592	0.7304	0.1460	1.1952	1.6600	0.7968
1HR-29	0.4403	2.3099	1.0560	0.1360	1.3200	1.5839	0.9900
1HR-30	0.4352	2.1302	0.8654	0.1680	1.1317	1.5311	0.9985
1HR-31	1.3025	18.8944	3.6585	0.4950	4.0580	2.7621	3.4258
1HR-32	0.7421	18.0803	1.7283	0.2220	2.5259	2.3265	1.5288
1HR-33	1.2371	26.1797	3.1813	0.4560	6.5615	2.3197	2.0546
1HR-34	0.5182	2.3261	0.8641	0.1740	1.0634	1.7611	0.8639
1HR-35	0.5780	2.7290	1.1315	0.1860	0.8653	1.5309	0.8653
1HR-36	0.5752	2.2649	0.9326	0.1700	0.9326	1.4655	0.6661
1HR-37	0.6729	6.6958	0.8618	0.1620	1.2596	1.5911	0.9281
1HR-38	0.4511	4.1844	1.1291	0.1480	1.0627	1.1955	0.9963
1HR-39	0.4053	2.9992	0.1999	0.1480	1.1997	1.5996	0.5332
1HR-40	0.7635	6.0932	1.9311	0.2490	1.9311	2.0643	1.7980
1HR-41	0.5546	3.5938	1.4641	0.1880	2.3293	1.8634	1.5307
1HR-42	0.6131	6.2872	0.7942	0.1960	1.5222	1.7869	1.5222
1HR-43	0.7955	6.4366	1.6589	0.3120	2.4552	1.7253	2.4552
1HR-44	0.8588	5.2987	1.4571	0.2160	2.8481	1.6558	2.1195
1HR-45	0.6016	4.6623	1.2655	0.1840	1.8649	1.3321	1.6651
1HR-46	0.5188	2.9197	0.6636	0.1680	1.5926	2.3225	1.2608
1HR-47	0.6469	4.6333	0.9929	0.1940	1.5224	1.7871	1.3900
1HR-48	0.5003	3.6261	0.9230	0.1680	1.6482	2.1756	1.4504
1HR-49	0.5320	3.5531	0.6580	0.1880	1.1844	1.7765	1.2502
1HR-50	0.5465	3.3156	0.9284	0.1840	2.5199	1.7241	1.3926
1HR-51	0.5821	4.5750	0.7293	0.1980	3.0500	1.7902	0.7293
1ER-52	0.3555	1.4654	0.6289	0.1640	0.5302	0.9593	2.0583
1ER-53	0.2704	0.3322	0.4662	0.1300	0.5923	0.8665	1.9249
1ER-54	0.2693	1.0624	0.5295	0.1380	0.7932	0.8421	2.3778
1ER-55	0.3019	1.8440	0.2662	0.2000	0.9246	0.6045	2.0500

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1ER-56	0.2859	1.3514	0.5994	0.1680	0.5981	0.6587	1.7164
1ER-57	0.2734	0.0662	0.3953	0.1860	0.5941	0.4389	1.4554
1ER-58	1.4697	17.2323	3.0807	0.6690	4.3338	2.9929	2.7276
1ER-59	0.5916	18.2862	1.0602	0.3160	2.5818	0.8950	2.1080
1ER-60	1.7095	27.2655	2.9182	0.8620	5.6024	2.7017	3.9883
1ER-61	0.1946	1.5175	0.0065	0.1420	0.4283	0.1489	1.6640
1ER-62	0.1553	1.3805	0.0303	0.1600	0.3297	0.1433	1.8492
1ER-63	0.1787	1.3158	0.0181	0.1540	0.2641	0.2192	1.3205
1ER-64	0.1738	0.8108	0.0306	0.1560	0.5329	0.1985	1.4575
1ER-65	0.1769	0.9883	0.0122	0.1360	0.7271	0.2362	1.4535
1ER-66	0.2459	1.6317	0.0000	0.1640	0.3988	0.2132	1.6589
1ER-67	0.3389	2.2239	0.4953	0.2190	0.6941	0.4979	2.1585
1ER-68	0.4477	9.2409	0.5748	0.2400	1.3989	1.0302	2.3744
1ER-69	0.3146	1.9233	0.4439	0.2000	1.1255	1.0503	1.5863
1ER-70	0.5174	3.7549	1.0293	0.3120	2.3160	0.6052	1.5936
1ER-71	0.4371	16.0435	0.4870	0.2060	1.3277	0.3990	1.7292
1ER-72	0.3440	8.1590	0.1310	0.1740	0.2000	0.5966	1.6526
1ER-73	0.2489	1.1981	0.1438	0.1480	0.6000	0.6595	0.9967
1ER-74	0.3125	2.2633	0.1976	0.1660	0.5998	0.9963	0.9306
1ER-75	0.2392	1.7278	0.1527	0.1920	0.3953	0.5971	0.5272
1ER-76	0.1802	1.4115	0.1178	0.1240	0.6652	0.4635	1.0586
1ER-77	0.2530	1.9981	1.5983	0.2040	0.1322	0.0000	0.6636
1ER-78	0.2496	0.7280	0.1253	0.1720	0.6616	0.5325	0.9944

Table D.2: Determination of Zinc concentration in sugarcane samples

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1E-1	20.39	104.60	30.78	7.1896	63.13	42.13	70.90
1E-2	19.12	93.98	28.17	4.95	34.43	52.32	61.80
1E-3	19.95	207.3	26.53	5.14	51.22	55.54	68.821
1E-4	7.8150	30.86	15.06	2.7216	22.35	17.39	39.56
1E-5	13.37	26.78	30.15	3.6430	34.17	20.80	58.25
1E-6	11.83	49.79	22.55	3.8818	22.79	24.41	69.73
1E-7	10.32	42.08	21.37	3.2320	30.04	24.09	55.78
1E-8	12.83	60.22	24.90	4.7574	19.77	27.83	59.12
1E-9	10.87	82.33	17.81	2.8366	33.07	31.94	60.36
1E-10	11.24	38.52	16.28	2.8588	36.33	40.14	46.42
1E-11	9.9445	39.62	20.64	2.3864	37.95	25.53	49.70
1E-12	25.13	88.31	31.84	9.8596	57.71	53.74	72.03
1E-13	28.86	37.58	27.52	15.99	21.09	25.78	96.45
1E-14	43.91	363.7	28.64	15.18	43.01	29.84	101.5
1E-15	36.09	130.73	38.99	14.33	70.22	38.81	93.25
1E-16	fail	fail	11.00	2.65	15.81	15.60	49.19
1E-17	fail	fail	11.25	1.4713	8.6138	14.40	39.60
1E-18	fail	fail	10.01	2.2118	13.55	15.00	27.80
1E-19	5.6012	21.52	10.23	2.0350	12.06	18.36	36.45
1E-20	8.8898	27.51	12.67	1.4819	12.66	20.23	31.92
1E-21	8.2055	24.53	14.13	2.7984	13.82	18.60	58.17
1E-22	57.19	131.9	81.07	30.52	109.9	27.28	113.6
1E-23	39.37	63.39	63.79	20.97	115.2	20.66	73.01
1E-24	33.71	112.2	43.53	15.94	90.61	29.80	82.53
1HR-25	fail	fail	fail	1.6154	24.13	20.30	55.08
1HR-26	7.7867	35.84	17.47	2.3530	23.69	21.50	71.34
1HR-27	7.2382	29.62	13.49	1.8127	22.78	18.53	46.50

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1HR-28	9.3300	33.71	31.58	2.4782	52.92	18.85	69.05
1HR-29	8.1125	29.02	20.97	1.8278	27.98	22.30	49.10
1HR-30	8.5114	27.23	21.65	2.4558	36.21	17.50	73.89
1HR-31	41.89	271.9	114.05	15.29	171.6	70.70	282.37
1HR-32	21.21	262.5	37.90	7.0080	151.55	60.82	113.6
1HR-33	fail	401.8	fail	11.47	233.3	76.88	264.4
1HR-34	5.7056	37.08	5.8388	1.1598	29.21	17.44	39.31
1HR-35	9.2551	47.20	9.1532	1.9263	41.66	16.97	48.72
1HR-36	9.7303	42.69	8.8748	1.0893	23.11	21.78	43.83
1HR-37	10.94	108.7	8.4751	1.8907	58.80	17.89	39.57
1HR-38	11.69	48.95	45.89	2.2940	29.75	21.65	51.80
1HR-39	7.7879	38.40	5.9358	1.9183	40.92	20.39	38.25
1HR-40	24.40	121.8	47.77	8.8695	129.52	39.85	119.8
1HR-41	15.31	61.39	31.84	4.6580	104.8	37.86	125.7
1HR-42	15.02	83.44	21.96	4.3984	72.13	24.35	110.2
1HR-43	29.10	59.59	46.86	11.00	156.6	42.46	240.8
1HR-44	30.57	68.16	36.54	7.4968	229.1	28.48	123.2
1HR-45	32.01	58.34	33.38	3.8652	76.26	176.8	105.9
1HR-46	10.51	48.48	22.71	3.2110	67.35	24.61	56.07
1HR-47	13.89	131.7	21.12	3.5440	42.29	27.27	85.05
1HR-48	12.54	108.2	25.02	2.9544	135.15	29.73	69.88
1HR-49	9.7553	38.54	14.52	2.9000	36.84	24.08	53.36
1HR-50	11.34	37.65	25.63	4.0068	57.16	22.01	57.29
1HR-51	11.22	67.86	24.52	2.5426	104.7	21.15	51.31
1ER-52	6.7961	39.26	10.54	0.8591	1.9119	43.99	59.35
1ER-53	7.2796	41.85	13.02	0.5141	1.5217	42.65	85.41
1ER-54	6.4806	35.09	11.46	1.1268	2.0268	44.98	103.1
1ER-55	6.9490	52.64	12.07	1.3282	7.7209	34.88	66.12
1ER-56	4.6012	26.33	8.9491	0.8093	2.0371	33.02	66.08
1ER-57	4.3867	26.90	6.9555	0.8511	1.4280	24.7	36.89
1ER-58	14.48	253.7	6.4638	0.9394	28.01	130.8	159.5

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1ER-59	11.09	243.1	7.1739	1.1292	57.05	91.47	122.9
1ER-60	19.27	386.6	7.9178	1.4057	79.66	130.8	266.99
1ER-61	4.4283	15.27	6.3522	0.5642	0.3995	18.85	33.97
1ER-62	3.6010	16.87	4.7624	0.7490	0.5591	18.48	41.98
1ER-63	4.1299	32.22	4.3613	0.5276	1.2852	18.16	40.13
1ER-64	15.7	14.88	46.36	7.1222	0.0490	13.78	20.97
1ER-65	8.8007	39.42	24.28	3.4931	0.9133	17.29	13.41
1ER-66	18.9207	23.43	55.20	9.6444	0.0000	18.91	14.41
1ER-67	16.71	75.33	46.31	4.4849	22.78	41.10	143.50
1ER-68	17.20	188.12	38.82	3.0616	67.25	63.59	159.8
1ER-69	10.65	62.31	21.05	2.4108	22.45	53.23	166.8
1ER-70	18.00	112.2	28.6	5.5218	101.7	73.66	126.4
1ER-71	15.96	275.1	23.58	2.6442	79.60	52.28	124.9
1ER-72	11.25	128.8	13.31	1.4700	20.60	39.44	94.32
1ER-73	8.0929	47.24	10.08	1.0953	3.9347	33.43	45.45
1ER-74	7.6515	84.96	9.3623	1.1073	1.6856	30.25	36.34
1ER-75	7.8490	50.23	13.42	1.2829	8.7154	29.87	40.69
1ER-76	6.6878	24.87	16.21	1.2367	14.73	24.75	54.07
1ER-77	7.7067	24.46	13.28	1.3446	11.76	31.02	44.62
1ER-78	9.5821	24.20	14.04	1.1519	10.45	38.17	46.62

Table D.3: Ratio of total Cd concentration in sugarcane parts

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1E-1	1.2225	0.0702	0.5077	0.1758	0.1020	0.3086	0.0582
1E-2	1.3736	0.0865	0.4639	0.1671	0.0555	0.5427	0.0579
1E-3	1.4765	0.0976	0.5161	0.2152	0.0648	0.5582	0.0245
1E-4	0.5406	0.0070	0.3742	0.1334	0.0000	0.0000	0.0261
1E-5	0.6434	0.0058	0.4897	0.1145	0.0088	0.0000	0.0247
1E-6	0.5282	0.0210	0.3538	0.1161	0.0053	0.0000	0.0320
1E-7	0.5179	0.0103	0.3414	0.1198	0.0043	0.0000	0.0422
1E-8	0.6042	0.0157	0.3842	0.1348	0.0047	0.0355	0.0293
1E-9	0.7523	0.0208	0.4380	0.1627	0.0268	0.0670	0.0369
1E-10	0.7536	0.0064	0.4076	0.1162	0.0090	0.1832	0.0313
1E-11	0.5390	0.0130	0.2964	0.1420	0.0170	0.0195	0.0511
1E-12	1.5436	0.0216	0.6718	0.1799	0.1832	0.3526	0.1344
1E-13	0.2516	0.0672	0.0000	0.0975	0.0186	0.0000	0.0682
1E-14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1E-15	1.7041	0.4176	0.5630	0.2122	0.2268	0.0762	0.2084
1E-16	0.4737	0.0103	0.3414	0.0757	0.0053	0.0000	0.0411
1E-17	0.4543	0.0099	0.3147	0.0910	0.0000	0.0000	0.0387
1E-18	0.4564	0.0153	0.2809	0.1189	0.0033	0.0000	0.0379
1E-19	0.2157	0.0058	0.0229	0.1286	0.0000	0.0000	0.0584
1E-20	0.4900	0.0135	0.3323	0.0779	0.0000	0.0000	0.0663
1E-21	0.5139	0.0101	0.3943	0.0885	0.0000	0.0000	0.0210
1E-22	0.8899	0.1418	0.3081	0.1304	0.1875	0.0000	0.1220
1E-23	0.9008	0.0709	0.3682	0.2223	0.1499	0.0000	0.0894
1E-24	0.8506	0.0698	0.2704	0.1758	0.2414	0.0000	0.0932
1HR-25	0.4146	0.0189	0.1043	0.1077	0.0300	0.1305	0.0233
1HR-26	0.4301	0.0202	0.0994	0.1340	0.0265	0.1320	0.0179
1HR-27	0.4452	0.0127	0.1472	0.0937	0.0232	0.1495	0.0189
1HR-28	0.3648	0.0092	0.0798	0.1099	0.0239	0.1270	0.0150

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1HR-29	0.4403	0.0194	0.1326	0.0970	0.0450	0.1213	0.0250
1HR-30	0.4352	0.0240	0.1437	0.1174	0.0255	0.1148	0.0098
1HR-31	1.3025	0.0796	0.5536	0.3598	0.0692	0.1867	0.0534
1HR-32	0.7421	0.0910	0.2311	0.1621	0.0532	0.1830	0.0216
1HR-33	1.2371	0.1345	0.4529	0.3344	0.1303	0.1457	0.0392
1HR-34	0.5182	0.0239	0.1257	0.1154	0.0256	0.2071	0.0205
1HR-35	0.5780	0.0573	0.1474	0.1171	0.0413	0.1827	0.0322
1HR-36	0.5752	0.0293	0.1377	0.0950	0.0529	0.2199	0.0405
1HR-37	0.6729	0.1781	0.1178	0.1014	0.0420	0.1987	0.0350
1HR-38	0.4511	0.0381	0.1226	0.1038	0.0368	0.1239	0.0257
1HR-39	0.4053	0.0307	0.0244	0.0972	0.0359	0.1936	0.0235
1HR-40	0.7635	0.0352	0.2708	0.1727	0.0507	0.1754	0.0587
1HR-41	0.5546	0.0240	0.1605	0.1396	0.0414	0.1539	0.0351
1HR-42	0.6131	0.1108	0.1006	0.1334	0.0571	0.1752	0.0361
1HR-43	0.7955	0.0863	0.1879	0.2206	0.0865	0.1563	0.0577
1HR-44	0.8588	0.0814	0.1564	0.1326	0.1154	0.2462	0.1269
1HR-45	0.6016	0.0519	0.1628	0.1234	0.0839	0.1381	0.0415
1HR-46	0.5188	0.0105	0.0625	0.1219	0.0383	0.2512	0.0343
1HR-47	0.6469	0.0420	0.1002	0.1265	0.0430	0.2939	0.0413
1HR-48	0.5003	0.0270	0.0728	0.1269	0.0337	0.1984	0.0415
1HR-49	0.5320	0.0539	0.0718	0.1287	0.0288	0.2046	0.0441
1HR-50	0.5465	0.0135	0.1104	0.1275	0.0478	0.2101	0.0372
1HR-51	0.5821	0.0417	0.0667	0.1355	0.0475	0.2649	0.0260
1ER-52	0.3555	0.0118	0.1177	0.1061	0.0195	0.0558	0.0446
1ER-53	0.2704	0.0023	0.0527	0.0935	0.0133	0.0567	0.0517
1ER-54	0.2693	0.0054	0.0437	0.1034	0.0285	0.0555	0.0328
1ER-55	0.3019	0.0105	0.0453	0.1314	0.0419	0.0381	0.0346
1ER-56	0.2859	0.0083	0.0849	0.1200	0.0179	0.0331	0.0217
1ER-57	0.2734	0.0005	0.0701	0.1255	0.0115	0.0205	0.0452
1ER-58	1.4697	0.1033	0.6061	0.4398	0.1089	0.1381	0.0735
1ER-59	0.5916	0.0510	0.1715	0.2206	0.0593	0.0433	0.0460

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1ER-60	1.7095	0.1511	0.6327	0.5509	0.1562	0.1294	0.0892
1ER-61	0.1946	0.0142	0.0012	0.0879	0.0150	0.0111	0.0652
1ER-62	0.1553	0.0094	fail	0.1027	0.0096	0.0124	0.0212
1ER-63	0.1787	0.0261	0.0034	0.0943	0.0104	0.0175	0.0271
1ER-64	0.1738	0.0085	0.0064	0.0954	0.0250	0.0130	0.0255
1ER-65	0.1769	0.0097	0.0023	0.0873	0.0214	0.0150	0.0413
1ER-66	0.2459	0.0159	0.0000	0.0929	0.0196	0.0200	0.0975
1ER-67	0.3389	0.0211	0.0696	0.1512	0.0224	0.0317	0.0429
1ER-68	0.4477	0.0597	0.0813	0.1703	0.0358	0.0540	0.0466
1ER-69	0.3146	0.0052	0.0667	0.1432	0.0258	0.0510	0.0227
1ER-70	0.5174	0.0243	0.1600	0.2174	0.0533	0.0341	0.0283
1ER-71	0.4371	0.1198	0.0838	0.1379	0.0318	0.0247	0.0391
1ER-72	0.3440	0.1231	0.0244	0.1080	0.0102	0.0377	0.0406
1ER-73	0.2489	0.0073	0.0222	0.0921	0.0171	0.0757	0.0346
1ER-74	0.3125	0.0146	0.0316	0.1022	0.0166	0.1064	0.0411
1ER-75	0.2392	0.0062	0.0241	0.1232	0.0087	0.0539	0.0231
1ER-76	0.1802	0.0043	0.0159	0.0866	0.0116	0.0357	0.0262
1ER-77	0.2530	0.0026	0.0361	0.1104	0.0133	0.0355	0.0549
1ER-78	0.2496	0.0024	0.0196	0.1073	0.0153	0.0555	0.0495

Table D.4: Ratio of total Zn concentration in sugarcane parts

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1E-1	20.39	0.6303	5.7178	4.4506	2.9400	5.0559	1.6035
1E-2	19.12	0.9605	5.0310	3.0139	1.5194	6.6823	1.9154
1E-3	19.95	1.5902	4.8942	3.2188	1.4283	7.6598	1.1605
1E-4	7.8150	0.1408	3.0214	1.8216	0.4510	1.4041	0.9761
1E-5	13.37	0.1231	6.1541	2.2400	1.1427	2.5676	1.1443
1E-6	11.83	0.2065	3.8658	2.5494	0.4568	2.9823	1.7779
1E-7	10.32	0.1380	3.3208	2.2612	0.6455	2.0945	1.8619
1E-8	12.83	0.2087	4.1035	3.1286	0.3467	3.7460	1.3014
1E-9	10.87	0.3139	3.0825	1.8880	0.8938	3.5756	1.1239
1E-10	11.24	0.0759	3.2137	1.8584	0.8210	4.2845	0.9911
1E-11	9.94	0.2268	3.1692	1.6376	1.2187	2.5268	1.1653
1E-12	25.13	0.1781	6.5548	5.6817	2.3439	6.6262	3.7454
1E-13	28.85	1.4573	4.9180	6.3278	1.9678	5.1544	9.0328
1E-14	43.91	11.24	6.5459	5.8235	4.4972	4.0941	11.70
1E-15	36.09	3.2009	9.2083	7.0002	4.6226	3.7162	8.3463
1E-16	fail	fail	2.3477	1.5468	0.6281	1.9806	1.4521
1E-17	fail	fail	1.9704	0.9011	0.3702	1.6251	1.9333
1E-18	fail	fail	1.7587	1.3709	0.3414	1.7171	1.5888
1E-19	5.6012	0.0819	0.8879	1.5815	0.1967	1.3960	1.4570
1E-20	8.8898	0.1397	1.7555	0.8773	0.2280	3.4226	2.4667
1E-21	8.2055	0.1007	2.5356	1.8549	0.1198	2.2756	1.3189
1E-22	57.19	4.5307	17.12	11.50	10.09	5.8574	8.0871
1E-23	39.37	1.1251	16.14	10.32	5.1012	2.9085	3.7730
1E-24	33.71	1.8247	11.11	7.6821	4.8995	4.3493	3.8503
1HR-25	fail	fail	fail	1.2111	0.6790	1.5013	1.1683
1HR-26	7.7867	0.2804	2.3781	1.7546	0.4112	1.5844	1.3779
1HR-27	7.2382	0.2093	1.9931	1.2596	0.5694	1.7381	1.4688
1HR-28	9.3300	0.1668	3.4494	1.9093	1.0595	1.4432	1.3017
1HR-29	8.1125	0.2442	2.6332	1.3346	0.9530	1.7086	1.2391

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1HR-30	8.5114	0.3070	3.5965	1.7569	0.8147	1.3124	0.7240
1HR-31	41.89	1.1456	17.25	11.38	2.9292	4.7798	4.4055
1HR-32	21.21	1.3222	5.0692	5.2375	3.1894	4.7845	1.6087
1HR-33	fail	2.0638	fail	8.6110	4.6345	4.8298	5.0512
1HR-34	5.7056	0.3814	0.8492	0.7873	0.7034	2.0517	0.9325
1HR-35	9.2551	0.9913	1.1925	1.2413	1.9897	2.0253	1.8151
1HR-36	9.7303	0.5515	1.3101	0.6229	1.3121	3.2679	2.6658
1HR-37	10.94	2.8929	1.1583	1.2116	1.9588	2.2353	1.4920
1HR-38	11.69	0.4464	4.9852	1.6474	1.0309	2.2448	1.3360
1HR-39	7.7879	0.3934	0.7247	1.2903	1.2240	2.4678	1.6876
1HR-40	24.40	0.7038	6.6988	6.2985	3.4007	3.3869	3.9131
1HR-41	15.31	0.4108	3.4905	3.5419	1.8613	3.1278	2.8864
1HR-42	15.02	1.4705	2.7814	3.0634	2.7048	2.3880	2.6133
1HR-43	29.10	0.7991	5.3087	7.9635	5.5203	3.8482	5.6606
1HR-44	30.57	1.0466	3.9222	4.7097	9.2854	4.2352	7.3735
1HR-45	32.01	0.6494	4.2942	2.6540	3.4311	18.33	2.6405
1HR-46	10.51	0.1750	2.1391	2.3851	1.6210	2.6626	1.5266
1HR-47	13.89	1.1947	2.1321	2.3660	1.1943	4.4845	2.5261
1HR-48	12.54	0.8064	1.9736	2.2850	2.7651	2.7111	2.0000
1HR-49	9.7553	0.5851	1.5854	2.0327	0.8957	2.7738	1.8827
1HR-50	11.34	0.1531	3.0482	2.8428	1.0845	2.6825	1.5317
1HR-51	11.22	0.6179	2.2416	1.7808	1.6316	3.1295	1.8260
1ER-52	6.7961	0.3150	1.9735	0.5912	0.0703	2.5606	1.2855
1ER-53	7.2796	0.2906	1.4725	0.3934	0.0343	2.7928	2.2961
1ER-54	6.4806	0.1777	0.9464	0.8978	0.0727	2.9644	1.4214
1ER-55	6.9490	0.2986	2.0568	0.9280	0.3502	2.1995	1.1159
1ER-56	4.6012	0.1623	1.2682	0.6145	0.0609	1.6604	0.8348
1ER-57	4.3867	0.2146	1.2331	0.6108	0.0277	1.1535	1.1469
1ER-58	14.48	1.5217	1.2717	0.6567	0.7040	6.0363	4.2965
1ER-59	11.09	0.6775	1.1603	0.8382	1.3106	4.4225	2.6832
1ER-60	19.27	2.1424	1.7167	0.9552	2.2207	6.2672	5.9741

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1ER-61	4.4283	0.1428	1.1664	0.3715	0.0140	1.4014	1.3322
1ER-62	3.6010	0.1145	0.8724	0.5113	0.0163	1.6052	0.4814
1ER-63	4.1299	0.6390	0.8275	0.3435	0.0504	1.4466	0.8229
1ER-64	15.74	0.1558	9.6852	4.6336	0.0023	0.9060	0.3668
1ER-65	8.8007	0.3875	4.5258	2.3847	0.0268	1.0951	0.3808
1ER-66	18.92	0.2284	10.25	5.8116	0.0000	1.7748	0.8464
1ER-67	16.71	0.7154	6.5078	3.2932	0.7342	2.6151	2.8500
1ER-68	17.20	1.2149	5.4887	2.3100	1.7206	3.3346	3.1390
1ER-69	10.65	0.1697	3.1644	1.8351	0.5147	2.5852	2.3894
1ER-70	18.00	0.7264	4.4504	4.0917	2.3415	4.1490	2.2452
1ER-71	15.96	2.0544	4.0599	1.8826	1.9069	3.2371	2.8216
1ER-72	11.25	1.9431	2.4783	0.9701	1.0526	2.4955	2.3160
1ER-73	8.0929	0.2886	1.5541	0.7250	0.1119	3.8368	1.5765
1ER-74	7.6515	0.5462	1.4984	0.7252	0.0467	3.2313	1.6036
1ER-75	7.8490	0.1795	2.1225	0.8751	0.1929	2.6969	1.7820
1ER-76	6.6878	0.0750	2.1935	0.9183	0.2559	1.9046	1.3404
1ER-77	7.7067	0.0808	2.0484	0.9399	0.1975	2.7622	1.6779
1ER-78	9.5821	0.0795	2.1950	0.7640	0.2418	3.9805	2.3213

Table D.5: Accumulated amount of Cd (mg) in each parts of sugarcane

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)
1E-1	0.8217	0.0472	0.3412	0.1182	0.0686	0.2074	0.0391
1E-2	0.8265	0.0521	0.2791	0.1005	0.0334	0.3266	0.0348
1E-3	1.4536	0.0961	0.5081	0.2119	0.0638	0.5496	0.0241
1E-4	0.4327	0.0056	0.2995	0.1068	0.0000	0.0000	0.0209
1E-5	0.3079	0.0028	0.2343	0.0548	0.0042	0.0000	0.0118
1E-6	0.3439	0.0137	0.2304	0.0756	0.0035	0.0000	0.0208
1E-7	0.5291	0.0105	0.3488	0.1223	0.0044	0.0000	0.0431
1E-8	0.5669	0.0147	0.3604	0.1265	0.0044	0.0333	0.0275
1E-9	0.7697	0.0213	0.4481	0.1665	0.0274	0.0686	0.0377
1E-10	0.5737	0.0049	0.3102	0.0884	0.0068	0.1395	0.0238
1E-11	0.3483	0.0084	0.1916	0.0918	0.0110	0.0126	0.0330
1E-12	0.5359	0.0075	0.2332	0.0625	0.0636	0.1224	0.0467
1E-13	0.0344	0.0092	Fail	0.0133	0.0025	0.0000	0.0093
1E-14	Fail	Fail	Fail	Fail	Fail	Fail	Fail
1E-15	0.3132	0.0767	0.1035	0.0390	0.0417	0.0140	0.0383
1E-16	0.2391	0.0052	0.1723	0.0382	0.0027	0.0000	0.0207
1E-17	0.1866	0.0040	0.1293	0.0374	0.0000	0.0000	0.0159
1E-18	0.2763	0.0093	0.1701	0.0720	0.0020	0.0000	0.0230
1E-19	0.2494	0.0067	0.0264	0.1487	0.0000	0.0000	0.0675
1E-20	0.4151	0.0115	0.2815	0.0660	0.0000	0.0000	0.0561
1E-21	0.5009	0.0099	0.3844	0.0863	0.0000	0.0000	0.0204
1E-22	0.1944	0.0310	0.0673	0.0285	0.0410	0.0000	0.0267
1E-23	0.2868	0.0226	0.1172	0.0708	0.0477	0.0000	0.0285
1E-24	0.1778	0.0146	0.0565	0.0367	0.0504	0.0000	0.0195
1HR-25	0.2991	0.0136	0.0752	0.0777	0.0216	0.0941	0.0168
1HR-26	0.4399	0.0207	0.1016	0.1371	0.0271	0.1350	0.0184
1HR-27	0.3486	0.0099	0.1153	0.0734	0.0182	0.1171	0.0148
1HR-28	0.3219	0.0081	0.0704	0.0970	0.0211	0.1121	0.0133
1HR-29	0.3219	0.0142	0.0969	0.0709	0.0329	0.0887	0.0183

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)
1HR-30	0.5329	0.0294	0.1760	0.1438	0.0312	0.1406	0.0120
1HR-31	1.5153	0.0926	0.6441	0.4186	0.0806	0.2172	0.0622
1HR-32	0.7000	0.0859	0.2180	0.1529	0.0501	0.1726	0.0204
1HR-33	1.4572	0.1584	0.5335	0.3939	0.1535	0.1717	0.0462
1HR-34	0.2141	0.0099	0.0519	0.0477	0.0106	0.0856	0.0085
1HR-35	0.2560	0.0254	0.0653	0.0519	0.0183	0.0809	0.0143
1HR-36	0.1915	0.0097	0.0458	0.0316	0.0176	0.0732	0.0135
1HR-37	0.2454	0.0649	0.0430	0.0370	0.0153	0.0725	0.0128
1HR-38	0.1732	0.0146	0.0471	0.0399	0.0141	0.0476	0.0099
1HR-39	0.1484	0.0112	0.0089	0.0356	0.0131	0.0709	0.0086
1HR-40	0.4362	0.0201	0.1547	0.0987	0.0290	0.1002	0.0335
1HR-41	0.4435	0.0192	0.1283	0.1117	0.0331	0.1231	0.0281
1HR-42	0.3270	0.0591	0.0536	0.0711	0.0304	0.0935	0.0193
1HR-43	0.5754	0.0624	0.1359	0.1596	0.0626	0.1131	0.0417
1HR-44	0.2014	0.0191	0.0367	0.0311	0.0271	0.0577	0.0297
1HR-45	0.3270	0.0282	0.0885	0.0671	0.0456	0.0751	0.0226
1HR-46	0.1724	0.0035	0.0208	0.0405	0.0127	0.0835	0.0114
1HR-47	0.2211	0.0144	0.0343	0.0432	0.0147	0.1004	0.0141
1HR-48	0.2115	0.0114	0.0308	0.0537	0.0143	0.0839	0.0176
1HR-49	0.2593	0.0263	0.0350	0.0628	0.0140	0.0998	0.0215
1HR-50	0.2218	0.0055	0.0448	0.0518	0.0194	0.0853	0.0151
1HR-51	0.1620	0.0116	0.0185	0.0377	0.0132	0.0737	0.0072
1ER-52	0.5647	0.0187	0.1870	0.1686	0.0310	0.0887	0.0708
1ER-53	0.2504	0.0021	0.0488	0.0866	0.0124	0.0526	0.0479
1ER-54	0.3387	0.0068	0.0550	0.1301	0.0358	0.0698	0.0413
1ER-55	0.3971	0.0138	0.0597	0.1729	0.0552	0.0501	0.0455
1ER-56	0.3802	0.0111	0.1129	0.1595	0.0238	0.0440	0.0288
1ER-57	0.4590	0.0009	0.1177	0.2108	0.0193	0.0343	0.0760
1ER-58	2.8369	0.1994	1.1699	0.8490	0.2102	0.2665	0.1418
1ER-59	1.0346	0.0891	0.2999	0.3858	0.1037	0.0757	0.0804
1ER-60	2.7962	0.2471	1.0349	0.9010	0.2555	0.2117	0.1460

Samples (Soil)	Sugarcane Extraction						
	Total Cd in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)
1ER-61	0.2033	0.0148	0.0012	0.0918	0.0157	0.0116	0.0681
1ER-62	0.1503	0.0091	Fail	0.0994	0.0093	0.0120	0.0205
1ER-63	0.1564	0.0228	0.0030	0.0825	0.0091	0.0153	0.0237
1ER-64	0.1695	0.0083	0.0062	0.0931	0.0244	0.0127	0.0249
1ER-65	0.1854	0.0102	0.0024	0.0915	0.0224	0.0157	0.0432
1ER-66	0.1716	0.0111	0.0000	0.0649	0.0137	0.0140	0.0680
1ER-67	0.3728	0.0232	0.0766	0.1664	0.0246	0.0349	0.0472
1ER-68	0.5644	0.0752	0.1025	0.2147	0.0451	0.0681	0.0588
1ER-69	0.6404	0.0107	0.1358	0.2914	0.0525	0.1038	0.0462
1ER-70	0.8521	0.0400	0.2635	0.3581	0.0878	0.0561	0.0466
1ER-71	0.3358	0.0920	0.0644	0.1059	0.0244	0.0190	0.0300
1ER-72	0.2053	0.0734	0.0146	0.0644	0.0061	0.0225	0.0242
1ER-73	0.2663	0.0078	0.0237	0.0986	0.0183	0.0809	0.0370
1ER-74	0.3286	0.0153	0.0333	0.1075	0.0175	0.1119	0.0432
1ER-75	0.3037	0.0078	0.0306	0.1564	0.0111	0.0684	0.0293
1ER-76	0.1084	0.0026	0.0096	0.0521	0.0069	0.0214	0.0158
1ER-77	0.3266	0.0034	0.0467	0.1426	0.0172	0.0459	0.0709
1ER-78	0.2369	0.0023	0.0186	0.1018	0.0145	0.0527	0.0470

Table D.6: Accumulated amount of Zn (mg) in each parts of sugarcane

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)
1E-1	13.71	0.4236	3.8430	2.9912	1.9760	3.3981	1.0777
1E-2	11.50	0.5780	3.0274	1.8136	0.9143	4.0211	1.1526
1E-3	19.64	1.5655	4.8181	3.1687	1.4061	7.5407	1.1424
1E-4	6.2555	0.1127	2.4185	1.4581	0.3610	1.1239	0.7813
1E-5	6.3991	0.0589	2.9451	1.0720	0.5468	1.2287	0.5476
1E-6	7.7088	0.1344	2.5172	1.6601	0.2975	1.9419	1.1577
1E-7	10.54	0.1410	3.3929	2.3102	0.6595	2.1399	1.9023
1E-8	12.04	0.1957	3.8497	2.9351	0.3252	3.5143	1.2209
1E-9	11.12	0.3211	3.1537	1.9316	0.9145	3.6581	1.1499
1E-10	8.5599	0.0578	2.4465	1.4147	0.6250	3.2616	0.7545
1E-11	6.4261	0.1466	2.0479	1.0582	0.7875	1.6328	0.7530
1E-12	8.7239	0.0618	2.2755	1.9724	0.8137	2.3003	1.3002
1E-13	3.9442	0.1992	0.6722	0.8649	0.2689	0.7045	1.2346
1E-14	5.2182	1.3366	0.7778	0.6920	0.5344	0.4865	1.3910
1E-15	6.6342	0.5883	1.6925	1.2866	0.8496	0.6830	1.5340
1E-16	fail	fail	1.1850	0.7807	0.3170	0.9997	0.7329
1E-17	fail	fail	0.8092	0.3701	0.1520	0.6674	0.7940
1E-18	fail	fail	1.0649	0.8301	0.2067	1.0397	0.9620
1E-19	6.4744	0.0947	1.0263	1.8280	0.2274	1.6137	1.6842
1E-20	7.5296	0.1183	1.4869	0.7430	0.1931	2.8990	2.0893
1E-21	7.9987	0.0981	2.4717	1.8082	0.1168	2.2182	1.2857
1E-22	12.49	0.9897	3.7418	2.5123	2.2050	1.2795	1.7666
1E-23	12.53	0.3582	5.1385	3.2881	1.6240	0.9259	1.2011
1E-24	7.0472	0.3814	2.3226	1.6056	1.0240	0.9090	0.8047
1HR-25	fail	fail	fail	0.8737	0.4898	1.0831	0.8428
1HR-26	7.9627	0.2868	2.4318	1.7943	0.4205	1.6202	1.4090
1HR-27	5.6685	0.1639	1.5609	0.9864	0.4459	1.3611	1.1502
1HR-28	8.2331	0.1472	3.0439	1.6848	0.9349	1.2735	1.1486
1HR-29	5.9315	0.1785	1.9253	0.9758	0.6968	1.2492	0.9059

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)
1HR-30	10.42	0.3759	4.4044	2.1515	0.9977	1.6072	0.8867
1HR-31	48.74	1.3327	20.08	13.2392	3.4077	5.5606	5.1251
1HR-32	20.01	1.2472	4.7815	4.9403	3.0084	4.5130	1.5174
1HR-33	fail	2.4310	fail	10.14	5.4592	5.6893	5.9501
1HR-34	2.3575	0.1576	0.3509	0.3253	0.2906	0.8477	0.3853
1HR-35	4.0991	0.4390	0.5281	0.5498	0.8813	0.8970	0.8039
1HR-36	3.2397	0.1836	0.4362	0.2074	0.4369	1.0880	0.8876
1HR-37	3.9936	1.0552	0.4225	0.4419	0.7145	0.8153	0.5442
1HR-38	4.4880	0.1714	1.9138	0.6325	0.3957	0.8618	0.5129
1HR-39	2.8512	0.1440	0.2653	0.4724	0.4481	0.9035	0.6178
1HR-40	13.94	0.4021	3.8270	3.5984	1.9428	1.9349	2.2356
1HR-41	12.25	0.3285	2.7912	2.8323	1.4884	2.5012	2.3081
1HR-42	8.0124	0.7844	1.4836	1.6340	1.4428	1.2738	1.3939
1HR-43	21.05	0.5781	3.8403	5.7608	3.9934	2.7838	4.0949
1HR-44	7.1683	0.2454	0.9196	1.1043	2.1771	0.9930	1.7288
1HR-45	17.39	0.3529	2.3337	1.4423	1.8646	9.9646	1.4350
1HR-46	3.4933	0.0582	0.7110	0.7928	0.5388	0.8850	0.5074
1HR-47	4.7496	0.4083	0.7286	0.8086	0.4082	1.5326	0.8633
1HR-48	5.3024	0.3409	0.8344	0.9661	1.1691	1.1462	0.8456
1HR-49	4.7557	0.2852	0.7729	0.9909	0.4366	1.3522	0.9178
1HR-50	4.6035	0.0621	1.2371	1.1538	0.4401	1.0887	0.6216
1HR-51	3.1238	0.1719	0.6237	0.4955	0.4540	0.8707	0.5081
1ER-52	10.79	0.5004	3.1348	0.9391	0.1117	4.0673	2.0418
1ER-53	6.7426	0.2692	1.3638	0.3644	0.0317	2.5868	2.1267
1ER-54	8.1521	0.2236	1.1905	1.1294	0.0915	3.7290	1.7881
1ER-55	9.1416	0.3929	2.7057	1.2208	0.4607	2.8935	1.4680
1ER-56	6.1186	0.2159	1.6865	0.8172	0.0810	2.2080	1.1102
1ER-57	7.3661	0.3604	2.0706	1.0257	0.0465	1.9370	1.9259
1ER-58	27.96	2.9372	2.4546	1.2676	1.3588	11.6517	8.2935
1ER-59	19.39	1.1848	2.0291	1.4659	2.2920	7.7341	4.6923
1ER-60	31.53	3.5043	2.8081	1.5624	3.6325	10.25	9.7718

Samples (Soil)	Sugarcane Extraction						
	Total Zn in sugarcane	Root	Bagasse	Juice	Under- ground	Leave	Top
	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)	(mg)
1ER-61	4.6255	0.1491	1.2184	0.3881	0.0146	1.4638	1.3915
1ER-62	3.4857	0.1108	0.8445	0.4949	0.0157	1.5538	0.4660
1ER-63	3.6154	0.5594	0.7244	0.3007	0.0441	1.2664	0.7203
1ER-64	15.35	0.1519	9.4451	4.5187	0.0022	0.8836	0.3577
1ER-65	9.2218	0.4060	4.7424	2.4988	0.0281	1.1475	0.3991
1ER-66	13.20	0.1594	7.1601	4.0560	0.0000	1.2386	0.5907
1ER-67	18.39	0.7870	7.1599	3.6231	0.8078	2.8771	3.1355
1ER-68	21.69	1.5316	6.9193	2.9120	2.1691	4.2037	3.9572
1ER-69	21.69	0.3454	6.4410	3.7352	1.0476	5.2620	4.8634
1ER-70	29.64	1.1963	7.3290	6.7383	3.8560	6.8326	3.6974
1ER-71	12.26	1.5780	3.1184	1.4460	1.4646	2.4864	2.1672
1ER-72	6.7160	1.1594	1.4787	0.5788	0.6281	1.4890	1.3819
1ER-73	8.6579	0.3088	1.6626	0.7756	0.1197	4.1046	1.6865
1ER-74	8.0459	0.5744	1.5757	0.7625	0.0491	3.3979	1.6863
1ER-75	9.9657	0.2279	2.6949	1.1111	0.2449	3.4242	2.2626
1ER-76	4.0204	0.0451	1.3186	0.5521	0.1539	1.1450	0.8058
1ER-77	9.9509	0.1044	2.6449	1.2136	0.2550	3.5665	2.1664
1ER-78	9.0940	0.0754	2.0832	0.7251	0.2295	3.7777	2.2031

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