atmosphere

MDPI

Supplementary Materials: Abundance, Source Apportionment and Health Risk Assessment of Polycyclic Aromatic Hydrocarbons and Nitro-Polycyclic Aromatic Hydrocarbons in $PM_{2.5}$ in the Urban Atmosphere of Singapore

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Table S1. Sampling periods and sample numbers.

Periods (Sample Numbers)			
NE	**PSW**	**PNE**	**SW**
2020/01/14-01/20 (7)	2020/05/09-05/15 (7)	2020/10/15-10/21 (7)	2021/06/03-06/09 (7)
2020/02/11-01/17 (7)			2021/07/08-07/14 (7)
2020/12/16-12/21 (7)			2021/08/12-08/18 (7)
2021/01/13-01/19 (7)			
2021/02/17-02/23 (7)			

Table S2. Toxic equivalent factor (TEF) of PAHs and NPAHs.

Compound		**TEF**
PAHs	FR	0.001 [2]
	Pyr	0.001 [2]
	BaA	0.1 [1]
	Chr	0.01 [1]
	BbF	0.1 [1]
	BkF	0.1 [1]
	BaP	1 [1]
	BeP	0.002 [1]
	BgPe	0.01 [2]
	IDP	0.1 [1]
NPAHs	2-NFR	0.01 [2]
	1-NP	0.1 [2]
	6-NC	10 [2]

[1] U.S. EPA, 2010 [1]. [2] J. F. Collins, et al., 1998 [2].

Table S3. Parameters used for the estimation of the incremental lifetime cancer risks (ILCRs).

Exposure parameters	Unit	Male	Female
Body weight(BW) [3]	Kg	72.8	60.2
Ingestion rate(IRing) [4]	mg/day	100	100
Exposure frequency (EF)	days/year	90/60	90/60
Exposure duration (ED) [5]	years	65	65
Average life span (A T) [5]	days	LT × 365	LT × 365
Lifetime (LT) [3]	years	81.5	86.1
Surface area (SA) [5]	cm^2/day	5,700	5,700
surface factor(SL) [4]	mg/cm^2	0.07	0.07
absorption factor(ABS) [4]	day^{-1}	0.13	0.13
Inhalation rate (IRInh) [4]	m^3/day	19.3	16.2
Particle emission factor(PEF) [5]	m^3/kg	1.36 × 109	1.36 × 109

[3] Singapore department of statistics, 2010 [3];[4] Panis L.I., et al., 2010 [4]; [5] Zhang Z.H., et al., 2017 [5].

Table S4. Daily weather conditions in each sample in Singapore from 2020 to 2021.

Day	**Total Rainfall (mm)**	**Mean Temperature (℃)**	**Mean Wind Speed (km/h)**
2020/1/14	0	27.8	24.1
2020/1/15	0	27.9	23.4
2020/1/16	9	27.5	21.2
2020/1/17	0.6	28	23.8
2020/1/18	5.6	27.6	21.2
2020/1/19	1	28.4	22
2020/1/20	2	27.9	22.7
2020/2/11	18.4	26.7	19.4
2020/2/12	0.4	28.1	19.4
2020/2/13	0	28.4	22
2020/2/14	0	28.6	21.2
2020/2/15	0	28.2	18.7
2020/2/16	0	28.1	19.8
2020/2/17	0	28.9	23
2020/5/9	0	30.6	12
2020/5/10	0	30	13
2020/5/11	2.6	29.4	13.8
2020/5/12	0	30.4	13.2
2020/5/13	7.6	28.5	20
2020/5/14	0	29.2	19.4
2020/5/15	0	29.8	16.5
2020/10/15	0.6	28.8	12.9
2020/10/16	0.4	29	9.8
2020/10/17	0	29.8	9.4
2020/10/18	0	28.6	9.4
2020/10/19	0.2	28.6	9.5
2020/10/20	0.8	28.4	7
2020/10/21	0.2	28.8	10.3
2020/12/16	4.6	26	8.3
2020/12/17	28.2	26.1	9.2
2020/12/18	1	25.5	12.6
2020/12/19	0	26.4	12.3
2020/12/20	5.6	26.9	10.9

2020/12/21	0	27.2	9.1
2020/12/22	36.6	27.3	10.2
2021/1/13	1.2	25.2	11.6
2021/1/14	0	26	11.3
2021/1/15	0	27	10.1
2021/1/16	0	27.1	11.2
2021/1/17	0	27.1	16.1
2021/1/18	0	26.4	17
2021/1/19	0	26.5	13.2
2021/2/17	0	27.1	14.8
2021/2/18	0	26.9	16.5
2021/2/19	0	27	16.9
2021/2/20	0	27.1	16.8
2021/2/21	0	27.1	14.4
2021/2/22	0	27.3	14.9
2021/2/23	0	27.1	13.2
2021/6/3	0	30.2	9.6
2021/6/4	0	30.1	8.5
2021/6/5	0	29.9	11.1
2021/6/6	0	29.8	9.2
2021/6/7	0.6	30.1	10.6
2021/6/8	0	29.9	9.2
2021/6/9	0	29.5	8.2
2021/7/8	0	29.4	9.5
2021/7/9	20.6	28.8	9.9
2021/7/10	6.8	26.3	6
2021/7/11	19.8	26.2	6.6
2021/7/12	52	26.4	10.5
2021/7/13	8	25.8	18.5
2021/7/14	0	27.4	8.1
2021/8/12	0	29.1	9.6
2021/8/13	1	28.1	9.2
2021/8/14	52.6	28	8.4
2021/8/15	20.8	27.7	8.8
2021/8/16	1.2	27.8	8.1
2021/8/17	12.8	26.7	9.2
2021/8/18	2.2	26.1	9.1

The data obtained from the Meteorological Service Singapore (MSS) (http://www.weather.gov.sg/climate-historical-daily/ accessed 28th June 2022).

Reference

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