1   Supporting information for

2   **Characterization of organic aerosols from a Chinese Mega-City during winter:**
3   **predominance of fossil fuel combustion**

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33 **Table S1.** Concentrations of identified organic compounds (ng m$^{-3}$) in the atmospheric aerosol
34 samples (PM$_{2.5}$) from Nanjing, China.
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| Compounds | Daytime | | | | Nighttime | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Min[a] | Max[b] | SD[c] | Mean | Min[a] | Max[b] | SD[c] |
| *n*-Alkanes | | | | | | | | |
| $C_{13}$ | 1.91 | 1.59 | 3.27 | 0.29 | 1.93 | 1.58 | 3.50 | 0.39 |
| $C_{14}$ | 1.24 | 0.89 | 2.16 | 0.27 | 1.17 | 0.93 | 1.79 | 0.22 |
| $C_{15}$ | 1.26 | 0.82 | 1.97 | 0.25 | 1.11 | 0.77 | 1.60 | 0.23 |
| $C_{16}$ | 0.35 | 0.00 | 0.88 | 0.27 | 0.32 | 0.00 | 0.96 | 0.28 |
| $C_{17}$ | 1.04 | 0.37 | 2.41 | 0.45 | 0.99 | 0.39 | 1.99 | 0.34 |
| $C_{18}$ | 1.11 | 0.32 | 2.66 | 0.48 | 1.22 | 0.58 | 2.78 | 0.48 |
| $C_{19}$ | 2.50 | 1.17 | 5.69 | 1.11 | 2.65 | 1.05 | 7.30 | 1.42 |
| $C_{20}$ | 3.79 | 1.09 | 7.99 | 1.60 | 4.64 | 1.01 | 15.5 | 2.76 |
| $C_{21}$ | 6.28 | 3.30 | 12.9 | 2.26 | 8.31 | 2.50 | 25.7 | 4.75 |
| $C_{22}$ | 10.1 | 5.02 | 27.5 | 4.31 | 14.0 | 2.77 | 33.7 | 7.53 |
| $C_{23}$ | 13.0 | 6.10 | 38.5 | 6.08 | 17.1 | 3.22 | 44.6 | 8.86 |
| $C_{24}$ | 12.6 | 6.59 | 36.0 | 6.03 | 16.9 | 2.94 | 46.1 | 8.27 |
| $C_{25}$ | 12.7 | 5.57 | 36.4 | 6.39 | 16.4 | 2.60 | 44.6 | 8.21 |
| $C_{26}$ | 11.3 | 4.97 | 28.9 | 5.77 | 15.3 | 3.43 | 34.9 | 6.62 |
| $C_{27}$ | 12.3 | 5.25 | 33.7 | 6.19 | 15.6 | 2.97 | 32.9 | 6.65 |
| $C_{28}$ | 9.19 | 4.80 | 29.3 | 5.01 | 11.9 | 3.14 | 24.2 | 4.74 |
| $C_{29}$ | 14.0 | 5.76 | 44.9 | 8.00 | 17.9 | 3.05 | 43.5 | 8.27 |
| $C_{30}$ | 8.03 | 4.36 | 25.9 | 4.51 | 10.8 | 3.20 | 21.8 | 4.06 |
| $C_{31}$ | 10.9 | 4.80 | 35.9 | 6.06 | 13.7 | 4.01 | 35.6 | 6.15 |
| $C_{32}$ | 5.56 | 3.09 | 14.9 | 2.28 | 6.87 | 4.18 | 13.1 | 1.98 |
| $C_{33}$ | 6.48 | 4.01 | 18.5 | 2.79 | 7.55 | 3.55 | 18.5 | 2.87 |
| $C_{34}$ | 4.80 | 3.57 | 9.94 | 1.36 | 5.56 | 4.04 | 10.2 | 1.40 |
| $C_{35}$ | 4.73 | 3.61 | 9.29 | 1.20 | 5.06 | 3.80 | 9.37 | 1.15 |
| $C_{36}$ | 4.77 | 4.10 | 8.02 | 0.91 | 4.61 | 3.95 | 6.78 | 0.57 |
| $C_{37}$ | 5.00 | 4.35 | 8.80 | 0.80 | 4.76 | 4.35 | 5.97 | 0.35 |
| $C_{38}$ | 5.35 | 4.67 | 9.46 | 0.85 | 5.01 | 4.75 | 5.53 | 0.20 |
| $C_{39}$ | 6.71 | 5.89 | 11.6 | 1.04 | 6.41 | 5.64 | 7.79 | 0.53 |
| Subtotal | 177 | 96.1 | 467 | 76.6 | 218 | 74.4 | 500 | 89.3 |
| CPI ($C_{20}$–$C_{39}$) | 1.28 | 1.18 | 1.32 | 1.32 | 1.24 | 1.10 | 1.37 | 1.35 |
| Plant Wax Alkanes | | | | | | | | |
| $C_{23}$ | 1.64 | 0.30 | 6.72 | 1.19 | 1.80 | 0.00 | 4.98 | 1.56 |
| $C_{25}$ | 0.81 | 0.00 | 3.93 | 0.82 | 0.76 | 0.00 | 4.13 | 1.07 |
| $C_{27}$ | 2.02 | 0.00 | 5.28 | 1.18 | 2.00 | 0.00 | 5.69 | 1.65 |
| $C_{29}$ | 5.42 | 0.47 | 17.4 | 3.58 | 6.55 | 0.00 | 20.5 | 4.47 |
| $C_{31}$ | 4.08 | 0.25 | 15.5 | 2.87 | 4.82 | 0.00 | 18.2 | 3.54 |
| $C_{33}$ | 1.30 | 0.10 | 6.05 | 1.15 | 1.36 | 0.00 | 6.85 | 1.38 |
| $C_{35}$ | 0.16 | 0.00 | 0.86 | 0.26 | 0.22 | 0.00 | 1.04 | 0.33 |
| $C_{37}$ | 0.10 | 0.00 | 0.53 | 0.17 | 0.10 | 0.00 | 0.74 | 0.19 |
| Subtotal | 15.5 | 1.12 | 56.2 | 11.2 | 17.6 | 0 | 62.1 | 14.2 |

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38    **Table 1. (Continued)**

| Compounds | Daytime | | | | Nighttime | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Min[a] | Max[b] | SD[c] | Mean | Min[a] | Max[b] | SD[c] |
| Fatty acids | | | | | | | | |
| $C_{12:0}$ | 0.54 | 0.12 | 2.04 | 0.44 | 0.60 | 0.19 | 1.57 | 0.31 |
| $C_{13:0}$ | 0.55 | 0.11 | 2.08 | 0.40 | 0.74 | 0.03 | 2.38 | 0.57 |
| $C_{14:0}$ | 0.81 | 0.27 | 2.48 | 0.39 | 1.05 | 0.21 | 1.87 | 0.40 |
| $C_{15:0}$ | 0.61 | 0.19 | 1.88 | 0.34 | 0.69 | 0.05 | 1.50 | 0.29 |
| $C_{16:0}$ | 18.9 | 5.12 | 56.8 | 11.2 | 30.5 | 3.87 | 89.2 | 20.9 |
| $C_{17:0}$ | 0.60 | 0.18 | 1.99 | 0.37 | 0.77 | 0.11 | 1.80 | 0.36 |
| $C_{18:0}$ | 7.46 | 1.88 | 23.4 | 4.11 | 12.2 | 1.48 | 28.9 | 7.16 |
| $C_{19:0}$ | 0.36 | 0.08 | 1.07 | 0.23 | 0.48 | 0.02 | 1.41 | 0.30 |
| $C_{20:0}$ | 1.40 | 0.38 | 5.06 | 0.92 | 1.78 | 0.18 | 4.19 | 0.92 |
| $C_{21:0}$ | 0.81 | 0.14 | 2.87 | 0.57 | 0.96 | 0.03 | 2.32 | 0.55 |
| $C_{22:0}$ | 2.70 | 0.57 | 10.4 | 1.90 | 3.16 | 0.17 | 7.51 | 1.85 |
| $C_{23:0}$ | 1.94 | 0.43 | 8.47 | 1.55 | 2.38 | 0.10 | 5.41 | 1.34 |
| $C_{24:0}$ | 16.8 | 3.28 | 73.8 | 13.5 | 19.4 | 1.51 | 50.9 | 11.7 |
| $C_{25:0}$ | 1.11 | 0.16 | 4.34 | 0.82 | 1.37 | 0.00 | 3.45 | 0.85 |
| $C_{26:0}$ | 2.75 | 0.37 | 10.6 | 2.08 | 3.22 | 0.10 | 9.07 | 2.09 |
| $C_{27:0}$ | 0.62 | 0.09 | 1.94 | 0.46 | 0.74 | 0.00 | 2.07 | 0.54 |
| $C_{28:0}$ | 2.27 | 0.38 | 10.3 | 1.95 | 2.86 | 0.23 | 6.88 | 1.81 |
| $C_{29:0}$ | 0.63 | 0.09 | 2.88 | 0.56 | 0.79 | 0.00 | 2.10 | 0.49 |
| $C_{30:0}$ | 2.35 | 0.34 | 12.6 | 2.32 | 2.99 | 0.17 | 9.40 | 2.14 |
| $C_{31:0}$ | 0.26 | 0.00 | 1.38 | 0.25 | 0.35 | 0.05 | 1.17 | 0.28 |
| $C_{32:0}$ | 1.13 | 0.00 | 7.48 | 1.44 | 1.55 | 0.07 | 6.04 | 1.35 |
| $C_{18:1}$ | 0.36 | 0.04 | 1.62 | 0.33 | 0.39 | 0.00 | 1.66 | 0.37 |
| $C_{18:2}$ | 1.81 | 0.10 | 8.18 | 1.80 | 2.31 | 0.00 | 10.9 | 2.58 |
| Subtotal | 66.8 | 14.3 | 254 | 47.9 | 91.3 | 8.57 | 252 | 59.2 |
| CPI ($C_{20:0}$-$C_{32:0}$) | 5.41 | 4.24 | 6.50 | 0.54 | 5.52 | 4.29 | 13.2 | 1.51 |
| Fatty alcohols | | | | | | | | |
| $C_{12}$ | 1.74 | 0.26 | 5.76 | 1.12 | 1.99 | 0.16 | 7.33 | 1.38 |
| $C_{14}$ | 3.58 | 0.70 | 23.9 | 4.11 | 4.13 | 0.10 | 11.6 | 2.60 |
| $C_{15}$ | 0.60 | 0.22 | 1.81 | 0.39 | 0.66 | 0.05 | 1.33 | 0.38 |
| $C_{16}$ | 0.66 | 0.16 | 1.60 | 0.34 | 0.71 | 0.05 | 2.32 | 0.45 |
| $C_{17}$ | 0.42 | 0.10 | 1.30 | 0.26 | 0.46 | 0.13 | 1.98 | 0.34 |
| $C_{18}$ | 0.91 | 0.19 | 2.33 | 0.57 | 1.43 | 0.13 | 6.35 | 1.25 |
| $C_{19}$ | 0.54 | 0.15 | 2.09 | 0.35 | 0.56 | 0.15 | 1.34 | 0.30 |
| $C_{20}$ | 1.08 | 0.18 | 2.71 | 0.66 | 1.11 | 0.27 | 3.06 | 0.63 |
| $C_{21}$ | 0.74 | 0.15 | 2.98 | 0.56 | 0.75 | 0.12 | 2.12 | 0.45 |
| $C_{22}$ | 1.76 | 0.47 | 6.37 | 1.26 | 2.11 | 0.13 | 6.92 | 1.44 |
| $C_{23}$ | 0.68 | 0.14 | 1.97 | 0.43 | 0.92 | 0.23 | 2.92 | 0.60 |
| $C_{24}$ | 1.22 | 0.19 | 7.86 | 1.31 | 1.28 | 0.16 | 3.50 | 0.77 |
| $C_{25}$ | 0.64 | 0.21 | 1.94 | 0.35 | 0.55 | 0.11 | 1.26 | 0.27 |
| $C_{26}$ | 2.99 | 0.18 | 10.7 | 2.03 | 3.34 | 0.68 | 7.77 | 1.93 |
| $C_{27}$ | 0.83 | 0.19 | 2.27 | 0.48 | 0.87 | 0.00 | 3.74 | 0.70 |
| $C_{28}$ | 5.72 | 1.17 | 19.3 | 3.69 | 6.44 | 1.09 | 18.7 | 3.62 |

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| Compounds | Daytime | | | | Nighttime | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Min[a] | Max[b] | SD[c] | Mean | Min[a] | Max[b] | SD[c] |
| $C_{29}$ | 0.97 | 0.16 | 5.20 | 0.90 | 0.94 | 0.00 | 2.38 | 0.55 |
| $C_{30}$ | 8.73 | 1.87 | 51.7 | 8.66 | 11.6 | 0.87 | 32.6 | 6.36 |
| $C_{31}$ | 0.67 | 0.00 | 2.46 | 0.47 | 0.78 | 0.00 | 2.86 | 0.51 |
| $C_{32}$ | 2.39 | 0.61 | 10.4 | 1.91 | 3.14 | 0.18 | 9.29 | 2.15 |
| Subtotal | 36.9 | 7.30 | 165 | 29.9 | 43.8 | 4.61 | 129 | 26.7 |
| CPI ($C_{20}$-$C_{32}$) | 5.22 | 2.56 | 10.3 | 1.67 | 6.32 | 3.06 | 15.5 | 2.45 |
| *Anhydro-sugars* | | | | | | | | |
| Galactosan | 2.26 | 0.65 | 7.47 | 1.36 | 3.13 | 0.48 | 7.75 | 2.07 |
| Mannosan | 1.62 | 0.36 | 4.30 | 0.93 | 2.06 | 0.27 | 5.73 | 1.36 |
| Levoglucosan | 38.4 | 4.79 | 179 | 38.6 | 66.0 | 4.96 | 354 | 76.7 |
| Subtotal | 42.3 | 5.8 | 191 | 40.9 | 71.2 | 5.71 | 367 | 80.1 |
| *Sugars* | | | | | | | | |
| Erythritol | 0.24 | 0.04 | 0.64 | 0.13 | 0.27 | 0.02 | 0.58 | 0.15 |
| Mannitol | 0.30 | 0.09 | 0.91 | 0.17 | 0.30 | 0.07 | 0.70 | 0.14 |
| Inositol | 0.18 | 0.05 | 0.40 | 0.07 | 0.20 | 0.05 | 0.43 | 0.10 |
| Arabitol | 0.43 | 0.08 | 1.20 | 0.21 | 0.50 | 0.04 | 1.10 | 0.26 |
| Fructose | 0.69 | 0.15 | 1.45 | 0.36 | 0.60 | 0.11 | 1.50 | 0.32 |
| Glucose | 1.14 | 0.27 | 2.77 | 0.51 | 1.16 | 0.20 | 2.86 | 0.58 |
| Sucrose | 0.25 | 0.05 | 0.71 | 0.15 | 0.23 | 0.06 | 0.87 | 0.17 |
| Trehalose | 0.21 | 0.05 | 0.81 | 0.15 | 0.17 | 0.04 | 0.45 | 0.09 |
| Subtotal | 3.44 | 0.78 | 8.89 | 1.75 | 3.43 | 0.59 | 8.49 | 1.81 |
| *Phthalate esters* | | | | | | | | |
| Diethyl (DEP) | 0.14 | 0.03 | 0.57 | 0.12 | 0.15 | 0.03 | 0.50 | 0.11 |
| Diisobutyl (DiBP) | 2.56 | 0.59 | 8.54 | 2.03 | 2.72 | 0.63 | 7.19 | 1.67 |
| Di-n-butyl (DnBP) | 8.18 | 1.30 | 20.0 | 5.52 | 8.12 | 2.08 | 22.8 | 5.04 |
| Di-(2-ethylhexyl) (DEHP) | 3.00 | 0.74 | 10.9 | 2.38 | 5.32 | 1.06 | 21.3 | 4.24 |
| Subtotal | 13.9 | 2.66 | 40.0 | 10.1 | 16.3 | 3.80 | 51.8 | 11.1 |
| *Glycerol and Polyacids* | | | | | | | | |
| Glycerol | 2.67 | 0.66 | 5.99 | 1.63 | 3.50 | 0.73 | 8.72 | 2.36 |
| Glyceric acid | 1.59 | 0.28 | 8.34 | 1.58 | 1.68 | 0.34 | 4.30 | 1.09 |
| Malic acid | 1.09 | 0.07 | 4.66 | 1.12 | 1.19 | 0.36 | 3.35 | 0.81 |
| Tartaric acid | 1.93 | 0.51 | 8.57 | 1.44 | 2.57 | 1.02 | 5.74 | 1.31 |
| Citric acid | 0.50 | 0.07 | 2.15 | 0.40 | 0.36 | 0.09 | 0.98 | 0.22 |
| Subtotal | 7.78 | 1.59 | 29.7 | 6.17 | 9.30 | 2.54 | 23.1 | 5.79 |
| *Aromatic acids* | | | | | | | | |
| Benzoic acid | 0.45 | 0.17 | 0.95 | 0.18 | 0.54 | 0.24 | 1.22 | 0.21 |
| Phthalic acid | 0.68 | 0.24 | 1.24 | 0.30 | 0.65 | 0.28 | 1.80 | 0.37 |
| Isophthalic acid | 0.13 | 0.03 | 0.33 | 0.08 | 0.14 | 0.05 | 0.40 | 0.10 |
| Terephthalic acid | 5.44 | 1.09 | 20.6 | 4.13 | 7.04 | 1.42 | 15.0 | 4.15 |
| Subtotal | 6.70 | 1.53 | 23.1 | 4.69 | 8.37 | 1.99 | 18.4 | 4.83 |

| Compounds | Daytime | | | | Nighttime | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Min[a] | Max[b] | SD[c] | Mean | Min[a] | Max[b] | SD[c] |
| Lignin and Resin products | | | | | | | | |
| 4-Hydroxybenzoic acid | 1.80 | 0.65 | 4.31 | 0.79 | 2.01 | 0.62 | 4.96 | 1.02 |
| Vanillic acid | 0.25 | 0.04 | 0.92 | 0.15 | 0.25 | 0.08 | 0.66 | 0.12 |
| Syringic acid | 0.17 | 0.04 | 0.57 | 0.09 | 0.20 | 0.05 | 0.43 | 0.09 |
| Dehydroabietic acid | 0.46 | 0.11 | 1.16 | 0.26 | 0.93 | 0.00 | 8.29 | 1.47 |
| Subtotal | 2.68 | 0.84 | 6.96 | 1.29 | 3.39 | 0.75 | 14.3 | 2.70 |
| PAHs | | | | | | | | |
| Napthalene (Nap) | 0.52 | 0.45 | 0.80 | 0.07 | 0.51 | 0.41 | 0.60 | 0.05 |
| Acenaphthylene (Acnl) | 2.01 | 1.80 | 3.47 | 0.28 | 1.95 | 1.66 | 2.17 | 0.10 |
| Acenapthene (Ace) | 0.64 | 0.56 | 1.22 | 0.11 | 0.61 | 0.55 | 0.69 | 0.04 |
| Fluorene (Flu) | 1.00 | 0.83 | 1.70 | 0.14 | 0.94 | 0.85 | 1.05 | 0.05 |
| Phenanthrene (Phe) | 1.95 | 0.68 | 4.52 | 0.96 | 2.03 | 0.33 | 4.62 | 1.17 |
| Anthracene (Ant) | 1.38 | 1.11 | 4.21 | 0.56 | 1.30 | 1.00 | 2.02 | 0.23 |
| Fluoranthene (Flut) | 7.21 | 3.01 | 18.2 | 3.19 | 9.34 | 2.14 | 27.6 | 5.33 |
| Pyrene (Pyr) | 5.33 | 2.15 | 11.4 | 2.15 | 7.59 | 1.32 | 26.8 | 4.78 |
| Benzo[a]anthracene (BaA) | 3.98 | 2.37 | 6.44 | 1.07 | 6.14 | 1.87 | 14.8 | 3.54 |
| Chrysene (Chry) | 5.31 | 2.50 | 9.11 | 1.78 | 7.70 | 1.24 | 17.0 | 4.11 |
| Benzo[b]fluoranthene (BbF) | 4.88 | 2.42 | 8.40 | 1.52 | 6.88 | 1.51 | 14.4 | 3.57 |
| Benzo[k]fluoranthene (BkF) | 2.47 | 0.94 | 4.28 | 0.80 | 3.39 | 0.84 | 7.19 | 1.56 |
| Benzo[e]pyrene (BeP) | 3.08 | 1.39 | 6.01 | 1.18 | 4.71 | 0.68 | 11.6 | 2.84 |
| Benzo[a]pyrene (BaP) | 3.46 | 1.86 | 6.35 | 1.08 | 5.23 | 1.31 | 13.1 | 2.88 |
| Indeno[1,2,3-cd]pyrene (IP) | 4.52 | 2.85 | 8.01 | 1.24 | 6.50 | 2.11 | 24.5 | 4.21 |
| Benzo[ghi]perylene (BghiP) | 3.66 | 1.91 | 6.93 | 1.22 | 5.85 | 1.40 | 26.1 | 4.64 |
| Dibenzo[a,h]anthracene (DahA) | 3.08 | 2.70 | 5.19 | 0.46 | 4.11 | 2.49 | 28.7 | 4.68 |
| Subtotal | 54.5 | 29.5 | 106 | 17.8 | 74.8 | 21.7 | 223 | 43.8 |
| Hopanes | | | | | | | | |
| 17 α(H)-22,29,30-Trisnorhopane | 0.23 | 0.00 | 1.51 | 0.28 | 0.43 | 0.03 | 1.46 | 0.35 |
| 17 α(H)-21 β(H)-30-Norhopane | 0.53 | 0.03 | 2.65 | 0.50 | 0.64 | 0.03 | 3.39 | 0.65 |
| 17 α(H)-21 β(H)-Hopane | 1.18 | 0.02 | 8.91 | 1.54 | 1.71 | 0.07 | 8.88 | 1.73 |
| 17 β(H)-21 α(H)-Hopane | 0.22 | 0.01 | 1.12 | 0.25 | 0.26 | 0.00 | 0.93 | 0.27 |
| 17 α(H)-21 β(H)-22S-Homohopane | 0.58 | 0.00 | 2.07 | 0.53 | 0.90 | 0.00 | 3.94 | 0.95 |
| 17 α(H)-21 β(H)-22R-Homohopane | 1.05 | 0.01 | 4.58 | 1.05 | 0.70 | 0.00 | 7.52 | 1.36 |
| Subtotal | 3.79 | 0.07 | 20.8 | 4.15 | 4.64 | 0.13 | 26.1 | 5.31 |
| Steranes | | | | | | | | |
| ααα 20S-Cholestane | 0.41 | 0.19 | 1.64 | 0.31 | 0.42 | 0.18 | 1.42 | 0.25 |
| αββ 20R-Cholestane | 0.36 | 0.18 | 1.74 | 0.27 | 0.40 | 0.17 | 1.43 | 0.25 |
| ααα 20R-Cholestane | 0.38 | 0.18 | 1.98 | 0.33 | 0.42 | 0.18 | 2.01 | 0.35 |
| αββ 20R, 24S-Methylcholestane | 0.35 | 0.19 | 1.13 | 0.19 | 0.36 | 0.16 | 1.25 | 0.22 |
| αββ 20R, 24R-Ethylcholestane | 0.44 | 0.22 | 1.06 | 0.19 | 0.55 | 0.23 | 2.34 | 0.38 |
| ααα 20R, 24R-Ethylcholestane | 0.35 | 0.17 | 1.60 | 0.27 | 0.50 | 0.16 | 2.65 | 0.47 |
| Subtotal | 2.29 | 1.13 | 9.15 | 1.56 | 2.65 | 1.08 | 11.1 | 1.92 |

[a]Minimum, [b]Maximum, [c]Standard deviation

CPI: carbon preference index: $(C_{21}+C_{23}+C_{25}+C_{27}+C_{29}+C_{31}+C_{33}+C_{35}+C_{37}+C_{39})/(C_{20}+C_{22}+C_{24}+C_{26}+C_{28}+C_{30}+C_{32}+C_{34}+C_{36}+C_{38})$ for n-alkanes; $(C_{20}+C_{22}+C_{24}+C_{26}+C_{28}+C_{30}+C_{32})/(C_{21}+C_{23}+C_{25}+C_{27}+C_{29}+C_{31})$ for fatty acids; $(C_{20}+C_{22}+C_{24}+C_{26}+C_{28}+C_{30}+C_{32})/(C_{21}+C_{23}+C_{25}+C_{27}+C_{29}+C_{31})$ for fatty alcohols.

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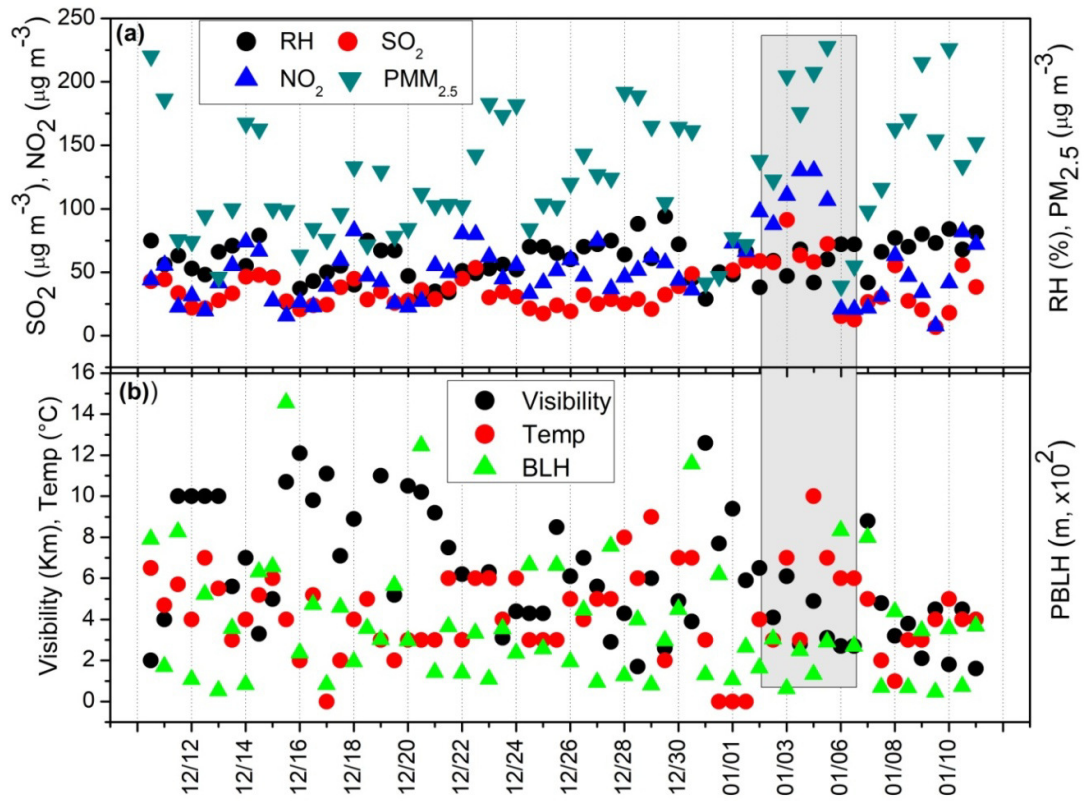
**Figure S1.** Diurnal variations of (a) SO₂, NO₂, Relative Humidity (RH), and PM₂.₅ (b) Visibility, Temperature (Temp) and Planetary Boundary Layer Height (PBLH) in Nanjing aerosols during study period.

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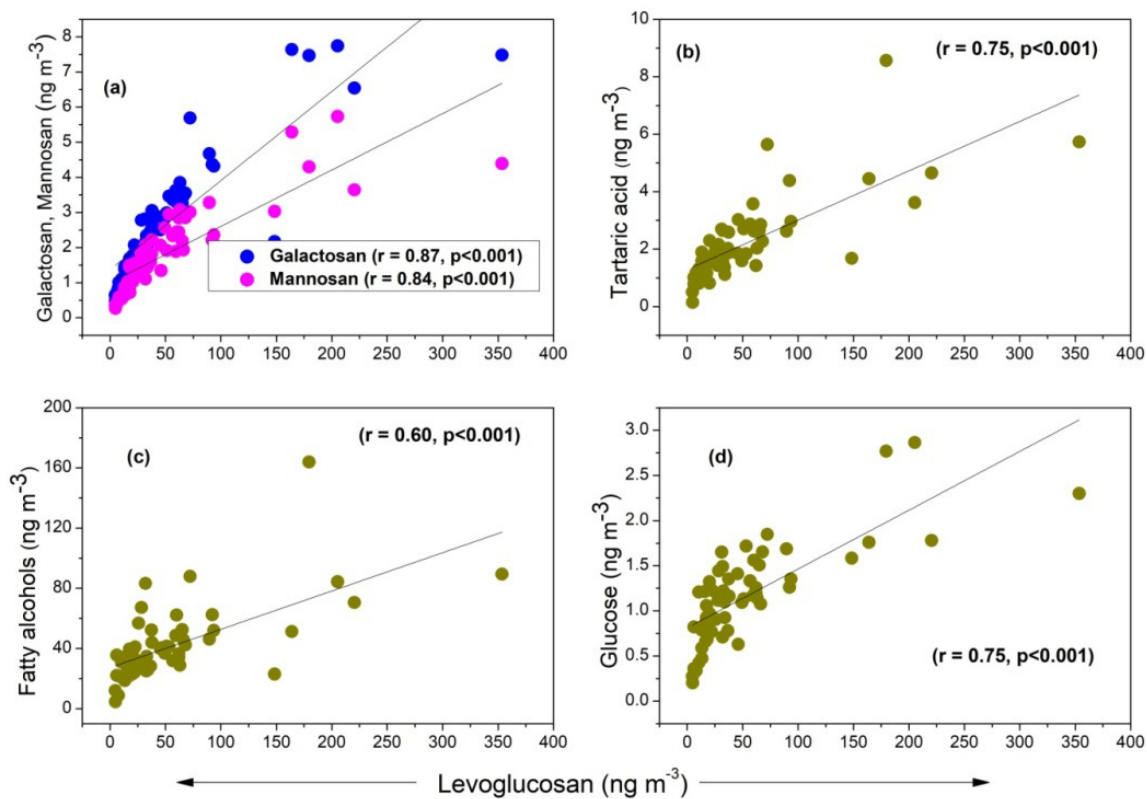
**Figure S2.** Correlation coefficients of levoglucosan with galactosan, mannosan, glucose, tartaric acid and fatty alcohols in urban aerosols in Nanjing.

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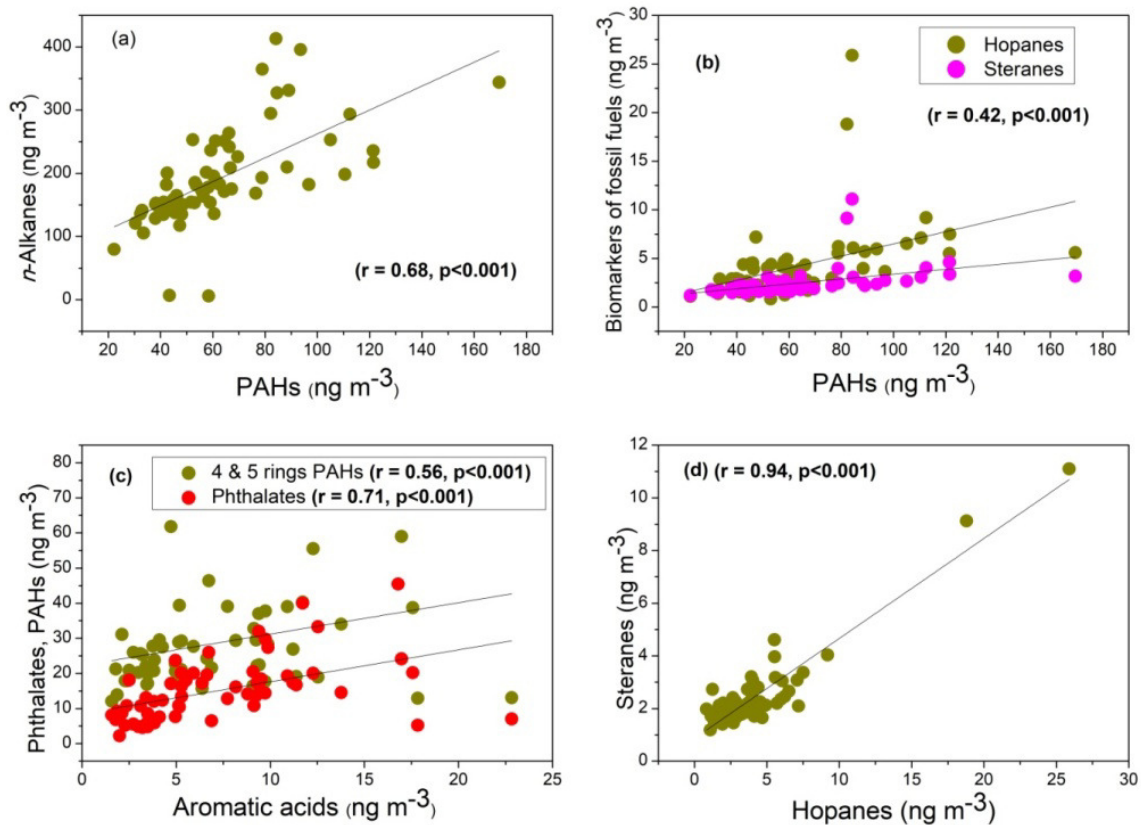
**Figure S3.** Correlations between the concentrations of **(a)** PAHs and *n*-alkanes **(b)** PAHs and
hopanes/steranes **(c)** aromatic acids and phthalates/PAHs **(d)** hopanes and steranes.

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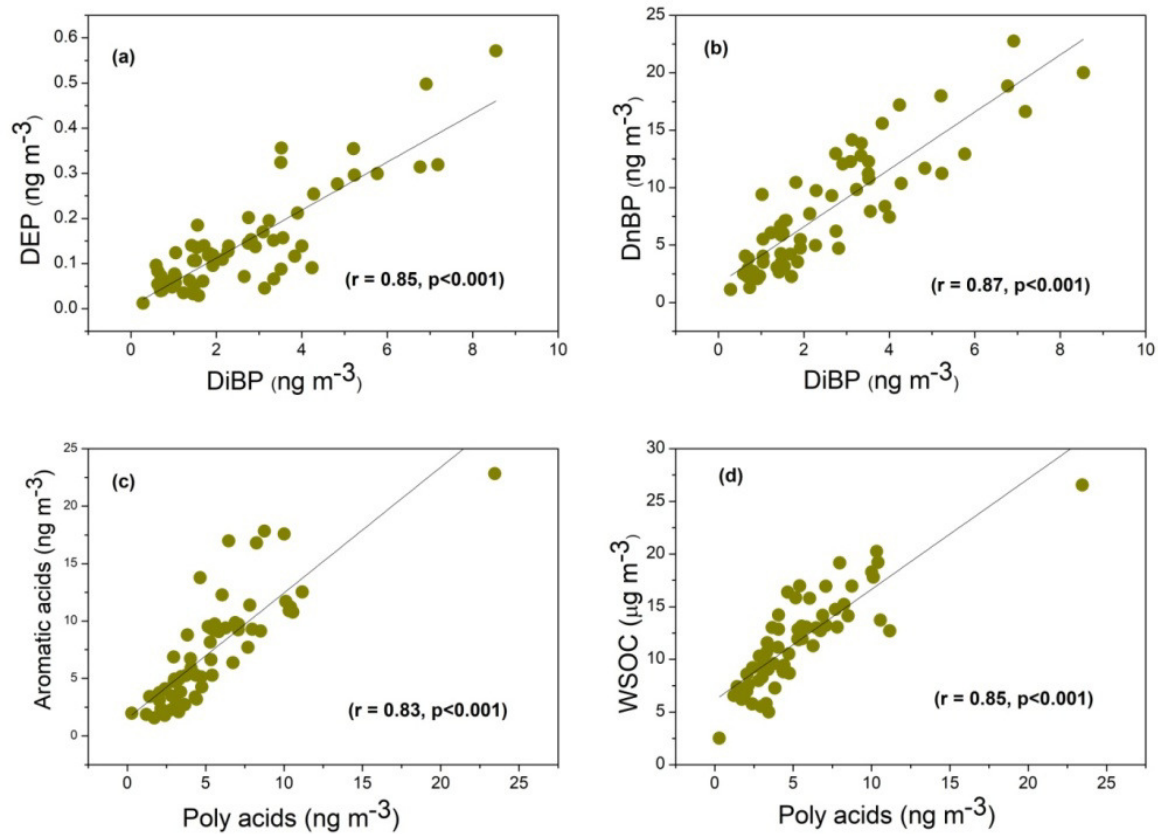
Figure S4. Relationships between the concentrations of (a) DiBP (di-iso-butyl phthalate) and DEP (diethyl phthalate) (b) DiBP (di-iso-butyl phthalate) and DnBP (di-n-butyl phthalate) (c) poly acids and aromatic acids (d) poly acids and WSOC.