Supplementary Materials:

Populus nigra italica leaves as a valuable tool for mineralogical and geochemical interpretation of inorganic atmospheric aerosols' genesis

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Table S1. Mineralogical phases of atmospheric particles deposited on Populus nigra Italica leaves gathered in August 2018 in the vicinity of Olmaliq city (Uzbekistan).

Mineral/phase	Atmospheric particles <2.5µm (amount)									Atmospheric particles 2.5-10µm (amount)									Atmospheric particles >10µm (amount)								
	1	**3**	**6**	**7**	**8**	**9**	**12**	**14**	**16**	**1**	**3**	**6**	**7**	**8**	**9**	**12**	**14**	**16**	**1**	**3**	**6**	**7**	**8**	**9**	**12**	**14**	**16**
Ca/P/K spherule	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Metals	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	1
Al/SI spherule	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Al/Si particles	15	5	8	13	1	8	9	0	0	37	9	30	23	0	15	26	2	4	5	1	14	6	0	11	17	1	2
Al/Si particles + metals	22	4	1	1	2	5	3	6	1	14	5	1	2	1	5	4	4	0	1	6	2	0	0	1	4	1	3
Fe oxides	0	0	2	4	4	4	4	1	4	1	1	0	2	1	1	6	3	1	1	4	0	1	0	1	0	0	2
Quartz	0	1	1	1	2	2	0	3	4	5	2	7	8	4	3	4	4	5	1	3	2	6	0	4	9	3	3
Other terygenic	2	0	1	6	15	4	0	12	6	5	2	8	8	25	13	5	26	7	1	0	2	2	5	6	5	1	4
Gypsum + P and F	3	0	0	0	0	0	0	0	0	7	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0
Gypsum + PTE	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	4	1	0	0	0	0	0	0	0	0	0
Gypsum	0	1	0	2	3	0	0	2	0	0	2	1	2	6	0	2	2	1	0	4	3	1	0	0	1	1	0
P and F bearing phases	19	2	0	0	0	2	0	1	0	19	6	2	2	2	5	0	5	0	4	2	1	0	0	1	0	0	1
Carbonates	1	1	1	8	6	3	4	4	1	0	1	1	8	11	3	6	4	6	1	1	0	1	2	4	2	0	0
Sulphides + Al/Si	2	1	3	8	2	5	2	0	5	2	1	1	1	1	2	2	0	4	0	1	0	1	0	2	1	0	4
Sulphides	1	0	0	2	6	1	0	0	4	1	1	0	3	5	1	0	0	1	0	0	0	0	0	0	1	0	0

Table S2 Percentage contribution (calculated according to *eq1*) of mineralogical phases of atmospheric particles deposited on *Populus nigra Italica* leaves gathered in August 2018 in the vicinity of Olmaliq city (Uzbekistan). Percentage contribution of inorganic anthropogenic particles calculated according *eq2*.

Mineral/phase	Atmospheric particles <2.5µm (%)									Atmospheric particles 2.5-10µm (%)									Atmospheric particles >10µm (%)								
	1	3	6	7	8	9	12	14	16	1	3	6	7	8	9	12	14	16	1	3	6	7	8	9	12	14	16
Ca/P/K spherule	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Metals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	2.0	1.8	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	5.0
Al/SI spherule	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Al/Si particles	23.0	33.3	47.1	28.9	2.4	23.5	40.9	0.0	0.0	39.4	30.0	56.6	39.0	0.0	30.6	46.4	3.7	11.8	33.3	4.6	58.3	31.6	0.0	35.5	41.5	14.3	10.0
Al/Si particles + metals	34.0	26.7	5.9	2.2	4.8	14.7	13.6	20.0	2.9	14.9	16.7	1.9	3.4	1.7	10.2	7.1	7.4	0.0	6.7	27.3	8.3	0.0	0.0	3.2	9.8	14.3	15.0
Fe oxides	0.0	0.0	11.8	8.9	9.5	11.8	18.2	3.3	11.4	1.1	3.3	0.0	3.4	1.7	2.0	10.7	5.6	2.9	6.7	18.2	0.0	5.3	0.0	3.2	0.0	0.0	10.0
Quartz	0.0	6.7	5.9	2.2	4.8	5.9	0.0	10.0	11.4	5.3	6.7	13.2	13.6	6.9	6.1	7.1	7.4	14.7	6.7	13.6	8.3	31.6	0.0	12.9	22.0	42.9	15.0
Other terygenic	3.0	0.0	5.9	13.3	35.7	11.8	0.0	40.0	17.1	5.3	6.7	15.1	13.6	43.1	26.5	8.9	48.2	20.6	6.7	0.0	8.3	10.5	71.4	19.4	12.2	14.3	20.0
Gypsum + P and F	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	5.3	0.0	3.2	0.0	0.0	0.0
Gypsum + PTE	0.0	0.0	0.0	0.0	2.4	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	7.4	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gypsum	0.0	6.7	0.0	4.4	7.1	0.0	0.0	6.7	0.0	0.0	6.7	1.9	3.4	10.3	0.0	3.6	3.7	2.9	0.0	18.2	12.5	5.3	0.0	0.0	2.4	14.3	0.0
P and F bearing phases	29.0	13.3	0.0	0.0	0.0	5.9	0.0	3.3	0.0	20.2	20.0	3.8	3.4	3.5	10.2	0.0	9.3	0.0	26.7	9.1	4.2	0.0	0.0	3.2	0.0	0.0	5.0
Carbonates	2.0	6.7	5.9	17.8	14.3	8.8	18.2	13.3	2.9	0.0	3.3	1.9	13.6	19.0	6.1	10.7	7.4	17.7	6.7	4.6	0.0	5.3	28.6	12.9	4.9	0.0	0.0
Sulphides + Al/Si	3.0	6.7	17.7	17.8	4.8	14.7	9.1	0.0	14.3	2.1	3.3	1.9	1.7	1.7	4.1	3.6	0.0	11.8	0.0	2.2	0.0	3.9	0.0	2.8	2.1	0.0	20.0
Sulphides	2.0	0.0	0.0	4.4	14.3	2.9	0.0	0.0	11.4	1.1	3.3	0.0	5.1	8.6	2.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Inorganic anthropogenic particles according to (*eq2*)	98.0	93.3	88.2	84.4	59.5	82.4	100.0	50.0	71.4	89.4	86.7	71.7	72.9	50.0	67.3	83.9	44.4	64.7	86.7	84.0	83.3	56.5	28.6	64.1	65.5	42.9	65.0

Table S3 Amount and percentage contribution (calculated according to eq1) of mineralogical phases of grains in soil samples gathered in August 2018 in the vicinity of Olmaliq city (Uzbekistan). Percentage contribution of inorganic anthropogenic grains calculated according eq2.

Mineral/phase	Soil grains (amount)			Soil grains (%)		
	G1	G2	G3	G1	G2	G3
Ca/P/K spherule	1	4	0	0.6	1.5	0.0
Metals	2	1	5	1.0	0.4	2.0
Al/SI spherule	6	0	1	3.0	0.0	0.4
Al/Si particles	19	12	12	9.8	5.1	4.6
Al/Si particles + metals	29	10	36	14.6	4.1	14.2
Fe oxides	9	10	11	4.5	4.4	3.9
Quartz	37	48	51	19.4	20.7	20.0

		S1 for S1				
Other terygenic	66	108	104	34.8	46.7	40.8
Gypsum + P and F	0	0	0	0.0	0.0	0.0
Gypsum + PTE	0	0	0	0.0	0.0	0.0
Gypsum	0	0	0	0.0	0.0	0.0
P and F bearing phases	6	9	2	2.9	3.8	0.8
Carbonates	2	19	28	1.0	8.4	11.0
Sulphides + Al/Si	13	5	4	7.1	2.2	1.9
Sulphides	2	6	2	1.3	2.7	0.5
Inorganic anthropogenic particles according to (*eq2*)				45.8	32.6	39.2

Table S4 Metal concentrations in soil samples gathered in August 2018 in the vicinity of Olmaliq city (Uzbekistan).

Soil sample	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %
G1	22	2202.2	956.6	1260	3.7	16	8	311	2.13	36.8	675.8	4.8	62	14.1	20.9	7.4	33	1.76
G2	20.2	1563.4	472.4	630	4.1	19	9.5	440	2.31	45.7	1588.4	7.7	82	7.5	18.2	3.5	32	2.95
G3	5.2	471.7	500.2	2052	1.7	25.6	9.8	500	2.44	30.6	77	5.6	120	20.9	6.7	2.9	36	5.71

Table S5 Metal concentrations in soil samples gathered in August 2018 in the vicinity of Olmaliq city (Uzbekistan).

Soil sample	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Se ppm	Te ppm
G1	0.31	25	20	0.52	197	0.029	<20	1.26	0.033	0.3	1.2	0.31	2.5	0.3	0.34	4	1.7	1.8
G2	0.167	20	20	0.57	225	0.031	<20	0.92	0.032	0.23	1.1	0.37	2.7	0.2	0.36	3	2.2	3.1
G3	0.074	18	31	0.96	210	0.039	<20	1.46	0.029	0.34	1.1	0.55	4	0.3	0.11	4	0.8	0.7