

Supplementary Material 2

Associations between solvents and metabolites were measured with Chi square or Fisher's exact tests, Wilcoxon Test or Spearman correlation rank, depending on the level of quantification (i.e. below < 50% or \geq 50%).

We observed several strong associations between solvents and their metabolites:

- toluene levels were positively correlated with quantification of ethylbenzene, p-xylene, o-xylene, m-xylene, and tetrachloroethylene;
- benzene levels were positively associated with quantification of ethylbenzene and tetrachloroethylene;
- ethylbenzene quantification was associated with higher quantification of p-xylene, o-xylene, m-xylene, tetrachloroethylene and levels of trichloroethylene;
- p-xylene quantification was associated with those of o-xylene and m-xylene;
- m-xylene quantification was associated with those of o-xylene ;
- o-xylene quantification was associated with trichloroethylene levels ;
- PGA quantification was associated with higher quantification of o-cresol ;
- o-cresol quantification was associated with higher quantification of hippuric acid and mandelic acid ;
- trichloroethylene and tetrachloroethylene levels were positively associated.

These numerous strong associations between petroleum solvents and their metabolites are in accordance with the common sources reported in the literature especially for BTEX and indoor and outdoor air pollution (1,2).

References:

1. Mohamed MF, Kang D, Aneja VP. Volatile organic compounds in some urban locations in United States. *Chemosphere*. juin 2002;47(8):863- 82.
2. Symanski E, Stock TH, Tee PG, Chan W. Demographic, residential, and behavioral determinants of elevated exposures to benzene, toluene, ethylbenzene, and xylenes among the U.S. population: results from 1999-2000 NHANES. *J Toxicol Environ Health A*. 2009;72(14):915-24.

Supplemental material 2, Table 1. Association between petroleum and chlorinated solvents and tobacco exposure during pregnancy and non-occupational chemical exposure.

	EthylBenzene			p-xylene			m-xylene		
	< LOQ N (%)	≥ LOQ N (%)	p-value	< LOQ N (%)	≥ LOQ N (%)	p-value	< LOQ N (%)	≥ LOQ N (%)	p-value
Tobacco consumption during pregnancy									
No	17 (56.7)	21 (77.8)	0.16	22 (57.9)	16 (84.2)	0.07	21 (60.0)	17 (77.3)	0.25
Yes	13 (43.3)	6 (22.2)		16 (42.1)	3 (15.8)		14 (40.0)	5 (22.7)	
Passive smoking									
No	12 (41.4)	8 (33.3)	0.55	16 (44.4)	4 (23.5)	0.14	12 (36.4)	8 (40.0)	0.79
Yes	17 (58.6)	16 (66.7)		20 (55.5)	13 (76.5)		21 (63.6)	12 (60.0)	
missing	1 -	3 -		2 -	2 -		2 -	2 -	
Damp cleaning									
< 5 times/month	25 (83.3)	14 (51.9)	0.01	30 (78.9)	9 (47.4)	0.04	26 (74.3)	13 (59.1)	0.47
between 5 and 20 times/month	3 (10.0)	11 (40.7)		6 (15.8)	8 (42.1)		7 (20.0)	7 (31.8)	
> 20 times/month	2 (6.7)	2 (7.4)		2 (5.3)	2 (10.5)		2 (5.7)	2 (9.1)	
Home renovation activities									
No	28 (93.3)	24 (88.9)	0.67	36 (94.7)	16 (84.2)	0.32	34 (97.1)	18 (81.8)	0.05
Yes	2 (6.7)	3 (11.1)		2 (5.3)	3 (15.8)		1 (2.9)	4 (18.2)	
Other chemicals used during leisure activities									
No	29 (96.7)	26 (96.3)	0.95	36 (94.7)	19 (100.0)	0.55	33 (94.3)	22 (100.0)	0.52
Yes	1 (3.3)	1 (3.7)		2 (5.3)	0 (0.0)		2 (5.7)	0 (0.0)	

Supplemental material 2, Table 1. Association between petroleum and chlorinated solvents and tobacco exposure during pregnancy and non-occupational chemical exposure.

	o-xylene			PGA			o-cresol		
	< LOQ N (%)	≥ LOQ N (%)	p-value	< LOQ N (%)	≥ LOQ N (%)	p-value	< LOQ N (%)	≥ LOQ N (%)	p-value
Tobacco consumption during pregnancy									
No	30 (62.5)	8 (88.9)	0.25	31 (63.3)	7 (87.5)	0.25	32 (65.3)	6 (75.0)	0.71
Yes	18 (37.5)	1 (11.1)		18 (36.7)	1 (12.5)		17 (34.7)	2 (25.0)	
Passive smoking									
No	19 (42.2)	1 (12.5)	0.23	17 (37.8)	3 (37.5)	1.00	17 (36.2)	3 (50.0)	0.66
Yes	26 (57.8)	7 (87.5)		28 (62.2)	5 (62.5)		30 (63.8)	3 (50.0)	
missing	3 -	1 -		4 -	0 -		2 -	2 -	
Damp cleaning									
< 5 times/month	36 (75.0)	3 (33.3)	0.02	33 (67.3)	6 (75.0)	0.44	33 (67.3)	6 (75.0)	0.43
between 5 and 20 times/month	10 (20.8)	4 (44.4)		13 (26.5)	1 (12.5)		13 (26.5)	1 (12.5)	
> 20 times/month	2 (4.2)	2 (22.2)		3 (6.1)	1 (12.5)		3 (6.1)	1 (12.5)	
Home renovation activities									
No	43 (89.6)	9 (100.0)	0.59	44 (89.8)	8 (100.0)	0.91	44 (89.8)	8 (100.0)	0.9
Yes	5 (10.4)	0 (0.0)		5 (10.2)	0 (0.0)		5 (10.2)	0 (0.0)	
Other chemicals used during leisure activities									
No	46 (95.8)	9 (100.0)	0.92	47 (95.9)	8 (100.0)	0.93	48 (98.0)	7 (87.5)	0.26
Yes	2 (4.2)	0 (0.0)		2 (4.1)	0 (0.0)		1 (2.0)	1 (12.5)	

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	Mandelic acid			Hippuric acid			Tetrachloroethylene		
	< LOQ N (%)	≥ LOQ N (%)	p-value	< LOQ N (%)	≥ LOQ N (%)	p-value	< LOQ N (%)	≥ LOQ N (%)	p-value
Tobacco consumption during pregnancy									
No	34 (65.4)	4 (80.0)	0.51	28 (77.8)	10 (47.6)	0.04	20 (66.7)	18 (66.7)	0.98
Yes	18 (34.6)	1 (20.0)		8 (22.2)	11 (52.4)		10 (33.3)	9 (33.3)	
Passive smoking									
No	19 (38.8)	1 (25.0)	1.00	14 (42.4)	6 (30.0)	0.37	13 (48.1)	7 (26.9)	0.11
Yes	30 (61.2)	3 (75.0)		19 (57.6)	14 (70.0)		14 (51.9)	19 (73.1)	
missing	3 -	1 -		3 -	1 -		3 -	1 -	
Damp cleaning									
< 5 times/month	36 (69.2)	3 (60.0)	0.47	23 (63.9)	16 (76.2)	0.26	22 (73.3)	17 (63.0)	0.75
between 5 and 20 times/month	13 (25.0)	1 (20.0)		9 (25.0)	5 (23.8)		6 (20.0)	8 (29.6)	
> 20 times/month	3 (5.8)	1 (20.0)		4 (11.1)	0 (0.0)		2 (6.7)	2 (7.4)	
Home renovation activities									
No	47 (90.4)	5 (100.0)	0.95	35 (97.2)	17 (81.0)	0.05	29 (96.7)	23 (85.2)	0.18
Yes	5 (9.6)	0 (0.0)		1 (2.8)	4 (19.0)		1 (3.3)	4 (14.8)	
Other chemicals used during leisure activities									
No	50 (96.1)	5 (100.0)	0.65	35 (97.2)	20 (95.2)	0.99	30 (100.0)	25 (92.6)	0.22
Yes	2 (3.9)	0 (0.0)		1 (2.8)	1 (4.8)		0 (0.0)	2 (7.4)	

Supplemental material 2, Table 1. Association between petroleum and chlorinated solvents and tobacco exposure during pregnancy and non-occupational chemical exposure.

	N	Benzene		Toluene		Trichloroethylene	
		Median [Q1-Q3] ng/g	p value	Median [Q1-Q3] ng/g	p value	Median [Q1-Q3] ng/g	p value
Tobacco consumption during pregnancy							
No	38	0.29 [0-1.06]	0.39	16.43 [0-155.3]	0.55	0.22 [0.10-0.46]	0.41
Yes	19	0.31 [0-1.49]		4.31 [0-38.23]		0.18 [0-0.32]	
Passive smoking							
No	20	0.08 [0-0.93]	0.68	0 [0-58.98]	0.72	0.14 [0-0.42]	0.98
Yes	33	0.31 [0-1.22]		23.36 [0.85-76.79]		0.25 [0.17-0.39]	
missing	4	-		-		-	
Damp cleaning							
< 5 times/month	39	0.29 [0-1.06]	0.64	2.66 [0-60.34]	0.24	0.20 [0-0.35]	0.36
between 5 and 20 times/month	14	0.40 [0-1.53]		44.10 [14.35-246.0]		0.26 [0.18-0.39]	
> 20 times/month	4	0.69 [0.15-16.56]		30.04 [0-76.79]		0.08 [0-0.31]	
Home renovation activities							
No	52	0.30 [0-1.08]	0.65	4.05 [0-85.85]	0.23	0.20 [0-0.34]	0.02
Yes	5	0.23 [0-0.78]		154.4 [16.66-292.2]		0.49 [0.33-0.51]	
Other chemicals used during leisure activities							
No	55	0.24 [0-1.07]	0.31	9.33 [0-98.22]	0.8	0.22 [0.11-0.39]	0.17
Yes	2	20.50 [0.29-40.72]		21.01 [3.79-38.23]		0.07 [0-0.15]	

LOQ : Limit of quantification