

Figure S1. 2019 Experiment: BAFs values observed after 15 days.

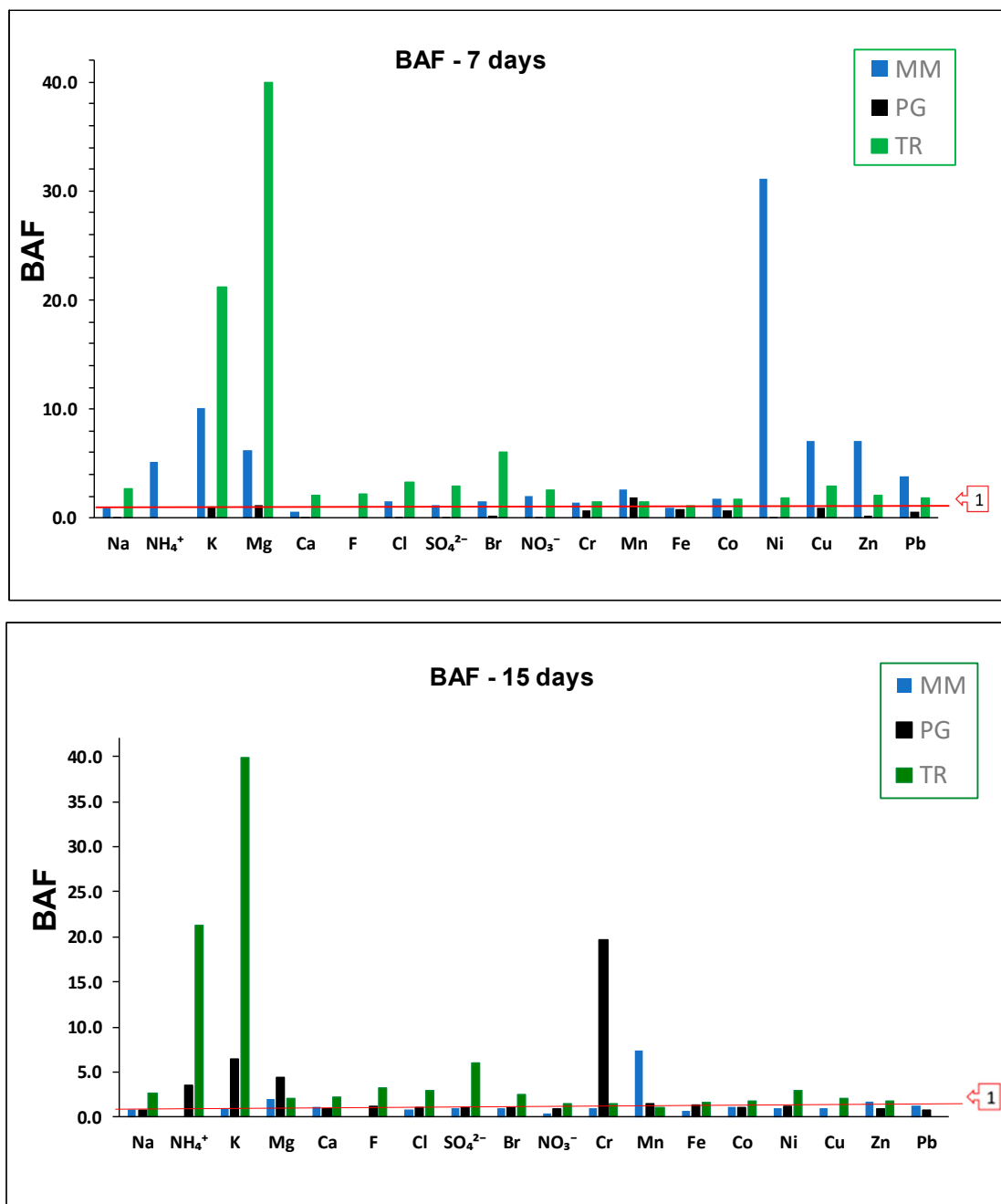


Figure S2. 2021 Experiment: BAFs values observed after 7 and 15 days.

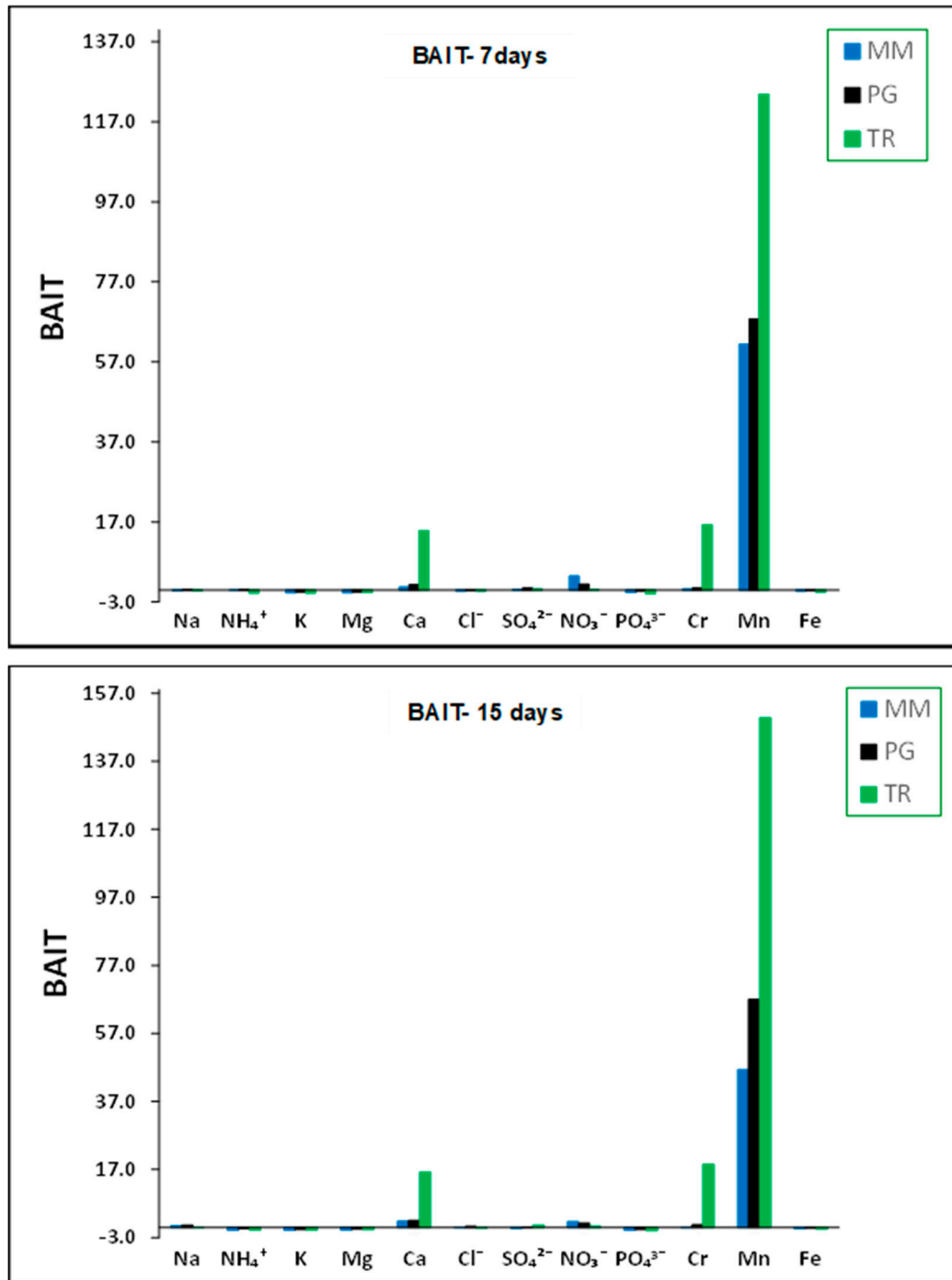


Figure S3. 2021 Experiment: BAITs values observed after 7 and 15 days

**Table S1.** 2019 Experiment: comparison between control and pollen samples fluxes ( $\mu\text{g m}^{-2} \text{d}^{-1}$ ) for the soluble (ionic and metallic) and total metallic fractions. Exposition time 15 days.

	Na <sup>+</sup>	NH <sub>4</sub> <sup>+</sup>	K <sup>+</sup>	Mg <sup>2+</sup>	Ca <sup>2+</sup>	F <sup>-</sup>	HCOO <sup>-</sup>	MSA	Cl <sup>-</sup>	NO <sub>2</sub>	SO <sub>4</sub> <sup>2-</sup>	C <sub>2</sub> O <sub>4</sub> <sup>2-</sup>	Br <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup>	Cr	Mn	Fe	Co	Ni	Cu	Zn	Pb	Cd	Ba	Sr	Al
<b>MM CNT</b>																											
<i>Soluble ionic fraction</i>	203.9	53.2	208.0	50.7	1271.7	<LOD	<LOD	<LOD	248.04	<LOD	308.3	<LOD	<LOD	680.00	<LOD												
<i>Total metallic fraction</i>																0.1	6.1	40.7	0.1	0.5	1.6	15.2	2	0.02	2.4	2.4	48.1
<b>MM</b>																											
<i>Soluble ionic fraction</i>	195.8	106	609.1	53.2	2725	0.1	39.1	16.3	266.7	<LOD	269.7	137.6	<LOD	477.3	450												
<i>Soluble metallic fraction</i>																0.3	2.8	5.2	0.04	0.5	1.3	<LOD	0.2	<LOD	0.4	1.5	9.8
<i>Total metallic fraction</i>																0.2	15.8	94.9	0.1	1	4.7	59.5	3.1	0.03	4.8	6.1	79.2
<b>PG CNT</b>																											
<i>Soluble ionic fraction</i>	153.1	25.1	247.8	45.9	600.0	<LOD	<LOD	<LOD	296.0	<LOD	321.1	83.2	<LOD	675.3	41.5												
<i>Total metallic fraction</i>																0.5	13.1	211	0.1	0.5	9.8	73.1	10.9	0.03	162.9	9.3	207.1
<b>PG</b>																											
<i>Soluble ionic fraction</i>	202.1	233.4	1664	161.5	4225	5.5	97.7	35.7	453.8	<LOD	435.2	289.6	<LOD	408.4	1134												
<i>Soluble metallic fraction</i>																0.9	10.7	262.4	0.2	1	14.4	46.1	4.5	0.02	55.8	6.2	9.5
<i>Total metallic fraction</i>																0.8	26.5	261.7	0.2	0.7	18.6	97.8	27.3	0.04	264.1	15.6	213.1
<b>TR CNT</b>																											
<i>Soluble ionic fraction</i>	160.2	23.7	230.9	89.0	10133	485.7	717.8	11.8	215.4	7.2	728.4	83.9	<LOD	712.3	<LOD												
<i>Total metallic fraction</i>																100.7	469.8	1108	1.6	31.2	7.5	137.1	19.6	0.1	39	51	3513
<b>TR</b>																											
<i>Soluble ionic fraction</i>	128.6	105.9	844.6	171.1	8020	246.9	471.2	26.9	310.7	<LOD	545.2	182.3	29.1	359	140.6												
<i>Soluble metallic fraction</i>																5.7	16.8	3.4	0.1	1.4	4.6	24.7	1	0.02	2.5	7.1	11.7
<i>Total metallic fraction</i>																115.6	511	1068	1.2	40.6	11.1	188.3	17.1	0.1	42.9	59.9	4012

TR, Terni; PG, Perugia; MM, Monte Martano

**Table S2.** 2021 Experiment: comparison between control and pollen samples fluxes ( $\mu\text{g m}^{-2} \text{d}^{-1}$ ) for the soluble (ionic and metallic) and metallic fractions.  
Exposition time 7 and 15 days

	Na <sup>+</sup>	NH <sub>4</sub> <sup>+</sup>	K <sup>+</sup>	Mg <sup>2+</sup>	Ca <sup>2+</sup>	F <sup>-</sup>	HCOO <sup>-</sup>	MSA	Cl <sup>-</sup>	NO <sub>2</sub>	SO <sub>4</sub> <sup>2-</sup>	C <sub>2</sub> O <sub>4</sub> <sup>2-</sup>	Br <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup>	Cr	Mn	Fe	Co	Ni	Cu	Zn	Pb	Cd	Ba	Sr	Al
<b>7 days</b>																											
<b>MM CNT</b>	195.0	98.3	226.6	29.2	3887.2	< LOD	< LOD	< LOD	322.30	< LOD	970.2	< LOD	129.7	1569.2	< LOD	2.6	25	942	0.5	0.5	2.6	11.4	2.5	< LOD	15.5	12.5	1465
<b>MM</b>	175.7	456.5	2068	163.6	2164.5	< LOD	51.1	< LOD	452.4	< LOD	1082	< LOD	181.7	2864	1794.9	3.4	58.8	769.2	0.8	14.1	16.7	72.8	8.8	< LOD	24.6	23.1	1329
<b>PG CNT</b>	234.2	< LOD	312.1	20.4	4872.2	< LOD	13.7	< LOD	410.4	< LOD	1132	< LOD	127.7	1232	< LOD	0.6	3.2	101.9	0.1	9.9	3.9	74.2	1.2	< LOD	98.9	30.6	127.5
<b>PG</b>	263.5	547.4	3583	279.6	3217.1	< LOD	153.3	< LOD	684.9	< LOD	1609	31.6	275.8	1714	3331.4	4.6	71	1003	0.8	7.9	39.7	148.9	7.6	< LOD	159.3	28.2	1459
<b>TR CNT</b>	281.5	< LOD	281.8	21.8	41008.8	1003.7	304.5	< LOD	624.1	< LOD	1882	< LOD	202.8	1126	< LOD	146.1	345.3	1922	1.7	39.9	18.5	88.2	26.3	< LOD	90.8	81.5	5760
<b>TR</b>	388.3	221.8	3143	457.2	44711.2	1167.8	566.8	35.8	1058	< LOD	2929	< LOD	643.3	1500	154.9	111	267.6	1081	1.5	39.1	28.2	95.4	25	< LOD	69.8	94	3025
<b>15 days</b>																											
<b>MM CNT</b>	223.4	< LOD	661.2	39.2	1943.9	< LOD	51.1	< LOD	408.8	< LOD	494.7	< LOD	297.3	985.3	51.3	2.3	24.0	406.3	0.5	10.4	5.8	28.0	3.5	< LOD	13.6	14.5	821.3
<b>MM</b>	216.8	49.4	690.4	87.3	2310.3	< LOD	51.0	< LOD	443.5	< LOD	514.8	< LOD	121.6	1137.7	408.4	1.7	29.7	456.8	0.5	19.6	8.5	33.0	2.2	< LOD	13.1	15.7	887.1
<b>PG CNT</b>	232.9	42.0	187.9	33.7	2026.2	< LOD	53.5	< LOD	399.7	< LOD	542.2	< LOD	101.3	791.6	52.6	1.7	23.5	426.7	0.4	17.8	17.1	89.1	5.9	< LOD	107.2	24.9	699.9
<b>PG</b>	230.9	183.2	1486.0	182.3	2442.9	5.1	76.1	< LOD	562.1	< LOD	694.9	17.0	126.7	940.1	1277.8	3.2	41.7	570.7	0.6	< LOD	21.1	86.3	4.6	< LOD	110.7	19.7	866.2
<b>TR CNT</b>	198.1	< LOD	184.3	29.8	24714.4	812.2	185.6	17.9	453.2	< LOD	1595.7	< LOD	135.2	754.9	< LOD	60.0	125.2	592.3	0.5	16.9	6.1	31.4	11.3	< LOD	43.0	29.8	1551.7
<b>TR</b>	221.0	116.5	1651.6	235.4	22161.1	578.6	554.6	28.0	624.5	< LOD	1726.5	< LOD	306.6	862.3	48.6	57.2	147.3	578.4	0.7	11.9	14.3	44.3	15.8	< LOD	44.6	41.4	1379.7

TR, Terni; PG, Perugia; MM, Monte Martano