Supporting Information

Spatiotemporal Trends of Atmospheric Persistent Organic Pollutants across Mainland China Recorded by Tree Barks and a Tree Bark Pocket

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Table S1. Densities, specific surface areas, average pore diameters, lipid contents and chemical composition of the 15 species of tree barks from the main campus of Xiamen University

Table S2. Octanol/air partition coefficients and enthalpies of vaporization of the subcooled liquid of the POPs and their estimated pseudo-bark/air partition coefficients in comparison with the measured values in the barks at four sites, two species for each site, along with the locations, annual average temperature and precipitation of the sampling sites

Table S3. Locations of the 68 sampling sites, the total suspended particle concentrations, ambient atmosphere temperature and precipitation, as well as the bark species, density, volume-based lipid contents and specific surface areas of the bark samples collected across mainland China and the concentrations of total Σ_{18}PAHs, Σ_{5}OCPs, Σ_{10}PCBs and Σ_{17}BFRs

Table S4. Air concentrations of the total Σ_{18}PAHs, Σ_{5}OCPs, Σ_{10}PCBs and Σ_{17}BFRs estimated from the bark measurements using the developed bark/air partitioning model in comparison with the values measured using active air sampling methods taken from the literature

Figure S1. Plots of (a) the m values as a function of bark lipid content; (b) the variation of n values among the 15 species of barks; (c) the b values as a function of bark specific surface area; (d) the bark/gas-phase partition coefficients for typical POPs as a function of the reciprocal temperature; (e) the enthalpies of phase transfer between the bark and air for the POPs as a function of enthalpy of vaporization of the subcooled liquid; and (f) the bark/particle-phase partition coefficient for the POPs as a function of precipitation.

Table S1. Densities, specific surface areas (SSA), average pore diameters (D), lipid contents (LipCont) and chemical composition of the 15 species of tree barks from the main campus of Xiamen University

Tree species			Density (10^5 g/m^3)	SSA (m^2/g)	D (μm)	LipCont (%)	Lipid chemical composition			
No.	English name	Latin name					compound name	formula	MW	percent (%)
1	bailan	*Michelia alba*	4.44	9.14	1.48	5.19	Tomentosin	$C_{15}H_{20}O_3$	248	85.6
							.delta.-Cadinol	$C_{15}H_{26}O$	222	4.7
							1H-Benzocycloheptene, 2,4a,5,6,7,8-hexahydro-3,5,5,9-tetra methyl-, (R)-	$C_{15}H_{24}$	204	3.3
							Linolic acid	$C_{18}H_{32}O_2$	280	1.4
							Dehydrosaussurea lactone	$C_{15}H_{20}O_2$	232	1.5
							Caryophyllene	$C_{15}H_{20}O_3$	248	1.1
							Cycloisolongifolene, 8,9-dehydro-9-vinyl-	$C_{17}H_{24}$	228	2.5
2	lemon-scented gum	*Eucalyptus citriodora*	4.08	2.37	6.06	5.26	n-Nonacosane	$C_{29}H_{60}$	408	21.7
							4-(2,2-Dimethyl-6-methylenecyclohexylidene)-3-methylidene-2-one	$C_{14}H_{22}O$	206	29.8
							28-Norolean-17-en-3-one	$C_{29}H_{46}O$	410	14.3
							gamma.-Sitosterol	$C_{29}H_{50}O$	414	6.7
							Olean-18-ene	$C_{30}H_{50}$	410	5.6
							1,30-Triacontanediol	$C_{30}H_{62}O_2$	454	5.8
							Vitamin e	$C_{29}H_{50}O_2$	430	4.4
							Octadecanal	$C_{18}H_{36}O$	268	3.5
							d-Allose	$C_6H_{12}O_6$	180	6.3
							Antiarol	$C_9H_{12}O_4$	184	1.2
							n-Hexadecanoic acid	$C_{16}H_{32}O_2$	256	0.7
3	royal poinciana	*Delonix regia*	4.73	3.79	3.28	5.44	n-Hexadecanoic acid	$C_{16}H_{32}O_2$	256	26.9
							Phthalic anhydride	$C_8H_4O_3$	148	8.3
							Methyl palmitate	$C_{17}H_{34}O_2$	270	16.3
							13,27-Cycloursane	$C_{30}H_{48}O$	424	20.4
							Betulin	$C_{30}H_{50}O_2$	442	17.6
							Lupeol	$C_{30}H_{50}O$	426	10.5
4	persimmon	*Diospyros kaki*	4.12	6.05	2.17	5.72	Friedelin	$C_{30}H_{50}O$	426	23.7
							Friedelinol	$C_{30}H_{52}O$	428	5.5
							13,27-Cycloursane	$C_{30}H_{48}O$	424	30.1
							4,4,6a,6b,8a,11,11,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydro-2H-picen-3-one	$C_{30}H_{48}O$	424	9.8

							beta.-Amyrin	$C_{30}H_{50}O$	426	8.5
							Lupeol	$C_{30}H_{50}O$	426	10.5
							Sitostenone	$C_{29}H_{48}O$	412	12.0
5	longan	*Dimocarpus longan*	5.16	9.03	1.29	6.15	Friedelin	$C_{30}H_{50}O$	426	77.9
							D:A-Friedooleanan-3-ol, (3.alpha.)-	$C_{30}H_{52}O$	428	16.4
							Sitostenone	$C_{29}H_{48}O$	412	2.8
							4,4,6a,6b,8a,11,11,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydro-2H-picen-3-one	$C_{30}H_{48}O$	424	1.0
							Hopenone b	$C_{30}H_{48}O$	424	1.1
							Taraxeron	$C_{30}H_{48}O$	424	0.8
6	weeping willow	*Salix babylonica*	4.99	15.9	0.76	6.91	Friedelin	$C_{30}H_{50}O$	426	71.8
							Epifriedelinol	$C_{30}H_{52}O$	428	11.2
							Stigmast-4-en-3-one	$C_{29}H_{48}O$	412	7.8
							4,4,6a,6b,8a,11,12,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydro-2H-picen-3-one	$C_{30}H_{48}O$	424	6.1
							13,27-Cycloursane	$C_{30}H_{48}O$	424	3.1
7	lebbeck tree	*Albizia lebbeck*	5.24	7.30	1.57	6.95	Sitostenone	$C_{29}H_{48}O$	412	12.7
							Cholest-4-ene-3,6-dione	$C_{27}H_{42}O_2$	398	8.2
							Baccharis oxide	$C_{30}H_{50}O$	426	1.4
							Cycloartenol	$C_{30}H_{50}O$	426	3.8
							13,27-Cycloursane	$C_{30}H_{48}O$	424	2.7
							gamma.-Sitosterol	$C_{29}H_{50}O$	414	46.1
							Furost-20(22)-en-26-ol, acetate, (5.alpha.,25R)-	$C_{29}H_{46}O_3$	442	3.3
							3-Acetyl-17-(1,5-dimethylhexyl)-10,13-dimethylhexadecahydrocyclopenta[a]phenanthren-2-one	$C_{29}H_{48}O_2$	428	4.5
							26,27-Dinorergost-23-en-3-ol, acetate, (3.beta.,5.alpha.)-	$C_{28}H_{46}O_2$	414	6.2
							Di-n-octyl phthalate	$C_{24}H_{38}O_4$	390	3.1
							n-Hexadecanoic acid	$C_{16}H_{32}O_2$	256	0.5
							Benzoic acid, 4-hydroxy-	$C_7H_6O_3$	138	7.6
8	purple bauhinia	*Bauhinia purpurea*	5.31	7.60	1.49	7.23	Friedelin	$C_{30}H_{50}O$	426	49.1
							13,27-Cycloursane	$C_{30}H_{48}O$	424	19.2
							Lupeol	$C_{30}H_{50}O$	426	16.2
							4,4,6a,6b,8a,11,11,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydro-2H-picen-3-one	$C_{30}H_{48}O$	424	7.6
							Taraxeron	$C_{30}H_{48}O$	424	7.8
9	mango	*Mangeifera indica*	5.75	21.0	0.50	7.58	Friedelin	$C_{30}H_{50}O$	428	31.6
							4,4,6a,6b,8a,11,11,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydro-2H-picen-3-one	$C_{30}H_{48}O$	424	17.4
							3,27-Cycloursane	$C_{30}H_{48}O$	424	22.8
							4,4,6a,6b,8a,11,12,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydro-2H-picen-3-one	$C_{30}H_{48}O$	424	13.7
							Epifriedelinol	$C_{30}H_{52}O$	428	6.9
							5.alpha.-Stigmastane-3,6-dione	$C_{29}H_{48}O_2$	428	4.4
							Cholest-4-ene-3,6-dione	$C_{27}H_{42}O_2$	398	3.1
10	masson pine	*Pinus massoniana*	0.537	10.4	1.07	8.24	alpha.-Caryophyllene	$C_{15}H_{24}$	204	42.0
							Caryophyllene	$C_{15}H_{24}$	204	10.5
							Caryophyllenyl alcohol	$C_{15}H_{26}O$	222	7.1
							Callitrisic acid	$C_{20}H_{28}O_2$	300	4.7
							Stigmast-4-en-3-one	$C_{29}H_{48}O$	412	6.1
							C(14a)-Homo-27-norgammacer-13-e	$C_{31}H_{50}O_2$	454	14.3

							n-21-one, 3-methoxy-, (3.alpha.)-			
							Tetracyclo[6.3.2.0(2,5).0(1,8)]tridecan-9-ol, 4,4-dimethyl-	$C_{15}H_{24}O$	220	3.3
							Isoaromadendrene epoxide	$C_{15}H_{24}O$	220	3.3
							Eicosanoic acid	$C_{20}H_{40}O_2$	312	6.5
							Epiglobulol	$C_{20}H_{40}O_2$	312	0.6
							Podocarpa-8,11,13-trien-15-oic acid, 13-isopropyl-, methyl	$C_{21}H_{30}O_2$	314	1.8
11	camphor tree	*Cinnamomum camphora*	5.51	8.79	1.24	8.74	A'-Neogammacer-22(29)-en-3-one	$C_{30}H_{48}O$	424	85.5
							Stigmast-4-en-3-one	$C_{29}H_{48}O$	412	8.6
							Jasminol	$C_{30}H_{50}O$	426	2.1
							Lupeol	$C_{30}H_{50}O$	426	1.7
							13,27-Cycloursane	$C_{30}H_{48}O$	424	1.4
							5.alpha.-Stigmastane-3,6-dione	$C_{29}H_{48}O_2$	428	0.6
12	Australian beefwood	*Casuarina cunninghamiana*	7.31	7.64	1.07	9.95	Simiarenol	$C_{30}H_{50}O$	426	45.5
							13,27-Cycloursane	$C_{30}H_{48}O$	424	16.5
							10s,11s-Himachala-3(12),4-diene	$C_{15}H_{24}$	204	15.2
							Taraxeron	$C_{30}H_{48}O$	424	13.9
							Lupan-3-ol, acetate	$C_{32}H_{54}O_2$	470	9.0
13	jambolan	*Syzygium cumini*	7.28	14.5	0.57	10.6	Tomentosin	$C_{30}H_{50}O_2$	442	13.7
							9-Ethyl-3-hydroxy-10,11b-dimethyl-1,2,3,4,6,6a,6b,7,8,9,11a,11b-dodecahydrobenzo[a]fluoren-11-one	$C_{21}H_{30}O_2$	314	28.0
							Paraben	$C_7H_6O_3$	138	4.0
							Megastigmatrienone	$C_{13}H_{18}O$	190	10.5
							5.beta.,14.beta.-Androstane	$C_{19}H_{32}$	260	7.7
							Sitostenone	$C_{29}H_{48}O$	412	25.9
							Friedelin	$C_{30}H_{50}O$	426	10.2
14	hoop pine	*Araucaria cunninghamia*	7.42	6.84	1.18	11.7	Verticiol	$C_{20}H_{34}O$	290	21.3
							Copaene	$C_{15}H_{24}$	204	12.6
							1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, (E)-	$C_{15}H_{26}O$	222	7.3
							Labda-8(20),12,14-trien-19-oic acid, methyl e	$C_{21}H_{32}O_2$	316	5.5
							Biformen	$C_{20}H_{32}$	272	10.5
							1-Cyclopropene-1-pentanol, .alpha.,.epsilon.,.epsilon.,2-tetramethyl-3-(1-methylethenyl)-	$C_{15}H_{26}O$	222	7.5
							Cyclooctacosane	$C_{28}H_{56}$	392	13.0
							9-Hexacosene	$C_{26}H_{52}$	364	4.5
							2,6,10,14-Hexadecatetraenoic acid, 3,7,11,15-tetramethyl-, methyl ester, (E,E,E)-	$C_{21}H_{34}O_2$	318	4.0
							2-Heptanone, 6-(3-acetyl-2-methyl-1-cyclopropen-1-yl)-6-methyl-	$C_{14}H_{22}O_2$	222	8.0
							Rimuen	$C_{20}H_{32}$	272	3.1
							gamma.-Elemene	$C_{15}H_{24}$	204	2.7
15	silk oak	*Grevillea robusta*	7.93	7.95	0.95	12.7	Pyruvic acid	$C_3H_4O_3$	88	10.2
							1,30-Triacontanediol	$C_{30}H_{62}O_2$	454	32.7
							1,30-Triacontanediol	$C_{29}H_{48}O$	412	30.1
							Bicyclo[4.4.0]dec-1-ene, 2-isopropyl-5-methyl-9-methylene-	$C_{15}H_{24}$	204	14.4
							Longifolene-(V4)	$C_{15}H_{24}$	204	12.6

Table S2. Octanol/air partition coefficients (K_{OA}, at 25°C) and enthalpies of vaporization of the subcooled liquid (ΔH_{vap}) of the POPs and their estimated (est.) pseudo-bark/air partition coefficients (K_{BA}) in comparison with the measured (mea.) values in the barks at four sites, two species for each site, along with the locations, annual average temperature and precipitation of the sampling sites

Sampling site	**Taishan**		**Wuyi Shan**		**Tianbaoyan**		**Nanjing**	
Longitude (East)	117°16′24″		117°37′22″		117°0′12″		117°12′42″	
Latitude (North)	36°10′44″		27°27′31″		25°50′51″		24°30′05″	
altitude (m above sea level)	474		210		580		437	
Annual average temperature (°C)	12.1		17.6		16.7		21.3	
Annual average precipitation (mm)	14.0		103		141		116	
TSP ($\mu g/m^3$)	144		93.4		51.7		112	
Tree species	Pine	Poplar	Pine	Camphor	Pine	Chinese Fir	Pine	Camphor
Bark lipid content ($\times 10^6$ g/m^3)	4.98	2.51	4.81	5.39	4.74	7.03	4.65	5.34
Bark specific surface area ($\times 10^6$ m^2/m^3)	5.81	2.33	5.81	5.19	5.81	5.06	5.81	5.21
Bark density ($\times 10^5$ g/m^3)	5.16	5.31	4.98	4.64	4.71	4.57	4.85	4.32

Compound				**logK_{BA}**															
Name	Abbr. or IUPAC no.	logK_{OA}[a] (25°C)	-ΔH_{vap}[b] (kJ/mol)	mea.	est.	mea.	est.	mea.	est.	mea.	est.	mea.	est.	mea.	est.	mea.	est.	mea.	est.
naphthalene	Nap	5.13	56.1	5.25	5.55	4.74	5.06	5.08	5.33	5.16	5.41	5.03	5.35	5.38	5.63	4.94	5.17	5.27	5.03
acenaphthylene	Acpy	6.21	69.1	6.00	6.27	5.45	5.77	5.61	6.00	5.91	6.08	5.76	6.02	6.02	6.31	5.57	5.81	5.91	5.58
acenaphthene	Acp	6.52	63.9	6.57	6.39	6.06	5.90	6.20	6.13	6.32	6.21	6.22	6.15	6.51	6.44	6.04	5.96	6.06	6.18
fluorene	Flu	6.79	66.9	6.65	6.57	6.16	6.08	6.37	6.30	6.47	6.38	6.32	6.32	6.66	6.61	6.17	6.12	6.22	6.19
phenanthrene	PA	7.57	72.2	6.75	7.05	6.26	6.57	6.38	6.76	6.53	6.84	6.45	6.78	6.78	7.07	6.30	6.57	6.67	6.33
anthracene	Ant	7.71	72.4	6.93	7.13	6.50	6.65	6.58	6.83	6.65	6.91	6.60	6.86	6.86	7.14	6.43	6.65	6.75	6.48
fluoranthene	FL	8.88	79.3	7.85	7.82	7.41	7.37	7.53	7.49	7.65	7.56	7.53	7.53	7.79	7.81	7.46	7.29	7.38	7.49
pyrene	Pyr	8.80	87.1	7.62	7.85	7.19	7.39	7.21	7.50	7.31	7.57	7.20	7.54	7.54	7.82	7.09	7.28	7.38	7.13
retene	Retene	8.95	92.3	8.11	7.96	7.75	7.50	7.89	7.60	7.86	7.68	7.74	7.65	8.02	7.93	7.54	7.37	7.47	7.75
benz[a]anthracene	BaA	9.52	96.6	8.31	8.19	7.96	7.75	8.14	7.84	8.20	7.91	8.12	7.92	8.36	8.20	7.83	7.60	7.68	8.08
chrysene	Chr	10.4	89.6	8.44	8.18	8.14	7.79	8.13	7.83	8.34	7.89	8.39	8.01	8.50	8.27	7.92	7.61	7.67	7.98
benzo[b]fluoranthene	BbF	10.2	104.0	8.57	8.29	8.16	7.87	8.28	7.94	8.27	8.01	8.39	8.11	8.48	8.38	7.93	7.68	7.75	7.96
benzo[k]fluoranthene	BkF	11.2	105.5	8.43	8.14	8.09	7.77	8.06	7.73	8.24	7.78	8.38	7.93	8.45	8.19	7.92	7.51	7.55	7.90
benzo[a]pyrene	BaP	10.8	105.0	8.47	8.21	8.16	7.82	8.11	7.84	8.34	7.90	8.44	8.05	8.47	8.31	7.91	7.59	7.65	7.94
perylene	PER	12.3	89.9	8.28	7.97	8.12	7.66	7.63	7.43	7.74	7.44	7.83	7.52	8.13	7.70	7.81	7.31	7.31	7.71
indeno[1,2,3-cd]pyrene	IND	12.4	109.0	8.36	7.98	8.11	7.67	7.87	7.45	7.89	7.46	7.38	7.55	8.27	7.74	7.76	7.31	7.32	7.78
benzo[g,h,I]perylene	BghiP	11.0	109.8	8.45	8.19	8.16	7.81	8.03	7.80	8.06	7.86	8.37	8.01	8.52	8.27	7.94	7.56	7.61	7.96
dibenz[a,h]anthracene	DBA	13.9	110.9	8.00	7.92	7.71	7.63	7.62	7.29	7.59	7.27	7.61	7.26	7.86	7.33	7.54	7.22	7.20	7.52
hexachlorbenzene	HCB	6.78	81.3	7.09	6.70	6.62	6.21	6.72	6.38	6.73	6.47	6.83	6.42	7.11	6.70	6.42	6.18	6.28	6.66
α-hexachlorocyclohexane	α-HCH	7.94	63.2	7.31	7.18	6.91	6.71	7.05	6.90	7.10	6.98	7.02	6.92	7.27	7.20	6.88	6.74	6.83	6.91

β-hexachlorocyclohexane	β-HCH	7.67	70.4	6.76	7.09	6.35	6.61	6.56	6.80	6.55	6.88	6.57	6.82	6.86	7.11	6.47	6.62	6.72	6.44
γ-hexachlorocyclohexane	γ-HCH	7.85	84.5	7.39	7.32	7.01	6.84	7.08	6.99	7.16	7.07	7.09	7.02	7.29	7.30	6.91	6.78	6.87	6.97
δ-hexachlorocyclohexane	δ-HCH	7.34	86.3	7.23	7.05	6.71	6.57	6.83	6.72	6.91	6.80	6.85	6.76	7.11	7.04	6.61	6.50	6.60	6.65
2,4,4'-TrCB	PCB-28	8.01	78.0	6.99	7.35	6.53	6.87	6.71	7.03	6.76	7.11	6.79	7.06	7.17	7.34	6.63	6.83	6.93	6.64
2,2',5,5'-TeCB	PCB-52	8.23	80.8	7.44	7.50	6.94	7.02	7.06	7.17	7.11	7.25	6.98	7.20	7.26	7.48	6.87	6.97	7.06	6.96
2,2',4,5,5'-PeCB	PCB-101	9.31	86.4	8.42	8.06	7.28	7.61	7.47	7.71	7.69	7.78	7.90	7.77	7.74	8.05	7.28	7.50	7.58	7.29
2,3,3',4,4'-PeCB	PCB-105	10.3	91.1	8.05	8.20	7.75	7.80	7.99	7.86	8.00	7.93	7.98	8.02	8.07	8.29	7.83	7.63	7.70	7.79
2,3',4,4',5-PeCB	PCB-118	10.1	89.3	8.00	8.20	7.62	7.79	7.88	7.86	7.88	7.93	7.92	8.00	8.07	8.27	7.88	7.64	7.71	7.82
2,2',3,4,4',5'-HxCB	PCB-138	10.1	91.9	8.26	8.21	7.85	7.80	7.93	7.88	7.96	7.94	7.96	8.02	8.09	8.29	7.74	7.64	7.72	7.84
2,2',4,4',5,5'-HxCB	PCB-153	10.0	91.4	7.85	8.21	7.43	7.80	7.63	7.87	7.57	7.94	7.84	8.01	7.97	8.29	7.49	7.64	7.72	7.44
2,3,3',4',5,6-HxCB	PCB-163	10.1	92.2	8.09	8.21	7.70	7.81	7.85	7.88	7.82	7.94	7.83	8.03	8.01	8.30	7.74	7.64	7.72	7.87
2,2',3,4,4',5,5'-HpCB	PCB-180	10.8	96.5	8.51	8.17	8.07	7.79	8.11	7.80	8.22	7.86	8.19	8.00	8.39	8.26	7.83	7.58	7.63	8.03
2,2',3,3',4,4',5,5',6,6'-DeCB	PCB-209	11.7	103.4	8.41	8.04	8.09	7.71	8.01	7.58	7.82	7.61	8.19	7.74	8.38	7.97	7.81	7.40	7.42	7.82
2,2',4-TrBDE	BDE-17	9.30	81.2	8.26	8.01	7.84	7.58	7.96	7.68	7.93	7.75	7.81	7.73	8.06	8.01	7.60	7.47	7.56	7.86
2,4,4'-TrBDE	BDE-28	9.50	86.1	7.86	8.11	7.51	7.68	7.63	7.77	7.69	7.84	7.63	7.85	7.84	8.12	7.54	7.55	7.64	7.56
2,2',4,4'-TeBDE	BDE-47	10.5	92.0	8.12	8.18	7.78	7.79	7.94	7.83	7.94	7.89	8.05	8.01	8.23	8.27	7.79	7.60	7.66	7.96
2,2',4,5'-TeBDE	BDE-49	10.5	90.1	8.60	8.17	8.22	7.79	8.23	7.83	8.33	7.89	8.43	8.00	8.62	8.27	7.94	7.60	7.67	7.97
2,3',4,4'-TeBDE	BDE-66	10.8	93.5	8.47	8.14	8.19	7.77	8.04	7.77	8.23	7.83	8.43	7.96	8.59	8.22	7.91	7.55	7.61	7.93
2,3',4',6-TeBDE	BDE-71	11.1	95.3	7.99	8.12	7.74	7.76	7.92	7.72	7.90	7.77	8.08	7.91	8.17	8.16	7.73	7.51	7.56	7.72
2,2',3,4,4'-PeBDE	BDE-85	11.7	101.6	8.11	8.05	7.76	7.71	8.03	7.59	7.89	7.63	8.01	7.76	8.15	7.98	7.67	7.41	7.44	7.65
2,2',4,4',5-PeBDE	BDE-99	11.3	100.3	8.26	8.09	8.21	7.74	8.03	7.67	8.18	7.72	8.34	7.86	8.50	8.11	7.88	7.47	7.51	7.89
2,2',4,4',6-PeBDE	BDE-100	11.1	99.5	8.37	8.12	8.20	7.76	8.14	7.72	8.13	7.77	8.37	7.91	8.58	8.16	7.91	7.51	7.55	7.91
2,2',3,4,4',5'-HxBDE	BDE-138	12.0	109.4	8.05	8.03	7.72	7.70	7.94	7.53	7.94	7.56	8.02	7.68	8.07	7.89	7.64	7.36	7.38	7.62
2,2',4,4',5,5'-HxBDE	BDE-153	11.8	107.6	8.17	8.05	7.76	7.71	7.95	7.57	7.93	7.61	7.97	7.74	8.06	7.96	7.66	7.39	7.42	7.68
2,2',4,4',5,6'-HxBDE	BDE-154	11.9	107.9	8.35	8.03	8.12	7.70	8.04	7.55	7.85	7.58	8.04	7.70	8.43	7.93	7.87	7.38	7.40	7.85
2,2',3,4,4',5',6-HpBDE	BDE-183	12.0	114.8	8.42	8.05	8.20	7.71	8.01	7.56	8.04	7.60	8.23	7.73	8.42	7.95	7.82	7.38	7.40	7.85
2,3,3',4,4',5,6-HpBDE	BDE-190	12.8	115.8	8.10	7.97	7.73	7.66	7.89	7.40	7.85	7.40	7.79	7.47	8.03	7.64	7.60	7.28	7.27	7.42
2,2',3,3',4,4',5,5',6,6'-DeBDE	BDE-209	15.3	135.5	8.75	7.90	8.53	7.62	8.17	7.25	8.14	7.22	8.13	7.18	8.04	7.19	8.06	7.20	7.17	7.86
2,2',4,4',5,5'-HxBB	PBB-153	11.7	*120* [c]	8.48	8.11	8.21	7.76	7.88	7.66	8.06	7.71	8.23	7.86	8.60	8.10	7.87	7.44	7.48	7.85
tetrabromobisphenol A	TBBPA	14.8	*120* [c]	8.93	7.91	8.53	7.62	8.07	7.26	8.05	7.23	8.08	7.19	8.18	7.22	7.92	7.20	7.18	7.99

[a] Values were taken from ref *1* and *2* for PAHs, ref *3* and *4* for HCB and PCBs, and ref *5* for PBDEs, and obtained by calculation using the EPI Suite (*6*) for the POPs, which literature data were unavailable.
[b] Values were taken from ref *7* for PAHs, ref *8* for HCB, ref *9* for PBDE, calculated using the equation ΔH_{vap} = mL × 2.303 R for PCBs, and the m_L values were taken from ref *10*.
[c] intermediate ΔH_{vap} value of -120 kJ/mol was assumed because no literature data were available

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Table S3. Locations of the 68 sampling sites, the total suspended particle (TSP) concentrations, ambient atmosphere temperature (*T*) and precipitation (*P*), as well as the bark species, density, volume-based lipid contents (LipCont) and specific surface areas (SSA) of the bark samples collected across

mainland China and the concentrations of total Σ_{18}PAHs, Σ_5OCPs, Σ_{10}PCBs and Σ_{17}BFRs

Sampling site					Environmental condition			Bark characteristic				Concentration of POPs (ng/g dry bark)			
no.	city	province or municipality	longitude (E)	latitude (N)	TSP ($\mu g/m^3$)	T (^oC)	P (mm)	tree species	density (10^6 g/m^3)	SSA (10^6 m^2/m^3)	LipidCont (10^6 g/m^3)	Σ_{18}PAHs	Σ_5OCPs	Σ_{10}PCBs	Σ_{17}BFRs
1	Haila'er	Neimenggu	119.83	49.22	83.9	-1.0	367	Masson pine	0.78	5.81	5.89	2800	20.7	13.5	9.36
								poplar	0.78	2.33	2.28	453	3.26	2.04	1.41
								Chinese fir	0.78	5.06	8.25	4410	31.8	19.0	16.0
2	Wulanhaote	Neimenggu	122.08	46.07	86.1	1.4	259	Masson pine	0.80	5.81	4.90	1150	10.3	6.28	4.24
								poplar	0.80	2.33	2.17	220	1.99	1.22	0.78
								Chinese fir	0.80	5.06	6.13	1560	13.3	7.46	4.72
3	Ha'erbin	Heilongjiang	126.63	45.75	135	4.2	524	Masson pine	0.77	5.81	5.01	2690	8.22	42.9	29.2
								poplar	0.77	2.33	2.34	583	1.72	9.54	6.02
								weeping willow	0.77	8.88	3.69	1290	3.69	21.8	12.3
4	Kelamayi	Xinjiang	84.77	45.59	64.7	8.6	106	Masson pine	0.79	5.81	5.43	261	3.41	6.59	1.97
								poplar	0.79	2.33	2.68	57.9	0.78	1.54	0.45
5	Changchun	Jilin	125.35	43.88	90.4	5.6	570	Masson pine	0.73	5.81	4.99	1760	7.30	14.2	20.7
								poplar	0.73	2.33	1.95	293	1.14	3.07	3.54
								weeping willow	0.73	8.88	3.72	998	3.93	9.12	10.3
6	Wulumuqi	Xinjiang	87.68	43.77	121	6.9	286	Masson pine	0.75	5.81	5.62	464	4.18	5.34	6.15
								poplar	0.75	2.33	2.30	78.9	0.73	1.00	1.00
7	Tulufan	Xinjiang	89.19	42.91	97.4	14.4	16	Masson pine	0.77	5.81	4.88	93.6	1.01	1.08	1.14
								poplar	0.77	2.33	2.00	18.5	0.18	0.25	0.22
8	Shenyang	Liaoning	123.38	41.80	119	8.4	690	Masson pine	0.72	5.81	5.29	1920	7.05	33.7	19.3
								poplar	0.72	2.33	2.57	454	1.64	8.57	4.62
								weeping willow	0.72	8.88	4.06	838	3.18	15.4	8.61
9	Huhehaote	Neimenggu	111.65	40.82	107	6.7	398	Masson pine	0.71	5.81	5.59	1810	8.26	3.95	14.1
								poplar	0.71	2.33	2.68	417	2.02	1.12	3.38
10	Baotou	Neimenggu	110	40.58	111	6.6	383	Masson pine	0.71	5.81	5.39	1880	7.66	8.23	7.76
								poplar	0.71	2.33	2.52	402	1.72	1.80	1.60
11	Datong	Shanxi	113.3	40.12	208	9.8	415	Masson pine	0.73	5.81	5.58	3610	6.44	6.83	6.79
								poplar	0.73	2.33	2.15	596	1.10	1.40	1.13
12	Qinhuangdao	Hebei	119.57	39.95	78.6	10.6	607	Masson pine	0.72	5.81	4.97	685	5.41	6.20	6.96
								London Plane	0.72	2.81	3.69	3475	2.64	2.87	3.16
13	Beijing		116.46	39.92	178	12.3	572	Masson pine	0.70	5.81	5.47	1010	4.59	5.80	24.4
								London Plane	0.70	2.81	4.73	640	2.86	3.49	14.9
								Chinese fir	0.70	5.06	6.76	1170	5.41	6.50	24.5
14	Tiangjin		117.2	39.13	119	12.4	589	Masson pine	0.68	5.81	5.49	1540	11.4	16.9	19.5
								London Plane	0.68	2.81	3.98	722	5.40	8.05	8.22
15	Dalian	Liaoning	121.62	38.92	80.5	10.9	602	Masson pine	0.67	5.81	4.99	1020	3.00	8.24	6.93

								London Plane	0.67	2.81	3.43	393	1.19	3.24	2.72
								Chinese fir	0.67	5.06	7.84	1870	5.57	14.38	12.3
16	Yinchuan	Ningxia	106.27	38.47	120	9.0	186	Masson pine	0.67	5.81	5.16	1500	3.96	7.92	15.4
								poplar	0.67	2.33	2.65	370	0.97	2.01	3.81
17	Taiyuan	Shanxi	112.53	37.87	184	10.0	431	Masson pine	0.68	5.81	3.90	1760	5.11	3.60	5.42
18	Yantai	Shandong	121.39	37.52	59.6	12.5	588	Masson pine	0.65	5.81	5.04	702	3.05	4.28	4.70
								London Plane	0.65	2.81	3.89	338	1.46	2.14	2.34
								poplar	0.65	2.33	2.32	164	0.73	1.15	1.20
19	Qinghaihu	Qinghai	99.57	37.26	61.2	-0.3	379	Masson pine	0.66	5.81	5.32	341	7.63	23.9	10.5
								poplar	0.66	2.33	2.47	67.9	1.56	5.04	2.28
20	Xining	Qinghai	101.74	36.56	110	6.1	374	Masson pine	0.70	5.81	4.18	318	1.70	3.78	3.00
								poplar	0.70	2.33	2.15	76.6	0.43	0.98	0.76
21	Ge'ermu	Qinghai	94.90	36.41	64.7	5.3	42	Masson pine	0.65	5.81	4.78	325	2.22	7.53	1.33
								poplar	0.65	2.33	2.55	83.9	0.57	1.95	0.35
22	Changzhi	Shanxi	113.08	36.18	170	14.0	530	Masson pine	0.66	5.81	5.10	1150	5.21	3.70	2.15
								poplar	0.66	2.33	2.66	280	1.35	1.05	0.58
								weeping willow	0.66	8.88	4.27	744	3.57	2.83	1.54
23	Taishan	Shandong	117.13	36.18	88.3	11.4	664	Masson pine	0.67	5.81	4.94	546	1.33	3.65	3.92
								poplar	0.67	2.33	2.68	145	0.36	1.02	1.15
								weeping willow	0.67	8.88	3.80	328	0.78	2.23	2.35
								London Plane	0.67	2.81	4.24	360	0.91	2.23	2.55
24	Qingdao	Shandong	120.33	36.07	83.4	12.8	673	Masson pine	0.66	5.81	4.85	617	1.32	2.67	8.65
25	Lanzhou	Gansu	103.73	36.03	171	9.8	312	Masson pine	0.68	5.81	5.15	1090	3.64	14.2	13.99
								poplar	0.68	2.33	2.59	268	0.85	3.65	3.55
								weeping willow	0.68	8.88	3.91	635	2.16	8.93	8.03
26	Zhengzhou	Henan	113.65	34.76	98.7	14.3	632	Masson pine	0.66	5.81	4.46	541	3.37	2.74	3.53
								poplar	0.66	2.33	2.16	117	0.78	0.71	0.83
								weeping willow	0.66	8.88	3.79	357	2.38	2.10	2.65
								London Plane	0.66	2.81	4.34	420	2.70	2.03	2.70
27	Tianshui	Gansu	105.69	34.6	112	14.6	472	Masson pine	0.68	5.81	4.53	440	1.81	5.88	2.59
								poplar	0.68	2.33	2.46	117	0.49	1.80	0.74
								weeping willow	0.68	8.88	3.65	268	1.14	4.45	1.75
28	Lianyungang	Jiangsu	119.16	34.59	67.5	13.5	906	Masson pine	0.63	5.81	4.80	403	3.34	11.2	11.9
								poplar	0.63	2.33	2.47	95.0	0.83	2.77	3.02
								London Plane	0.63	2.81	3.52	209	1.82	5.74	6.31
29	Xi'an	Shaanxi	108.95	34.27	134	13.7	553	Masson pine	0.64	5.81	4.38	509	2.98	14.4	12.4
								London Plane	0.64	2.81	4.23	357	2.03	9.25	8.44
30	Yushu	Qinghai	96.97	33.03	64.9	3.2	486	Masson pine	0.64	5.81	5.68	215	3.05	12.5	3.01
								poplar	0.64	2.33	2.90	51.1	0.74	3.14	0.76
31	Fuyang	Anhui	115.81	32.89	67.5	15.4	920	Masson pine	0.65	5.81	4.13	189	0.83	1.98	1.17
								weeping willow	0.65	8.88	3.95	134	0.58	1.39	0.82
32	Emeishan	Sichuan	103.34	32.51	54.4	14.9	982	Masson pine	0.60	5.81	5.04	625	1.26	1.30	0.19

								camphor tree	0.60	5.19	4.44	371	0.78	0.78	0.12
33	Nanjing	Jiangsu	118.78	32.04	90.6	15.4	1060	Masson pine	0.61	5.81	4.89	536	4.42	14.1	5.52
								London Plane	0.61	2.81	4.55	355	2.70	8.64	3.48
34	Hefei	Anhui	117.27	31.86	83.2	15.3	1360	Masson pine	0.61	5.81	4.96	504	1.14	1.96	5.77
								London Plane	0.61	2.81	3.56	209	0.52	0.84	2.50
35	Wuhu	Anhui	118.38	31.33	53.0	15.2	1250	Masson pine	0.60	5.81	4.55	299	0.85	2.67	2.40
36	Shanghai	Jiangsu	121.48	31.22	71.7	16.6	1180	Masson pine	0.61	5.81	4.05	171	1.78	6.56	0.96
								London Plane	0.61	2.81	4.30	134	1.51	4.92	0.75
37	Wuxi	Jiangsu	120.29	31.59	93.2	14.6	1050	Masson pine	0.60	5.81	4.70	276	8.29	15.68	6.23
38	Chengdu	Sichuan	104.06	30.67	136	17.3	987	Masson pine	0.58	5.81	5.11	536	2.08	3.24	5.28
								London Plane	0.58	2.81	4.19	278	1.06	1.61	2.81
39	Wuhan	Hubei	114.31	30.52	125	16.6	1270	Masson pine	0.62	5.81	4.85	616	0.87	2.42	6.72
								London Plane	0.62	2.81	4.19	354	0.49	1.36	3.76
								camphor tree	0.62	5.19	4.47	477	0.67	2.02	5.20
40	Hangzhou	Zhejiang	120.19	30.26	144	16.5	1460	Masson pine	0.63	5.81	4.44	251	1.52	2.39	7.27
								London Plane	0.63	2.81	3.86	145	0.88	1.34	4.17
41	Lasa	Xizang	91.11	29.97	60.4	8.0	426	Masson pine	0.59	5.81	3.83	206	1.18	4.23	1.23
								Chinese fir	0.59	5.06	5.71	287	1.62	6.02	1.84
								Picea Likiangensis	0.59	5.06	6.35	428	2.36	8.79	2.48
42	Enshi	Hubei	109.14	29.66	102	16.2	1470	Masson pine	0.59	5.81	5.14	628	1.15	2.00	2.97
								camphor tree	0.59	5.19	3.71	282	0.51	0.94	1.32
43	Chongqing	Sichuan	106.51	29.52	121	18.2	1110	Masson pine	0.57	5.81	4.36	538	1.08	1.95	7.45
								London Plane	0.57	2.81	3.58	280	0.57	0.99	3.86
44	Lushan	Jiangxi	115.59	29.51	67.2	17.1	1950	Masson pine	0.59	5.81	4.73	171	0.79	2.96	1.62
45	Dexing	Jiangxi	117.58	29.16	86.9	17.4	1830	Masson pine	0.59	5.81	5.63	382	1.09	3.38	4.44
								camphor tree	0.59	5.19	4.44	193	0.54	1.82	2.21
46	Jinhua	Zhejiang	119.64	29.12	80.5	17.3	1410	Masson pine	0.59	5.81	4.35	326	1.12	5.23	13.6
								Chinese fir	0.59	5.06	7.71	603	2.06	8.76	24.4
								camphor tree	0.59	5.19	4.23	269	0.99	4.46	11.5
47	Nanchang	Jiangxi	115.89	28.68	88.8	17.6	1620	Masson pine	0.59	5.81	4.64	502	0.81	1.71	4.60
								London Plane	0.59	2.81	3.69	242	0.41	0.86	2.30
48	Taizhou	Zhejiang	121.36	28.36	81.7	16.7	1550	Masson pine	0.59	5.81	4.36	657	0.90	5.13	52.4
								camphor tree	0.59	5.19	3.88	394	0.55	3.07	30.8
								Chinese fir	0.59	5.06	6.82	1210	1.65	8.62	89.1
								weeping willow	0.59	8.88	3.97	476	0.65	4.03	37.8
49	Changsha	Hunan	113.01	28.21	126	17.1	1550	Masson pine	0.60	5.81	4.87	411	1.47	3.24	3.53
								Chinese fir	0.60	5.06	7.62	637	2.29	4.44	5.42
								camphor tree	0.60	5.19	4.00	275	0.94	2.22	2.36
50	Wenzhou	Zhejiang	120.65	28.01	72.3	17.3	1710	Masson pine	0.55	5.81	3.33	328	0.53	3.21	25.1
								camphor tree	0.55	5.19	4.25	370	0.59	3.23	27.1
								Chinese fir	0.55	5.06	6.92	960	1.58	7.69	69.4
51	Mt. Everest	Xizang	86.95	27.98	33.7	8.0	426	Oxytropis falcate	0.59	1.06	9.33	323	1.40	5.25	0.90

	region							Bunge							
								Chinese fir	0.59	5.06	7.34	167	0.71	2.61	0.51
52	Xianggelila	Yunnan	99.72	27.86	48.8	5.7	622	Masson pine	0.56	5.81	4.24	240	7.70	6.84	1.59
								camphor tree	0.56	5.19	4.36	182	5.94	5.27	1.26
53	Wuyishan	Fujian	117.81	27.5	60.8	17.9	1550	Masson pine	0.56	5.81	4.73	294	0.86	1.50	2.74
								camphor tree	0.56	5.19	4.17	175	0.50	0.92	1.74
54	Lijiang	Yunnan	100.25	26.86	44.8	6.3	968	Masson pine	0.55	5.81	4.21	231	6.77	9.67	3.47
								camphor tree	0.55	5.19	3.95	158	4.42	6.52	2.37
								Chinese fir	0.55	5.06	7.70	566	16.8	22.96	7.98
55	Guiyang	Guizhou	106.71	26.57	94.2	15.3	1120	Masson pine	0.57	5.81	4.93	576	2.72	3.77	3.46
								camphor tree	0.57	5.19	4.12	328	1.52	2.14	1.92
								Chinese fir	0.57	5.06	7.19	961	4.29	5.74	5.47
56	Sanming	Fujian	117.61	26.23	73.1	19.3	1560	Masson pine	0.55	5.81	4.03	125	0.44	1.64	1.42
								camphor tree	0.55	5.19	4.23	103	0.33	1.28	1.17
								Chinese fir	0.55	5.81	6.80	268	0.90	2.96	2.84
57	Fuzhou	Fujian	119.30	26.08	65.2	19.8	1390	camphor tree	0.55	5.19	4.46	108	0.79	0.97	3.60
								lemon-scented gum	0.55	1.29	3.30	45.3	0.35	0.41	1.56
58	Ganzhou	Jiangxi	114.92	25.85	78.5	19.4	1460	Masson pine	0.57	5.81	4.52	167	0.80	2.57	1.10
								Chinese fir	0.57	5.06	7.29	273	1.25	3.64	1.69
59	Dali	Yunnan	100.19	25.69	58.4	17.5	1160	Masson pine	0.53	5.81	4.47	89.4	1.43	1.12	1.49
								camphor tree	0.53	5.19	4.41	63.2	1.04	0.83	1.10
60	Guilin	Guangxi	110.28	25.29	37.2	18.8	1920	Masson pine	0.54	5.81	4.23	180	1.67	5.22	0.74
								weeping willow	0.54	8.88	3.63	103	0.96	3.28	0.44
								camphor tree	0.54	5.19	4.22	158	1.52	4.71	0.65
								Chinese fir	0.54	5.06	7.27	372	3.45	9.90	1.49
61	Kunming	Yunnan	102.73	25.04	103	14.9	1010	Masson pine	0.55	5.81	4.28	180	1.91	1.57	0.84
								camphor tree	0.55	5.19	4.39	144	1.45	1.21	0.64
								Chinese fir	0.55	5.06	6.00	281	2.95	2.13	1.21
62	Xiamen	Fujian	118.10	24.46	40.9	20.4	1350	Masson pine	0.51	5.81	4.01	79.2	0.39	1.14	3.92
								camphor tree	0.51	5.19	4.30	65.7	0.33	0.88	3.24
								lemon-scented gum	0.51	1.29	2.97	41.8	0.21	0.57	2.08
63	Guangzhou	Guangdong	113.23	23.16	111	22	1740	Masson pine	0.53	5.81	4.77	275	1.08	4.91	11.9
								camphor tree	0.53	5.19	4.41	193	0.76	3.66	8.78
64	Nanning	Guangxi	108.33	22.84	102	21.8	1310	Masson pine	0.53	5.81	4.54	108	0.69	0.87	0.88
								camphor tree	0.53	5.19	3.52	52.4	0.33	0.47	0.45
								Chinese fir	0.53	5.06	7.46	215	1.31	1.37	1.53
65	Shenzhen	Guangdong	114.07	22.62	72.8	22.2	1950	Masson pine	0.54	5.81	3.47	95.2	0.41	1.84	5.99
								camphor tree	0.54	5.19	3.78	83.7	0.34	1.47	4.97
66	Beihai	Hainan	109.12	21.49	34.6	22.2	1300	Masson pine	0.52	5.81	4.73	14.5	0.18	0.95	0.09
								lemon-scented gum	0.52	1.29	3.66	6.9	0.08	0.43	0.04
								Chinese fir	0.52	5.06	6.85	22.1	0.27	1.36	0.13
67	Xishuangbanna	Yunnan	99.98	21.44	47.8	15.1	1530	Masson pine	0.52	5.81	4.59	85.1	1.87	2.04	0.13

								camphor tree	0.52	5.19	3.61	43.6	0.96	0.99	0.07
68	Sanya	Hainan	109.11	18.27	15.7	24.7	1650	Masson pine	0.48	5.81	3.70	5.8	0.06	0.33	0.03
								lemon-scented gum	0.48	1.29	3.67	4.5	0.05	0.21	0.02
Geometric mean												295	1.47	3.12	2.79

Table S4. Air concentrations of the total Σ_{18}PAHs, Σ_5OCPs, Σ_{10}PCBs and Σ_{17}BFRs estimated from the bark measurements using the developed bark/air partitioning model in comparison with the values measured using active air sampling methods taken from the literature

Sampling site		Estimated concentration				Reported concentration			
no	city	Σ_{18}PAHs (ng/m^3)	Σ_5OCPs (pg/m^3)	Σ_{10}PCBs (pg/m^3)	Σ_{17}BFRs (pg/m^3)	ΣPAHs (ng/m^3)	ΣOCPs (pg/m^3)	ΣPCBs (pg/m^3)	ΣBFRs (pg/m^3)
1	Haila'er	99.6 ± 29.1	144 ± 16	13.7 ± 2.9	6.3 ± 0.6				
2	Wulanhaote	74.6 ± 12.3	137 ± 20	12.6 ± 0.7	5.4 ± 1.7				
3	Ha'erbin	210 ± 35	138 ± 37	102 ± 22	56.6 ± 14.2				
4	Kelamayi	30.2 ± 7.4	97.5 ± 19.7	23.9 ± 3.6	6.8 ± 0.7				
5	Changchun	163 ± 32	149 ± 36	41.2 ± 5.9	107 ± 13				
6	Wulumuqi	40.2 ± 3.1	86.4 ± 9.8	18.1 ± 2.3	49.0 ± 5.9				
7	Tulufan	24.2 ± 1.9	67.8 ± 8.1	12.2 ± 1.3	11.0 ± 2.7				
8	Shenyang	194 ± 8.3	174 ± 24	112 ± 13	62.1 ± 12.6	226 ± 69.2 [1]			
9	uhehaote	151 ± 16	166 ± 32	13.5 ± 2.9	34.2 ± 4.3				
10	Baotou	162 ± 37	158 ± 22	23.7 ± 6.5	18.9 ± 3.1				
11	Datong	179 ± 24	147 ± 21	43.9 ± 7.7	32.2 ± 8.1				
12	Qinhuangdao	110 ± 5	217 ± 19	30.9 ± 6.9	35.4 ± 6.5				
13	Beijing	152 ± 42	183 ± 35	39.8 ± 9.1	142 ± 22	178±240 [2]	376±315 [8]	30.1-151 [13]	
14	Tianjin	232 ± 42	456 ± 135	94.5 ± 27.3	106 ± 22	144-308 [3]	2-900 [9]		
15	Dalian	146 ± 32	111 ± 27	37.8 ± 8.1	33.4 ± 10.9				
16	Yinchuan	168 ± 41	108 ± 32	31.1 ± 3.2	55.9 ± 6.9				
17	Taiyuan	399 ± 35	290 ± 33	33.1 ± 3.2	44.2 ± 7.3				
18	Yantai	115 ± 17	132 ± 35	23.2 ± 4.0	28.0 ± 6.5				
19	Qinghaihu	12.6 ± 1.9	57.8 ± 9.6	18.8 ± 6.1	7.7 ± 0.8				
20	Xining	38.0 ± 3.0	47.9 ± 14.2	15.1 ± 1.8	10.2 ± 1.0				8.3 ± 4.0 [14]
21	Ge'ermu	26.8 ± 1.2	41.4 ± 13.7	16.2 ± 5.3	2.8 ± 0.8				
22	Changzhi	212 ± 62	268 ± 54	31.1 ± 3.2	17.4 ± 2.1				
23	Taishan	85.4 ± 14.2	54.1 ± 56	19.4 ± 4.3	21.5 ± 3.5				
24	Qingdao	128 ± 10	73.2 ± 8.9	19.7 ± 1.9	66.4 ± 8.8	87.5 [4]			
25	Lanzhou	137 ± 44	113 ± 16	69.2 ± 16.5	62.1 ± 13.4				
26	Zhengzhou	128 ± 29	226 ± 15	24.4 ± 4.4	34.4 ± 4.3				
27	Tianshui	109 ± 25	124 ± 25	54.6 ± 15.5	26.8 ± 6.4				
28	Lianyungang	76.5 ± 3.9	175 ± 30	65.5 ± 11.6	85.8 ± 14.5				
29	Xi'an	116 ± 31	181 ± 43	119 ± 20	113 ± 24				
30	Yushu	10.3 ± 3.4	32.0 ± 2.4	14.5 ± 1.1	3.4 ± 1.3				
31	Fuyang	58.4 ± 5.9	70.8 ± 7.9	19.8 ± 2.1	14.3 ± 4.3				
32	Emeishan	122 ± 17	68.9 ± 19.5	9.1 ± 2.3	1.5 ± 0.1				
33	Nanjing	116 ± 27	258 ± 12	105 ± 18	48.7 ± 4.1	86 [5]			
34	Hefei	105 ± 6	68.6 ± 8.1	15.2 ± 1.6	50.0 ± 8.3				
35	Wuhu	81.5 ± 6.3	64.4 ± 7.5	22.9 ± 2.2	25.7 ± 3.7				

36	Shanghai	56.5 ± 6.6	173 ± 21	70.7 ± 4.5	13.4 ± 3.1	52.4 [6]		
37	Wuxi	67.0 ± 7.4	553 ± 52	130 ± 17	60.7 ± 6.4		> 167 [10]	
38	Chengdu	121 ± 32	134 ± 23	30.2 ± 8.1	56.3 ± 15.7			
39	Wuhan	155 ± 18	61.8 ± 9.1	25.1 ± 5.8	75.2 ± 8.9			
40	Hangzhou	72.1 ± 15.1	123 ± 16	27.7 ± 3.4	93.8 ± 18.6			
41	Lasa	30.2 ± 9.8	41.0 ± 12.8	16.4 ± 1.5	5.2 ± 1.1			
42	Enshi	133 ± 27	68.5 ± 4.9	16.2 ± 3.9	26.9 ± 7.0			
43	Chongqing	172 ± 52	101 ± 31	23.7 ± 6.6	111 ± 10			
44	Lushan	51.8 ± 4.9	68.8 ± 8.7	30.5 ± 4.5	21.2 ± 2.6			
45	Dexing	78.7 ± 24.2	64.5 ± 18.9	26.5 ± 3.0	40.8 ± 6.8			
46	Jinhua	100 ± 13	102 ± 16	69.7 ± 16.5	185 ± 52			
47	Nanchang	140 ± 25	67.5 ± 3.6	17.8 ± 2.1	58.7 ± 16			
48	Taizhou	187 ± 44	73.4 ± 13.2	62.3 ± 12.2	624 ± 57			
49	Changsha	105 ± 16	107 ± 15	32.7 ± 2.8	41.6 ± 5.7			
50	Wenzhou	147 ± 41	68.7 ± 6.5	55.4 ± 12.9	474 ± 53			
51	Mt. Everest region	10.9 ± 2.1	11.3 ± 1.2	4.5 ± 1.1	0.9 ± 0.2		29 [11]	
52	Xianggelila	21.6 ± 2.5	161 ± 33	13.8 ± 1.9	3.7 ± 0.7			
53	Wuyishan	79.6 ± 8.0	67.2 ± 5.6	13.8 ± 1.5	33.8 ± 2.7			
54	Lijiang	22.6 ± 6.2	152 ± 40	20.4 ± 1.4	8.6 ± 1.6			
55	Guiyang	108 ± 27	137 ± 45	24.3 ± 5.5	26.1 ± 5.3			
56	Sanming	50.5 ± 14.6	50.9 ± 7.8	21.5 ± 1.8	26.4 ± 7.1			
57	Fuzhou	37.2 ± 10.3	84.7 ±26	11.7 ± 1.9	60.5 ± 15.1			
58	Ganzhou	57.7 ± 8.2	81.4 ± 12.3	30.7 ± 2.5	17.8 ± 1.9			
59	Dali	24.2 ± 2.5	114 ± 37	10.0 ± 1.7	17.8 ± 1.7			
60	Guilin	59.1 ± 12.8	166 ± 38	53.0 ± 11.2	11.0 ± 0.8			
61	Kunming	42.1 ± 5.6	121 ± 27	12.2 ± 1.4	7.8 ± 0.7			
62	Xiamen	33.1 ± 6.2	50.4 ± 6.8	14.5 ± 3.0	78.7 ± 5.0			
63	Guangzhou	106 ± 17	128 ± 32	71.5 ± 18.1	243 ± 41	8.1-106 [7]	8.2-421 [12]	353±137 [15]
64	Nanning	43.1 ±9.4	83.8 ± 4.3	11.9 ± 3.5	17.6 ± 2.2			
65	Shenzhen	62.8 ± 4.7	81.4 ± 11.5	35.9 ± 10.4	191 ± 26			
66	Beihai	5.5 ± 1.1	21.1 ± 1.8	11.3 ± 2.1	1.7 ± 0.1			
67	Xishuangbanna	17.3 ± 3.2	105 ± 23	10.9 ±1.6	1.0 ± 0.2			
68	Sanya	4.1 ± 1.0	13.7 ± 4.4	5.7 ± 1.9	1.1 ± 0.2			
Geometric mean		71	99	26	25			

[a] Each value represents the geometric mean of the air concentrations estimated from the various species of barks at the same site.

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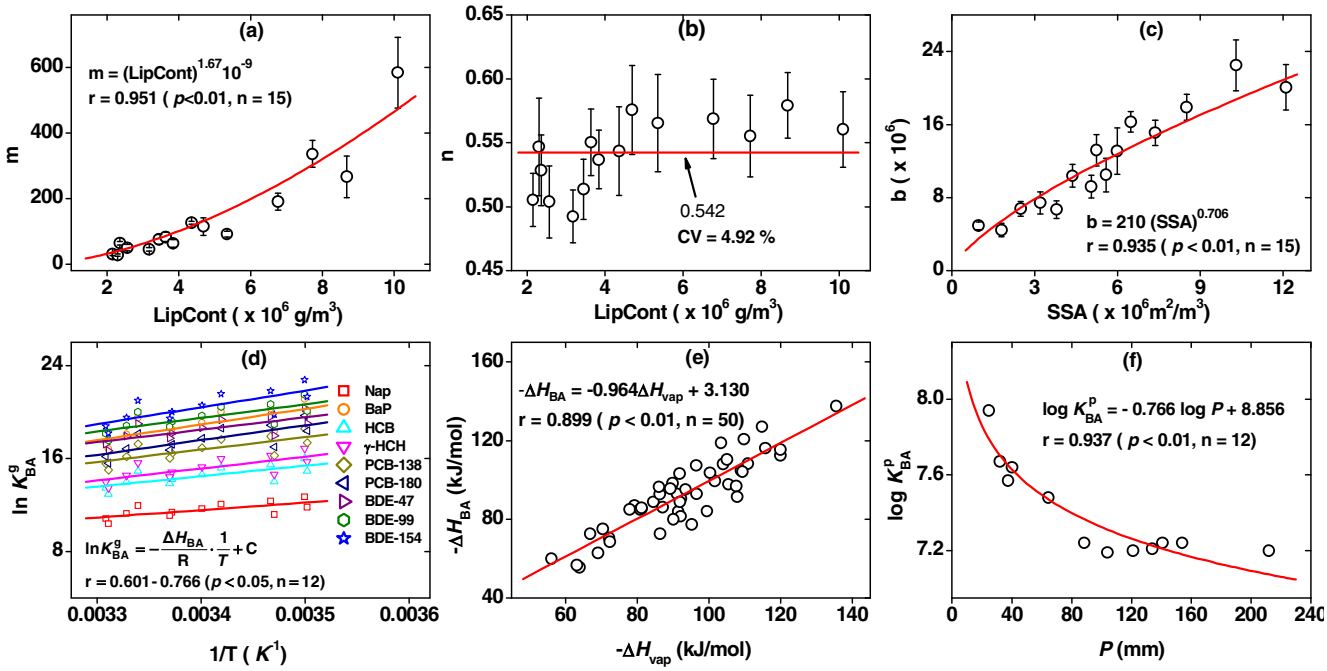

FIGURE S1. Plots of (a) the m values as a function of bark lipid content (LipCont); (b) the variation of n values among the 15 species of barks; (c) the b values as a function of bark specific surface area (SSA); (d) the bark/gas-phase partition coefficients (K_{BA}^{g}) for typical POPs as a function of the reciprocal temperature(T); (e) the enthalpies of phase transfer between the bark and air (ΔH_{BA}) for the POPs as a function of enthalpy of vaporization of the subcooled liquid (ΔH_{vap}); and (f) the bark/particle-phase partition coefficient (K_{BA}^{p}) for the POPs as a function of precipitation (P).