Supplement of

Hygroscopic behavior of atmospheric aerosols containing nitrates and water-soluble organic acids

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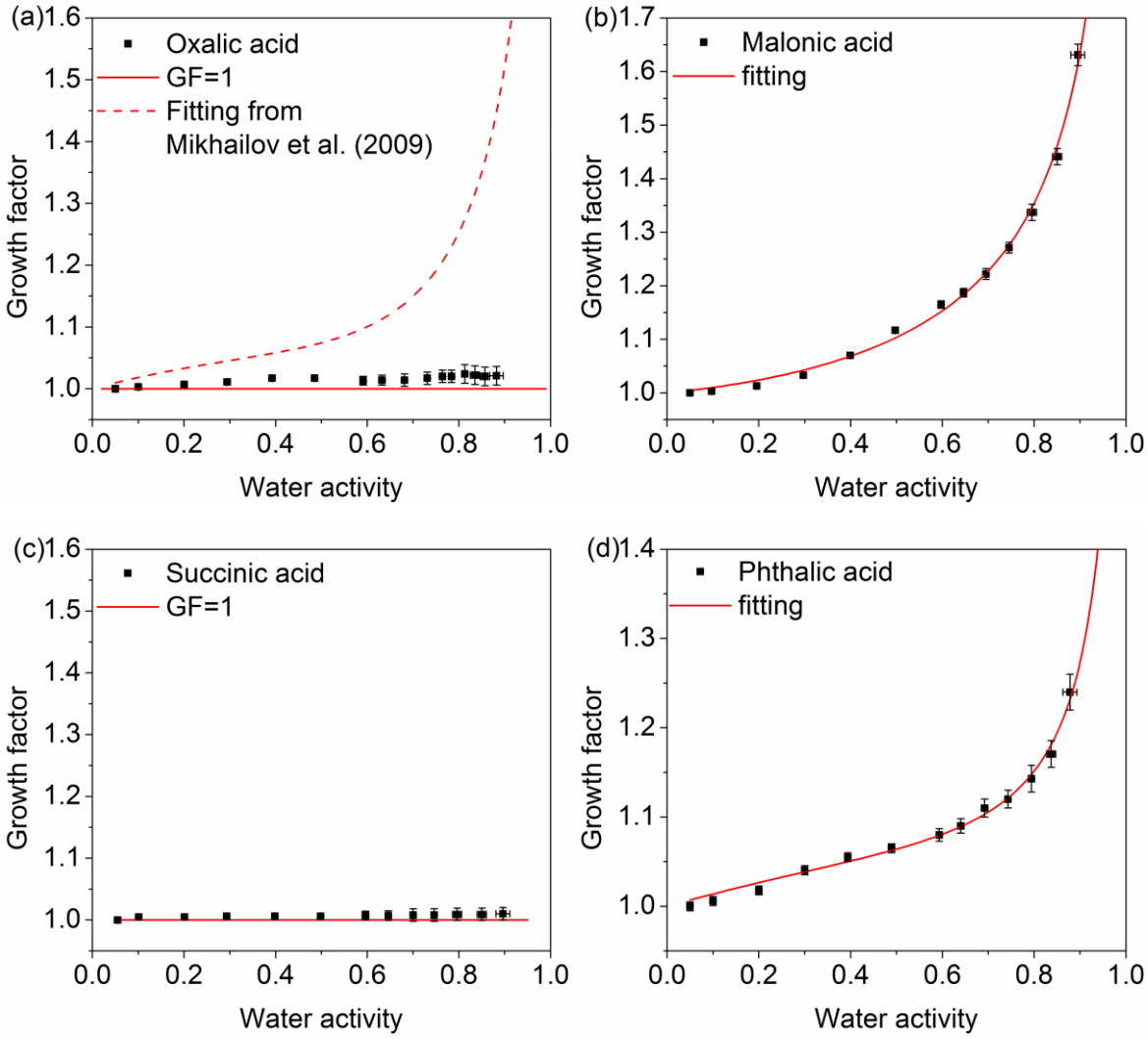

Figure S1. The hygroscopic growth of 100 nm organic acid particles including oxalic acid (a), malonic acid (b), succinic acid (c) and phthalic acid (d) as a function of water activity. The fit curve derived from the Eq. (S1) is given for oxalic acid, malonic acid and phthalic acid. For oxalic acid, the fit curve from Mikhailov et al. (2009) is presented as the dashed line.

Three-parameter fit.

The continuous hygroscopic growth of organic species could be fairly presented by a three-parameter equation proposed by Kreidenweis et al. (2005):

$$GF = \left[1 + \left(a + b \cdot a_w + c \cdot a_w^2\right)\frac{a_w}{1 - a_w}\right]^{1/3} \quad \text{(S1)}$$

where a_w is the water activity, and a, b, and c represent best-fit values for the water activity-based growth curves. The coefficients a, b and c determined using Eq. (S1) and GF-a_w measurement data are given in Table S1. The coefficients for oxalic acid are from the study by Mikhailov et al. (2009).

Table S1. The fitting parameters of the hygroscopic growth curve for the pure component aerosols with the Eq. (S1).

Substance	*a*	*b*	*c*	R^2
Oxalic acid	0.6185[a]	-1.2315[a]	0.9511[a]	0.9952[a]
Malonic acid	0.2512[b]	0.2493[b]	-0.1236[b]	0.9959[b]
Phthalic acid	0.4368[b]	-0.6003[b]	0.2737[b]	0.9910[b]

[a] From Mikhailov et al. (2009); [b] From Jing et al. (2016)

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