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Toxicity evaluation of dioxin-contaminated animal-origin foods from an Indian industrial zone in male Wistar rats

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Supplementary data

Suppl. Table 1 — PCDD/Fs and dL-PCBs congener concentration in foraging chicken egg samples														
Foraging chicken egg samples: Group 1														
Compounds	TEF	Upper bound concentration (pg/g fat)												
		E1	E2	E3(1)	E3(2)	E3(3)	E4	E5	E6	E7	E8	E9	E10	E11
2378-TCDD	1	1	0.58	3.43	1.46	3.84	1.03	0.04	0.04	1.65	1.01	0.04	0.04	0.04
12378-PeCDD	1	1.69	1.19	9.73	8.75	0.04	1.49	2.5	4.02	0.04	10.63	0.04	1.86	1.27
123478-HxCDD	0.1	0.04	0.04	6.28	7.25	5.49	0.04	0.53	0.88	8.21	0.04	0.04	0.04	0.04
123678-HxCDD	0.1	0.03	1.7	13.05	14.92	10.67	1.66	1.72	1.94	11.95	7.26	5.88	2.88	4.26
123789-HxCDD	0.1	0.04	1.02	8.98	9.80	11.91	1.91	0.07	0.59	13.31	0.04	0.04	0.04	0.04
1234678-HpCDD	0.01	5.35	11.07	44.65	35.27	42.88	9.17	6.11	7.65	237.03	13.49	5.48	64.76	17.79
OCDD	0.0003	18.72	33.67	84.83	60.66	94.45	41.53	17.24	22.99	121.12	74.81	66.69	186.63	41.28
2378-TCDF	0.1	2.34	5.34	31.52	37.66	14.19	2.46	2.69	3.99	46.75	6.91	4.91	3.14	3.26
12378-PeCDF	0.03	0.67	3.05	15.62	20.67	13.68	1.68	4.3	5.73	20.66	10.13	8.73	3.01	1.53
23478-PeCDF	0.3	1.28	3.65	28.68	37.19	25.46	1.95	1.18	2.17	0.1	10.82	8.1	5.45	4.03

123478-HxCDF	0.1	0.03	2.95	25.12	28.37	15.89	1.17	3.43	4.51	0.03	10.27	8.3	5.08	0.03
123678-HxCDF	0.1	0.04	1.87	17.30	20.45	13.85	1.09	2.99	3.95	34.17	9.94	6.48	3.83	3.29
234678-HxCDF	0.1	1.84	2.56	6.65	13.23	6.55	0.89	1.08	1.14	41.32	8.52	0.03	3.14	3.83
123789-HxCDF	0.1	0.03	0.03	0.03	7.65	0.03	0.3	0.03	2.54	24.01	0.03	0.03	0.03	0.03
1234678-HpCDF	0.01	0.04	2.67	26.28	37.71	14.91	2.15	2.24	4.1	65.59	22.45	16.44	3.69	3.94
1234789-HpCDF	0.01	0.03	0.78	2.80	4.92	0.03	1.46	2.41	3.55	43.02	8.62	0.03	0.03	0.03
OCDF	0.0001	6.15	0.92	7.70	10.82	7.26	1.59	2.14	3.91	236.14	53.56	36.38	0.44	0.02
PCB 81	0.0003	9.88	4.07	19.01	18.63	16.41	8.1	12.42	10.77	20.15	17.55	12.33	4.22	5.39
PCB 77	0.0001	14.82	9.3	34.17	25.31	33.84	9.48	56.01	18.72	52.2	35.12	28.58	26.99	22.65
PCB 126	0.1	2.97	3.83	15.76	13.41	21.11	4.58	8.12	2.52	49.63	15.61	10.17	5.64	5.69
PCB 169	0.03	2.59	2.45	5.81	4.94	4.57	4.21	8.15	8.39	19.39	16.86	11.61	1.19	0.83
PCB 123	0.00003	5.75	21.87	31.56	62.70	67.43	6.36	3.74	14.69	42.93	40.48	36.09	26.89	26.45
PCB 118	0.00003	45.4	154.71	200.11	184.85	196.95	61.23	29.22	123.99	302.9	309.33	295.03	340.44	188.76
PCB 114	0.00003	4.3	11.28	15.92	12.16	14.08	9.5	1.6	8.59	18.13	10.43	9.69	12.02	12.52
PCB 105	0.00003	25.56	67.6	107.73	93.52	113.65	26.59	15.78	64.07	145.9	159.06	215.46	176.84	106.09
PCB 167	0.00003	4.63	49.39	45.38	43.61	47.65	12.78	12.68	27.9	82.42	82.76	59.26	77.62	45.41
PCB 156	0.00003	2.46	31.82	33.34	29.18	33.57	9.01	2.92	14.96	50.18	48.54	31.07	57.79	26.22
PCB 157	0.00003	1.16	12.88	13.06	11.23	12.40	3.31	3.59	7.77	25.65	19.76	16.07	13.67	10.92
PCB 189	0.00003	0.84	12.64	11.28	8.20	8.54	1.67	3.37	5.3	23.02	14.72	10.71	7.81	12.24
∑PCDD/Fs & dl-PCBs (pgTEQ/g fat)		3.98	5.13	35.7	38.2	22.7	4.84	5.45	7.51	29.46	22.07	6.98	6.81	4.88
Average PCDD/Fs &dl-PCBs (pgTEQ/g fat)														14.90

Suppl. Table 2 — PCDD/Fs and dL-PCBs congener concentration in milk samples																	
Milk samples: Group 2																	
Compounds	TEF	Upper bound concentration (pg/g fat)															
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17
2378-TCDD	1	0.04	1.45	0.04	1.32	0.04	0.04	0.04	0.04	1.11	0.68	1.59	0.98	2.37	2.19	0.66	0.04	0.04
12378-PeCDD	1	1.45	2.05	0.42	0.42	0.04	0.89	0.04	1.15	0.04	2.31	4.86	5.64	6.88	4.12	3.01	2.48	1.56
123478-HxCDD	0.1	0.04	1.17	0.04	0.04	0.04	0.04	0.04	3.46	0.04	1.9	4.46	5.56	6.21	4.7	0.04	0.04	0.04

123678-HxCDD	0.1	2.01	2.61	2.4	2.05	0.03	2.76	0.03	0.03	0.03	2.82	5.4	8.41	10.35	5.36	3.25	1.88	0.03
123789-HxCDD	0.1	0.044	0.044	0.95	0.04	0.04	1.15	0.04	0.04	4.1	1.57	4.86	6.01	6.08	3.59	2.68	0.04	0.04
1234678-HpCDD	0.01	3.85	2.11	0.2	1.62	2.78	5.34	1.29	0.2	8.01	5.25	74.08	98.68	61.3	25.55	13.93	5.39	8.45
OCDD	0.0003	19.2	13.66	11.97	11.82	8.4	17.47	9.95	24.77	16.66	16.67	26.82	74.43	36.45	30.71	21.99	8.36	16.36
2378-TCDF	0.1	0.36	0.11	0.37	0.34	0.64	0.6	0.27	0.86	2.96	1.17	21.25	3.83	6.84	2.23	3.68	0.11	0.11
12378-PeCDF	0.03	0.044	0.044	0.044	0.31	0.04	0.04	0.04	0.04	6.31	2.77	9.86	9.1	7.21	5.8	5.28	0.04	0.04
23478-PeCDF	0.3	1.18	5.74	0.83	0.6	0.74	1.04	0.1	0.64	6.44	3.54	31.07	23.91	21.65	8.07	6.97	2.21	3.45
123478-HxCDF	0.1	1.44	2.39	1.34	0.03	0.92	0.03	0.03	2.06	7.6	3.78	23.39	39.73	35.07	10.42	9.74	5.04	0.03
123678-HxCDF	0.1	0.04	2.41	0.04	0.04	0.65	0.91	0.04	0.04	6.76	2.87	18.59	18.9	17.19	7.92	5.69	4.52	1.44
234678-HxCDF	0.1	0.03	1.59	0.71	0.03	0.03	0.03	0.03	0.03	5.67	2.92	19.1	22.39	16.62	9.62	5.32	3.92	1.76
123789-HxCDF	0.1	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	3.53	1.83	10.26	9.38	9.32	2.98	4.07	0.03	0.03
1234678-HpCDF	0.01	0.2	0.18	0.04	0.04	0.24	0.04	0.04	0.04	10.39	6.11	22.8	38.16	25.01	10.69	8.69	1.95	2.66
1234789-HpCDF	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	5.37	2.39	13.91	17.42	16.29	4.7	5.07	0.03	0.36
OCDF	0.0001	3.06	2.39	2.87	2.86	1.73	3.65	1.86	4.39	17.01	10.1	49.98	87.86	64.61	21.76	24.23	1.72	1.54
PCB 81	0.0003	4.98	6.94	9.21	6.98	6.56	4.81	5.76	7.28	9.85	3.67	9.9	8.81	16.06	9.63	5.99	2.34	2.14
PCB 77	0.0001	6.07	4.75	6.89	4.64	5.34	6.62	4.21	7.15	17.85	4.84	13.31	10.42	14.29	11.78	12.12	10.1	11.19
PCB 126	0.1	6.26	5.61	6.48	5.22	5.51	9.56	4.58	21.3	21.87	5.64	11.13	7.84	10.85	8.97	8.33	6.49	4.1
PCB 169	0.03	4.02	2.49	3.68	3.85	2.94	3.76	3.07	3.63	10.37	4.65	7.96	10	10.28	11.02	7.73	11.48	2.55
PCB 123	0.00003	7.48	4.19	9.44	17.75	13.6	8.97	1.02	36.75	9.12	6.76	18.6	4.83	10.82	29.43	631.61	17.2	7.25
PCB 118	0.00003	169.53	45.78	185.49	123.21	82.76	75.15	30.11	117.6	73.69	59.37	96.97	75.73	61.46	252.7	1114.83	366.28	57.79
PCB 114	0.00003	8.38	3.93	9.85	6.14	5.2	4.64	2.27	3.43	3.5	1.66	16.34	2.16	1.68	34.95	213.84	11.18	3.57
PCB 105	0.00003	49.43	19.12	72.9	49.84	30.81	22.95	8.42	47.11	34.64	29.65	51.17	27.5	29.41	105.25	754.43	141.19	28.09
PCB 167	0.00003	19.04	7.08	26.11	20.57	13.78	13.67	9.73	13.05	22.2	30.12	30.8	24.16	16.06	116.04	1437.64	77.78	9.26
PCB 156	0.00003	16.16	4.74	20.64	14.62	11.4	9.38	10.56	7.93	2.78	7.66	23.22	9.87	5.41	41.96	104.23	57.76	6.79
PCB 157	0.00003	5.54	2.28	7.39	4.72	3.47	2.97	2.79	2.48	5.77	7.13	16.66	6.78	4.7	26.83	101.73	12.31	2.37
PCB 189	0.00003	2.11	1.03	3.54	1.6	2.24	1.47	1.67	1.07	6.11	12.58	16.58	6.4	4.24	41.6	87.1	7.49	2.25
∑PCDD/Fs& dL-PCBs (pgTEQ/g fat)		3.05	6.92	2.08	2.86	1.22	2.93	0.73	4.3	9.1	6.88	29.28	28.15	29.18	15.25	10.85	5.82	3.6
Averge PCDD/Fs& dl-PCBs (pgTEQ/g fat)																		9.54

Suppl. Table 3 — PCDD/Fs and dL-PCBs congener concentration in fish samples																		
Fish samples: Group 3																		
List of Compounds	Upper bound concentration (pg/g *ww*)																	
	E. suratensis						*M. cephalus*						*H. branchysoma*					
	SP1	SP2	SP3	SP4	SP5	SP6	SP1	SP2	SP3	SP4	SP5	SP6	SP1	SP2	SP3	SP4	SP5	SP6
2378-TCDD	0.69	1.31	0.69	1.73	0.42	1.86	0.07	0.037	0.25	0.2	0.05	0.42	0.31	0.21	0.037	0.26	0.037	0.12
12378-PeCDD	0.42	0.042	0.042	0.042	0.72	0.042	0.83	0.042	0.042	0.23	0.62	1.1	0.27	0.17	0.09	0.26	0.32	0.41
123478-HxCDD	0.04	0.04	0.04	0.04	0.04	1.65	2.36	0.62	2.14	4.26	3.26	0.53	0.17	0.17	0.21	1.94	3.64	3.83
123678-HxCDD	0.033	0.14	0.033	0.2	0.24	0.2	1.25	4.44	0.13	1.24	2.36	2	0.19	0.19	0.18	0.61	0.41	0.13
123789-HxCDD	0.044	0.044	0.044	0.044	0.81	0.044	2.14	4.35	0.044	0.044	0.044	0.9	0.12	0.12	0.17	0.48	0.23	0.33
1234678-HpCDD	1.94	0.72	0.72	0.62	0.198	0.62	0.2	0.22	0.96	23.57	13.56	4.32	7.41	7.41	9.99	6.2	0.24	0.198
OCDD	19.12	15.81	16	14.63	7.83	8.55	5.83	18.67	23.42	7.85	17.33	42.24	15.54	15.54	2.36	8.59	15	7.85
2378-TCDF	1.63	1.03	0.97	0.57	0.63	0.43	7.56	3.16	1.45	11.25	4.57	0.18	3.8	3.8	3.44	2.03	2.1	3.22
12378-PeCDF	7.41	0.43	0.5	10.8	7.52	14.12	4.85	27.24	5.45	4.37	7.86	14.67	10.24	0.24	0.53	10.37	1.53	0.72
23478-PeCDF	1.39	0.66	0.74	2.91	0.42	2.98	0.47	0.79	0.102	0.41	0.54	0.7	1.86	1.23	0.41	1.64	0.84	1.09
123478-HxCDF	0.99	0.034	0.62	0.034	0.2	0.034	0.47	0.58	1.85	0.034	1.26	8.24	1.33	0.13	0.3	3	1.02	2.03
123678-HxCDF	0.24	0.1	0.21	0.036	0.24	0.036	1.13	0.61	0.68	1.2	2.27	2.65	1.03	0.036	0.33	0.036	0.62	0.22
234678-HxCDF	0.65	0.028	0.66	0.028	0.83	0.028	3.16	0.04	0.5	1.36	1.47	1.95	0.07	0.07	0.11	1.34	0.23	0.43
123789-HxCDF	0.032	0.032	0.6	0.032	0.13	0.032	1.26	1.95	0.15	0.24	0.45	1.32	0.032	0.032	0.19	0.27	0.032	0.11
1234678-HpCDF	1.12	0.043	2.8	0.043	0.043	0.043	4	0.62	0.51	0.043	12.36	0.043	0.11	0.11	0.64	0.65	0.33	5.12
1234789-HpCDF	0.031	0.031	0.41	0.031	0.26	0.031	0.031	0.07	0.39	23.65	0.031	2.19	0.15	0.15	0.09	0.32	3.13	0.24
OCDF	0.13	0.2	0.15	0.13	0.052	0.13	0.052	0.08	0.15	0.77	0.4	0.56	0.12	0.12	0.1	0.86	1.19	0.052
PCB 81	241	137.52	47.52	58.84	4.15	104.18	452	340.41	4.19	700.79	3.08	1738.2	67.87	24.52	33.75	33.82	23.75	100.41
PCB 77	1243	477.89	425.16	512.46	421.57	501.46	2356.99	2625.7	15.69	2012.57	17.46	4261.66	302.69	123.57	256.9	402.59	14.21	400.22
PCB 126	6.12	4.01	3.92	6.29	3.51	8.41	5.32	4.57	0.66	5.68	0.5	7.71	0.71	0.49	0.34	0.8	0.65	0.6
PCB 169	0.828	1.07	1.72	3.04	0.828	1.34	0.828	0.828	0.828	0.828	0.828	2.08	0.828	0.828	0.828	1.71	0.828	0.828
PCB-123	1404	486.32	307.86	41.87	47.52	4381.96	2438.09	1486.33	41.53	426.2	14.12	1586.32	47.74	41.44	71.53	58.2	43.33	380.53
PCB-118	2478.53	77.2	45.23	61.98	41.53	5748.63	2981.74	2908.86	41.9	805.09	33.75	4048.63	35.21	47.74	34.15	44.15	80.53	1104.15
PCB-114	47.43	1086.32	1418.96	718.96	47.52	3041.53	2714.1	2418.96	74.86	1374.86	37.52	4752.3	1057.45	57.75	38.2	1375.3	170.82	370.82

PCB-105	176.67	41.53	44.19	104.19	4.15	3808.63	173.33	1071.53	44.93	1041.53	7.18	508.2	374.59	34.04	34.19	48.63	43.38	475.2
PCB-167	140	41.53	7.86	4.12	4.93	3676.2	70	418.97	51.42	404.12	4.25	78.55	44.05	40.44	10.82	70.51	5.97	140.51
PCB-156	144.33	108.56	41.9	32.19	7.15	1715.26	41.53	108.56	42.63	32.19	10.42	158.63	220.37	54.11	7.49	41.53	41.53	48.43
PCB-157	82.6	41.53	4.19	4.15	14.05	3815.3	49.27	44.86	4.19	4.15	10.86	41.53	41.11	14.38	10.72	4.92	250.86	103.82
PCB-189	143.33	41.53	108.87	41.53	9.2	1041.83	93.33	49.3	41.53	41.53	10.82	475.2	74.86	41.59	38.2	294.15	10.82	36.15
∑ PCDD/Fs & dL PCBs (pg TEQ/g wet weight)	3.13	2.3	1.89	3.9	2.24	5.25	4.34	3.83	1.31	4.25	2.98	6.16	2.4	1.4	0.97	2.61	1.65	2.21
Average PCDD/Fs & dl PCBs (pg TEQ/g wet weight)																		2.93

Suppl. Table 4 — Details of PCDD/Fs and dL-PCBs congener dosage administered to wistar rats

S. No.	Compounds	TEF	Daily administrated dose (pg)		
			Egg	Milk	Fish
			(Group 1)	(Group 2)	(Group 3
1	2378-TCDD	1	2.11	1.42	0.37
2	2378-TCDF	0.1	2.11	1.42	0.37
3	12378-PeCDD	1	5.29	3.56	0.94
4	12378-PeCDF	0.03	5.29	3.56	0.94
5	23478-PeCDF	0.3	5.29	3.56	0.94
6	123478-HxCDD	0.1	5.29	3.56	0.94
7	123478-HxCDF	0.1	5.29	3.56	0.94
8	123678-HxCDD	0.1	5.29	3.56	0.94
9	123678-HxCDF	0.1	5.29	3.56	0.94
10	123789-HxCDD	0.1	5.29	3.56	0.94
11	123789-HxCDF	0.1	5.29	3.56	0.94
12	234678-HxCDF	0.1	5.29	3.56	0.94
13	1234678-HpCDD	0.01	5.29	3.56	0.94
14	1234678-HpCDF	0.01	5.29	3.56	0.94
15	1234789-HpCDF	0.01	5.29	3.56	0.94
16	OCDD	0.0003	10.57	7.12	1.87

17	OCDF	0.0003	10.57	7.12	1.87
18	PCB 77	0.0001	13.63	8.42	5.05
19	PCB 81	0.0003	13.63	8.42	5.05
20	PCB 126	0.1	13.63	8.42	5.05
21	PCB 169	0.03	13.63	8.42	5.05
22	PCB 105	0.00003	13.63	8.42	5.05
23	PCB 114	0.00003	13.63	8.42	5.05
24	PCB 118	0.00003	13.63	8.42	5.05
25	PCB 123	0.00003	13.63	8.42	5.05
26	PCB 156	0.00003	13.63	8.42	5.05
27	PCB 157	0.00003	13.63	8.42	5.05
28	PCB 167	0.00003	13.63	8.42	5.05
29	PCB 189	0.00003	13.63	8.42	5.05
∑PCDD/Fs& dL-PCBs (pgTEQ)			15.0	10.0	3.0