

Usage of Needle and Branches in the Applications of Bioindicator, Source Apportionment and Risk Assessment of PAHs

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Table S1. PCA analyses results for PAHs in the ambient air and pine needles.

PAHs	Ambient Air		Pine Needle				
	PC 1	PC 2	PC 1	PC 2	PC 3	PC 4	PC 5
Ace	0.864	0.474	−0.418	−0.439	0.728	−0.103	0.080
Fluo	0.837	0.476	−0.011	−0.618	0.605	0.1	0.392
Phe	0.823	−0.472	−0.422	0.41	0.605	0.0383	0.455
Ant	0.298	−0.861	0.453	0.576	0.019	0.547	0.32
Flt	0.662	−0.744	0.214	−0.504	−0.754	−0.142	0.236
Pyr	0.548	−0.829	0.561	0.551	−0.123	0.297	0.375
BaA	0.775	−0.604	0.561	0.142	0.513	−0.343	−0.178
Chr	0.947	−0.202	0.045	0.887	−0.049	0.097	−0.133
BbF	0.959	0.191	0.199	0.624	0.0403	−0.706	0.123
BkF	0.956	0.042	0.805	0.264	0.182	−0.423	0.155
BaP	0.823	0.529	0.941	−0.231	0.0187	−0.083	−0.028
Indeno	0.841	0.437	0.866	−0.444	0.078	0.126	−0.052
DahA	0.661	0.596	0.797	−0.515	0.161	0.176	0.022
BghiP	0.91	0.0268	−0.272	−0.285	−0.494	−0.324	0.607
Variance (%)	91.84		90.76				

Table S2. PCA analyses results for PAHs in the one-year-old and two-year-old branches.

PAHs	Pine Branch (1-Year-Old)				Pine Branch (2-Year-Old)				
	PC 1	PC 2	PC 3	PC 4	PC 1	PC 2	PC 3	PC 4	PC 5
Ace	0.176	0.922	0.151	−0.193	0.688	−0.425	0.403	0.25	0.267
Fluo	−0.289	0.74	0.068	0.009	0.408	−0.602	0.637	0.06	0.136
Phe	0.857	0.366	0.294	0.058	0.895	−0.061	0.257	0.22	−0.15
Ant	0.809	−0.165	−0.223	0.496	0.723	0.173	−0.549	0.137	0.27
Flt	0.792	0.263	0.449	−0.257	0.91	0.232	0.084	0.188	−0.173
Pyr	0.816	−0.059	−0.413	0.146	0.599	0.061	−0.468	−0.16	0.544
BaA	0.24	0.193	−0.886	−0.131	−0.034	0.646	0.535	−0.381	0.32
Chr	0.827	0.232	0.253	0.017	0.633	0.533	0.088	0.27	−0.398
BbF	0.242	0.563	−0.204	−0.42	0.396	0.772	−0.327	−0.217	0.12
BkF	−0.022	0.27	−0.894	−0.275	−0.052	0.824	0.152	0.387	−0.025
BaP	−0.008	0.24	−0.043	0.828	−0.477	0.651	0.231	0.198	0.106
Indeno	−0.348	0.805	0.142	0.348	−0.351	−0.238	0.025	0.63	0.4
DahA	−0.287	0.546	−0.679	0.268	0.137	0.312	0.746	−0.367	0.159
BghiP	−0.423	0.519	0.495	0.029	−0.517	0.339	0.0944	0.543	0.167
Variance (%)	84.56				88.19				

Table S3. Total BaP equivalent concentrations ($\Sigma_{14}\text{BaP}_{\text{eq}}$) values in this study.

Months	Dec-2015	Jan-2016	Feb-2016	Apr-2016	May-2016	Jun-2016	Jul-2016	Aug-2016	Sep-2016	Oct-2016	Nov-2016
$\Sigma_{14}\text{BaP}_{\text{eq}}$ (ng/m ³)	0.528	0.173	0.283	0.032	0.006	0.019	0.087	0.046	0.055	0.282	0.706