Comprehensive Evaluation of Dust Retention and Metal Accumulation by the Leaves of Roadside Plants in Hangzhou among Seasons

Ning Dang [1,2,†], Handan Zhang [1,†], Haimei Li [2], Mir Md Abdus Salam [3,4] and Guangcai Chen [1,*]

[1] Research Institute of Subtropical Forestry, Chinese Academy of Forestry, Hangzhou 311400, China
[2] College of Landscape Architecture and Forestry, Qingdao Agricultural University, Qingdao 266109, China
[3] School of Forest Sciences, University of Eastern Finland, Yliopistokatu 7, P.O. Box 111, 80100 Joensuu, Finland
[4] Natural Resources Institute Finland (LUKE), Yliopistokatu 6B, 80100 Joensuu, Finland
* Correspondence: guangcaichen@sohu.com
† These authors contributed equally to this work.

Table S1. Biological characteristics of tree species used in the experiment.

Species	Family	Life form	Leaf shape
Cinnamomum camphora (Linn.) *Presl*	Lauraceae	Arbor	Leaves alternate, Ovoid ellipse,Leathery
Loropetalum chinense var. *Rubrum* Yieh	Hamamelidaceae	Shrub	Ovate; Leathery
Osmanthus fragrans (Thunb.) *Loureiro*	Oleaceae	Arbor	Elliptic, oblong or elliptically lanceolate; Leathery
Photinia×fraseri Dress	Rosaceae	Shrub	Long elliptic or obovate-elliptic; Leathery
Pittosporum tobira (Thunb.) Ait	Pittosporaceae	Shrub	Obovate; Leathery

Table S2. Meteorological parameters of the sampling point.

Sampling time	AQI	Temperature (°C)	Wind speed (m/s)	PM_{10} (μg/cm_3)	$PM_{2.5}$ (μg/cm_3)
May	47.41 ±10.25	14 - 31	0.3 - 5.4	47.62 ±5.05	19.86 ±4.45
August	46.5 ±15.19	26 - 39	0.3 - 3.3	42.74 ±4.04	21.64 ±2.74
October	39.61 ±9.46	13 - 27	0.3 - 3.3	38.47 ±7.28	18.49 ±6.99
January	59.54 ±13.39	-28	0.3 -3.3	66.74 ±12.93	25.14 ±9.92

Table S3. The grades of geo-accumulation indexes.

Igeo	Value Igeo	Class designation of sediment quality
≤0	0	Uncontaminated
0 ~ 1	1	Uncontaminated to moderately contaminated
1 ~ 2	2	Moderately contaminated
2 ~ 3	3	Moderately to strongly contaminated
3 ~ 4	4	Strongly contaminated
4 ~ 5	5	Strongly to extremely contaminated
＞5	6	Extremely contaminated

Table S4. Morphological characteristics and chemical composition of residual single particles in blades.

Number	Particle classification	Physical characteristics	Elementary composition
A	Minerals particles	Irregular sheet, layered, smooth surface	Mainly contains O, C, Si, Al and other elements
B	Minerals particles	Irregular blocky, angular, smooth surface	Mainly contains O, Si, C, Ca, S, Mg and other elements
C	Biological particles	Oval	Mainly contains C, N and O
D	Minerals particles	Column, smooth surface, surface with tiny particles	Mainly contains C, O, Si, Al, Fe, Zn and other elements
E	Soot aggregates	Fluffy polymer	Mainly contains O, C, and small amount of Al, Si, Na, Mg, Fe, Ca and other elements
F	Fly ash particles	Spherical shape, smooth surface	Mainly contains C, O, Al, Si, and other elements

Table S5. Geo-accumulation index and pollution type of different heavy metals.

Season	Geo-accumulation index			
	Cd	Ni	Pb	Cu
Spring	3.99	0.83	1.99	3.78
Series	4	1	2	4
Summer	5.04	1.37	2.10	4.31
Series	6	2	3	5
Autumn	4.19	1.10	2.34	4.18
Series	5	2	3	5
Winter	4.44	1.13	2.42	4.88
Series	5	2	3	5