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Residues of Organochlorine Pesticides in Irrigated Sierozem-Meadow Soils around Buried Chemicals Stock

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Electronic Supplementary Material (ESM)

Table S1. Average data on the climate in Mirzaabad district of Syrdarya region (data from two meteorological stations, 2010)

Parameters	Average for months												Average annual
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
Syrdarya meteostation													
Air temperature (°C)	−1.8	0.9	7.7	15.1	21	25.4	26.7	24.2	18.7	12.4	5.1	0.1	12.9
Precipitation (mm)	41	40	59	50	27	6	2	1	1	24	33	40	324 [†]
Relative humidity (%)	82	79	74	67	56	48	50	55	57	64	75	82	66
Soil temperature (°C)	−2	1	9	18	26	33	35	31	23	14	5	0.4	16
Yangyer meteostation													
Air temperature (°C)	−0.2	2.7	8.6	16	22	27.3	29.5	27.4	21.7	14.8	7.4	2.1	14.9
Precipitation (mm)	37	42	63	59	34	9	3	1	3	24	32	33	340 [†]
Relative humidity (%)	68	69	67	61	48	33	30	31	35	48	62	69	52
Soil temperature (°C)	0.1	3	10	18	26	33	36	33	25	16	7	2	18

[†]Total annual value

Table S2. Physicochemical properties of topsoil samples (0–30 cm)

Sample	pH _{KCl}	pH _{H₂O}	Humus (%)	Humus quality	CEC (mmol/100g)	Carbonate (%)
S1	7.96	8.94	0.63	3.49	12.5	14.0
S2	7.48	8.23	1.29	4.52	22.0	14.0
S3	7.82	8.84	0.28	2.99	17.0	12.5
S4	7.22	8.41	0.52	3.03	18.7	12.2
S5	8.00	8.84	0.38	2.37	7.75	12.0
S6	7.84	8.51	0.61	1.76	13.5	5.50
S7	7.50	8.64	0.55	4.63	9.50	6.00
S8	7.97	8.64	0.53	3.74	14.2	10.6
Mean	7.72	8.63	0.60	3.32	14.39	10.85
SD	0.29	0.24	0.30	0.99	4.72	3.34
Minimum	7.22	8.23	0.28	1.76	7.75	5.50
Maximum	8.00	8.94	1.29	4.63	22.0	14.0
Range	7.22–8.0	8.23–8.94	0.28–1.29	1.76–4.63	7.75–22	5.5–14.0

CEC – cation exchange capacity; SD – standard deviation

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Table S3. Concentrations of HCHs in soil profiles (in µg/kg)

Samples	Depth (cm)	α-HCH	β-HCH	δ-HCH	γ-HCH	Sum HCH
SP1	0–10	ND	ND	ND	ND	ND
	10–50	ND	ND	ND	ND	ND
	50–90	ND	ND	ND	ND	ND
	90–100	ND	ND	ND	ND	ND
	100–115	ND	ND	ND	ND	ND
	115–125	ND	ND	ND	ND	ND
SP2	0–10	ND	ND	ND	ND	ND
	10–30	ND	ND	ND	ND	ND
	30–60	ND	ND	ND	ND	ND
	60–90	ND	ND	ND	ND	ND
	90–120	ND	ND	ND	ND	ND
SP3	0–30	ND	59.228	ND	ND	59.228
	30–60	ND	ND	ND	ND	ND
	60–90	ND	ND	ND	ND	ND
	90–115	ND	ND	ND	ND	ND

ND – not detected

Table S4. Concentrations of DDTs in soil profiles (in µg/kg)

Samples	Depth (cm)	<i>o,p'</i> -DDD	<i>o,p'</i> -DDE	<i>o,p'</i> -DDT	<i>p,p'</i> -DDE	<i>p,p'</i> -DDD	<i>p,p'</i> -DDT	Sum of DDTs
SP1	0–10	17.41	7.76	159.63	208.19	150.14	ND	543.14
	10–50	4.84	1.27	81.87	29.69	94.55	ND	212.22
	50–90	ND	ND	ND	2.42	4.28	ND	6.70
	90–100	6.24	ND	22.95	8.39	28.31	ND	65.90
	100–115	ND	ND	19.63	6.59	42.73	ND	68.95
	115–125	ND	ND	ND	1.06	4.05	ND	5.11
SP2	0–10	ND	ND	ND	0.95	ND	ND	0.95
	10–30	ND	ND	ND	ND	ND	ND	ND
	30–60	ND	ND	ND	ND	ND	ND	ND
	60–90	ND	ND	ND	ND	ND	ND	ND
	90–120	ND	ND	ND	0.20	ND	ND	0.20
SP3	0–30	ND	ND	ND	ND	ND	ND	ND
	30–60	ND	ND	ND	ND	ND	ND	ND
	60–90	ND	ND	ND	ND	ND	ND	ND
	90–115	ND	ND	ND	ND	ND	ND	ND

ND – not detected

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Table S5. Concentrations of other organochlorine pesticides in soil profiles (in µg/kg)

Samples	Depth (cm)	aldrin	dieldrin	endrin	chlorpyrifos	α-endosulfan	β-endosulfan
SP1	0–10	ND	40.56	ND	2.75	ND	ND
	10–50	ND	12.08	ND	2.75	ND	ND
	50–90	ND	2.17	ND	ND	ND	ND
	90–100	ND	11.24	10.14	2.48	ND	ND
	100–115	ND	10.62	ND	2.75	ND	ND
	115–125	ND	2.39	ND	ND	ND	ND
SP2	0–10	ND	ND	ND	ND	ND	ND
	10–30	ND	ND	ND	ND	ND	ND
	30–60	ND	ND	ND	ND	ND	ND
	60–90	ND	ND	10.41	ND	ND	ND
	90–120	ND	ND	ND	3.39	ND	ND
SP3	0–30	ND	ND	ND	ND	ND	ND
	30–60	ND	ND	ND	4.48	ND	ND
	60–90	ND	ND	ND	ND	ND	ND
	90–115	ND	ND	ND	ND	ND	ND

ND – not detected

Table S6. Quantification limits of monitored organochlorine pesticides

Compounds	LOQ (mg/kg)	Compounds	LOQ (mg/kg)
acenaften	0.01	alachlor	0.01
acenaftilen	0.01	aldrin	0.01
antracen	0.01	β-HCH	0.05
benzo[a]antracen	0.01	chlorpyrifos	0.01
benzo[a]pyren	0.01	cis_heptachloepoxid	0.01
benzo[b]fluoranthen	0.01	γ-HCH	0.05
benzo[ghi]perylene	0.01	δ-HCH	0.05
benzo[k]fluoranten	0.01	heptachlor	0.05
dibenzo[ah]antracen	0.01	hexachlorbenzen	0.01
fenantren	0.01	hexachlorbutadien	0.01
fluoranthen	0.01	isodrin	0.01
fluoren	0.01	<i>o,p'</i> -DDE	0.01
chrysen	0.01	dieldrin	0.05
indeno[123cd]pyren	0.01	<i>p,p'</i> -DDE	0.01
naftalen	0.01	<i>p,p'</i> -DDT	0.01
pyren	0.01	DDD	0.01
PCB101	0.01	endosulfan ii	0.05
PCB118	0.01	<i>o,p'</i> -DDT	0.01
PCB138	0.01	metoxychlor	0.01
PCB153	0.01	pentachlorbenzen	0.05
PCB180	0.01	tetrachlorbenzen	0.01
PCB28	0.01	trans_heptachloepoxid	0.01
PCB52	0.01	trifuralin	0.01
α HCH	0.01		

LOQ – limits of quantification