

Supplementary Information Document

Effects of magnesium oxide and magnesium hydroxide microparticle foliar treatment on tomato PR gene expression and leaf microbiome.

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The file includes:

Table S1: Primer sequences for NGS libraries

Table S2: Primer sequences for qPCR 5'-3'

Figure S1: Energy-dispersive X-ray spectroscopy of sprayed tomato leaves

Primer sequences

Table S1. Primer sequences for NGS libraries

16S_F	5'-TCGTCGGCAGCGTCAGATGTGTATAAGAGACAGCCTACGGGNGGCWGCAG-3'
16S_R	5'-GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAGGACTACHVGGGTATCTAATCC-3'
18S_F	5'-TCGTCGGCAGCGTCAGATGTGTATAAGAGACAGCGATAACGAACGAGACCT-3'
18S_R	5'-GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAGANCCATTCAATCGGTANT-3'

Table S2. Primer sequences for RT-qPCR 5'-3'

		RT-qPCR product	Accession	Source reference
beta-1,3-glucanase (PR2)				
Forward	5'-GGACACCCTTCCGCTACTCTT-3'	81bp	M80604	[1]
Reverse	5'-TGTCCTGCCCCCTCCTTTC-3'			
glucan endo-1,3-beta-glucosidase B (PR2B)				
Forward	5'-CCCATTTCAGTTCTGCTT-3'	112bp	M80608.1	[2]
Reverse	5'-AGAATTGCCAATCAACGTCA-3'			
CHI9 chitinase (PR3)				
Forward	5'-AACTATGGGCCATGTGGAAGA-3'	128bp	Z15140	[1]
Reverse	5'-GGCTTTGGGGATTGAGGAG3'			
CHI3 chitinase				

Forward	5'-GGTTCTGGATGACAGAACAGGA-3'	107bp	Z15141	[3]
Reverse	5'-GTACCCTGGAAGCTCTATTAGCTGC-3'			
Phenylalanine ammonia-lyase (PAL-4)				
Forward	5'-ACGGGTTGCCATCTAATCTG-3'	197bp	TIGRTC153699	[4]
Reverse	5'-AGCTCTTTTCCTGGCTGAAA-3'			
Elongation factor 1 alpha (EF1a)				
Forward	5'-CTCCAAGGCTAGGTATGATGA-3'	263bp	X14449.1	[5]
Reverse	5'-ACAGTTCCAATACCACCAATCT-3'			

Energy-dispersive X-ray spectroscopy of sprayed tomato leaves

The Scanning Electron Microscopy (SEM) analysis of sprayed leaves, shown in the images of Figure 7 of the manuscript, was complimented by Energy dispersive X-Ray Spectroscopy (EDS) to verify the presence of magnesium (Mg) on the leaves surface. Representative images of EDS spectra from both Day 5 and Day 12 are provided in Figure S1 below. The main observations relate to the clear presence of Mg on the leaves sprayed with the 3 PMP slurries. The control sample (sprayed with distilled water) shows only a small background peak, while the intensity of the Mg peak is clearly higher in Day 5 as compared to Day 12, thereby confirming that the material was gradually removed from the leaves surface with time.

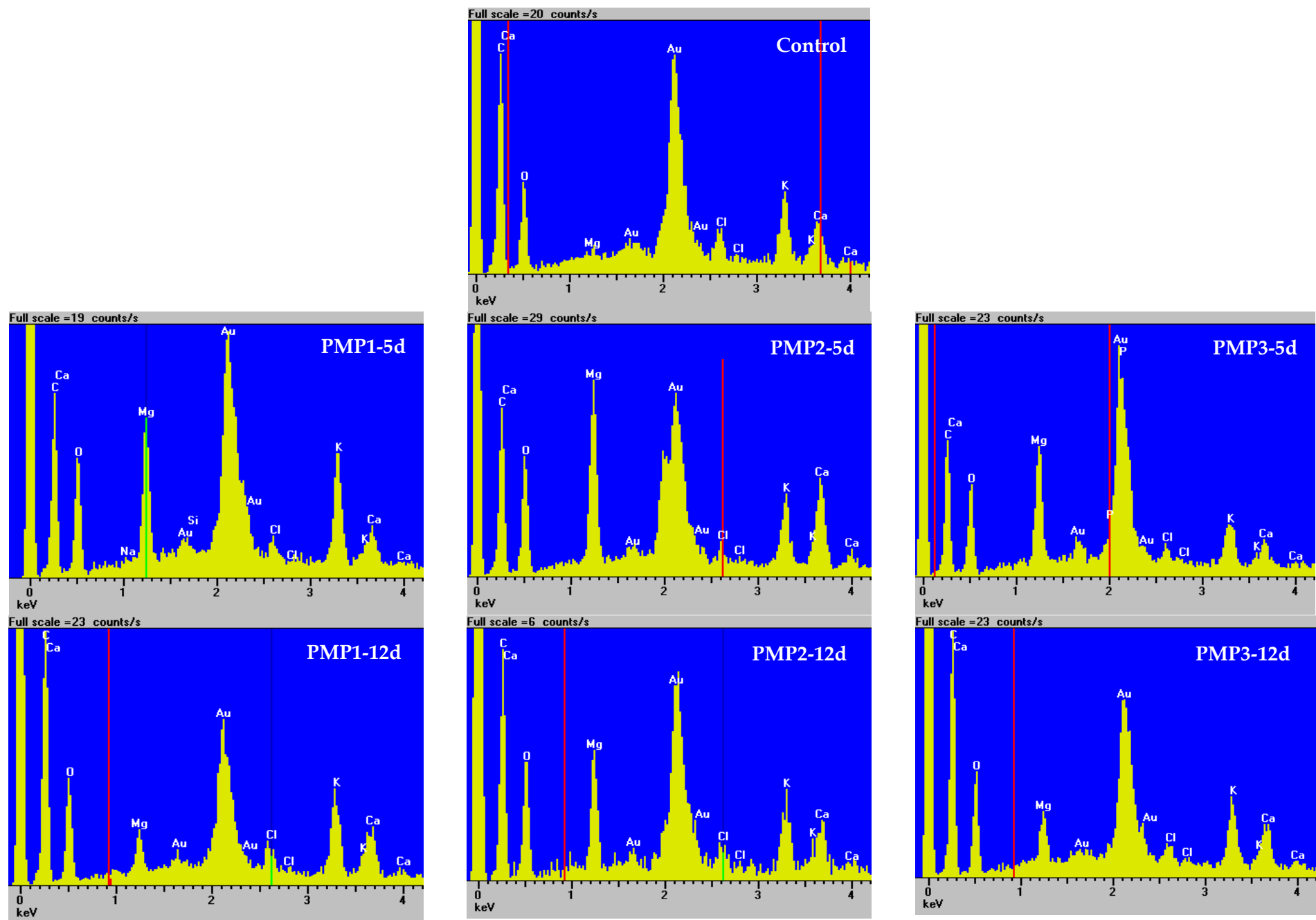


Figure S1 Images from Energy Dispersive X-Ray Spectroscopy carried out during SEM analysis of sprayed tomato leaves shown in Figure 6 of the manuscript.

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