

Degradation of Polylactic Acid/Polypropylene Carbonate Films in Soil and Phosphate Buffer and Their Potential Usefulness in Agriculture and Agrochemistry

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SUPPLEMENTARY DATA

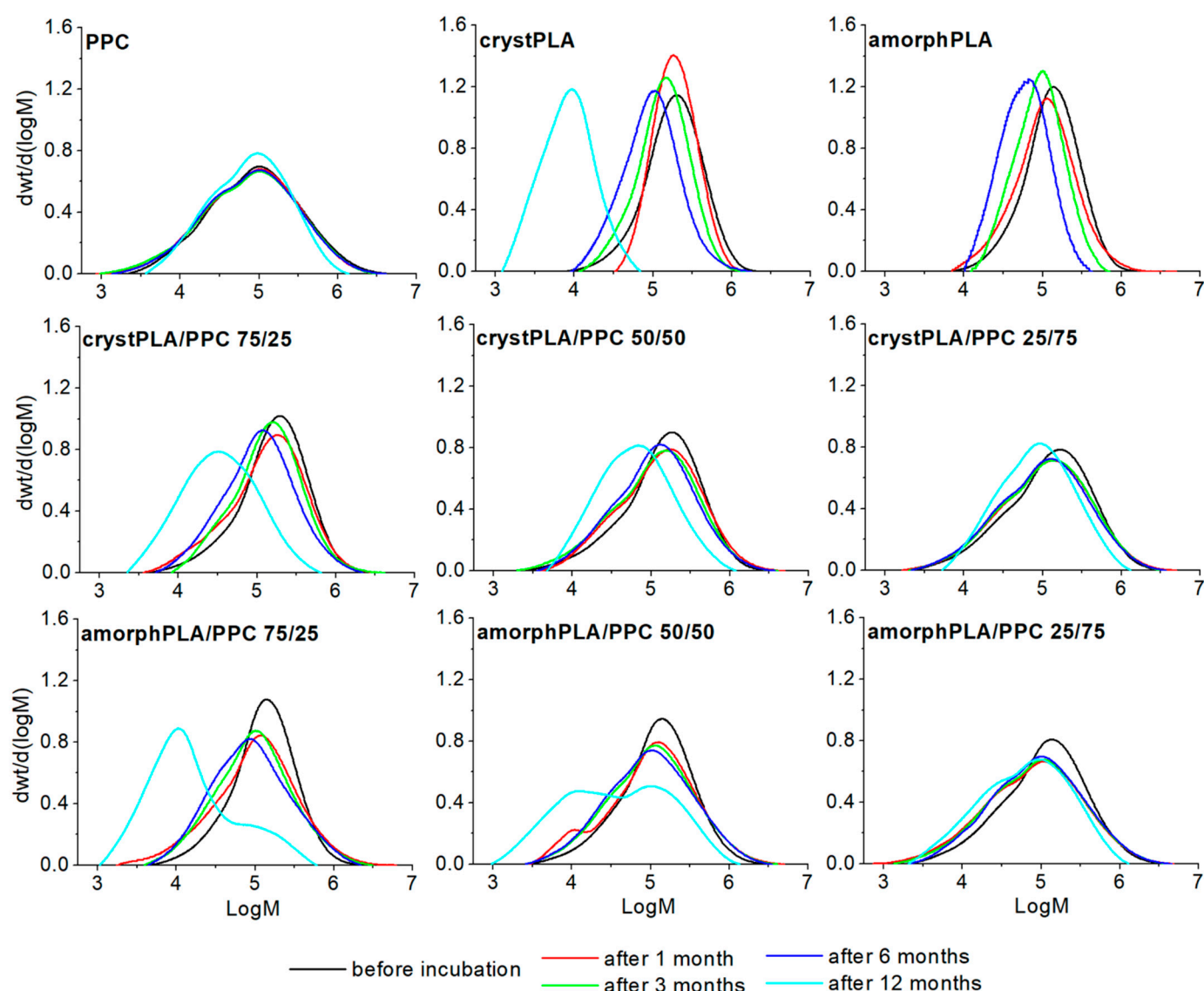


Figure S1. GPC elugrams of samples after incubation in PBS

Table S1. DSC data for the PLA/PPC blends (incubation in PBS) taken after erasing their thermal history (second heating scan).

	T_g^{PLA} (°C)	T_g^{PPC} (°C)	T_{cc} (°C)	ΔH_{cc} (J/g)	T_m (°C)	ΔH_m (J/g)	χ^c (%)
Before incubation							
PPC	N/D	11.8	N/D	N/D	N/D	N/D	N/D
crystPLA	44.6	N/D	104.6	22.6	139.8 144.4	-25.0	2.58
amorphPLA	38.5	N/D	N/D	N/D	N/D	N/D	N/D
crystPLA/PPC 75/25	38.6	19.1	103.8	19.9	137.2 143.4	-21.1	1.79
crystPLA/PPC 50/50	35.5	14.3	101.6	13.7	135.5 143.0	-14.9	2.58
crystPLA/PPC 25/75	36.8	17.1	101.8	7.41	137.6 144.6	-8.48	4.60
amorphPLA/PPC 75/25	35.0	16.1	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 50/50	32.3	15.1	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 25/75	31.9	14.6	N/D	N/D	N/D	N/D	N/D
1 month							
PPC	N/D	22.3	N/D	N/D	N/D	N/D	N/D
crystPLA	47.3	N/D	103.2	34.1	139.9 149.0	-34.2	0.15
amorphPLA	49.5	N/D	N/D	N/D	N/D	N/D	N/D
crystPLA/PPC 75/25	47.6	25.9	108.3	24.9	142.3 149.3	-26.2	1.79
crystPLA/PPC 50/50	40.2	20.3	106.1	17.1	140.4 147.9	-18.3	2.49
crystPLA/PPC 25/75	45.1	25.1	111.5	6.52	144.2	-6.90	1.63
amorphPLA/PPC 75/25	42.1	24.0	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 50/50	40.8	22.8	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 25/75	42.9	26.0	N/D	N/D	N/D	N/D	N/D
3 months							
PPC	N/D	25.3	N/D	N/D	N/D	N/D	N/D
crystPLA	48.6	N/D	102.8	38.0	140.2 149.5	-38.5	0.54
amorphPLA	50.3	N/D	N/D	N/D	N/D	N/D	N/D
crystPLA/PPC 75/25	46.4	25.0	108.1	29.4	141.7 149.7	-29.4	0.00
crystPLA/PPC 50/50	48.6	27.3	108.9	16.0	143.4 150.0	-18.60	5.59
crystPLA/PPC 25/75	47.2	28.3	115.2	5.89	145.7*	-6.64	3.23
amorphPLA/PPC 75/25	44.1	26.4	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 50/50	43.4	25.8	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 25/75	44.1	27.5	N/D	N/D	N/D	N/D	N/D
6 months							
PPC	N/D	25.1	N/D	N/D	N/D	N/D	N/D
crystPLA	48.6	N/D	109.2	41.4	142.3 150.6	-41.4	0.00
amorphPLA	49.2	N/D	N/D	N/D	N/D	N/D	N/D
crystPLA/PPC 75/25	46.3	26.2	113.5	29.6	143.3 150.6	-29.6	0.00
crystPLA/PPC 50/50	46.1	25.3	108.8	19.2	143.0 150.5	-19.2	0.00
crystPLA/PPC 25/75	54.6	34.4	116.3	5.40	149.3*	-5.40	0.00
amorphPLA/PPC 75/25	45.1	28.7	N/D	N/D	N/D	N/D	N/D

amorphPLA/PPC 50/50	44.3	28.1	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 25/75	44.3	28.2	N/D	N/D	N/D	N/D	N/D
12 months							
PPC	N/D	26.9	N/D	N/D	N/D	N/D	N/D
crystPLA	39.1	N/D	95.5	45.8	127.1 138.6	-42.3	0.00
amorphPLA	26.8	N/D	N/D	N/D	N/D	N/D	N/D
crystPLA/PPC 75/25	43.3	26.1	95.8	33.5	137.8 146.7	-32.4	0.00
crystPLA/PPC 50/50	42.0	26.9	96.5	20.7	138.5 147.8	-20.7	0.00
crystPLA/PPC 25/75	49.7	31.4	N/D	N/D	149.9* 152.2	-7.6	0.00
amorphPLA/PPC 75/25	44.7	31.7	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 50/50	44.5	31.9	N/D	N/D	N/D	N/D	N/D
amorphPLA/PPC 25/75	46.0	33.0	N/D	N/D	N/D	N/D	N/D

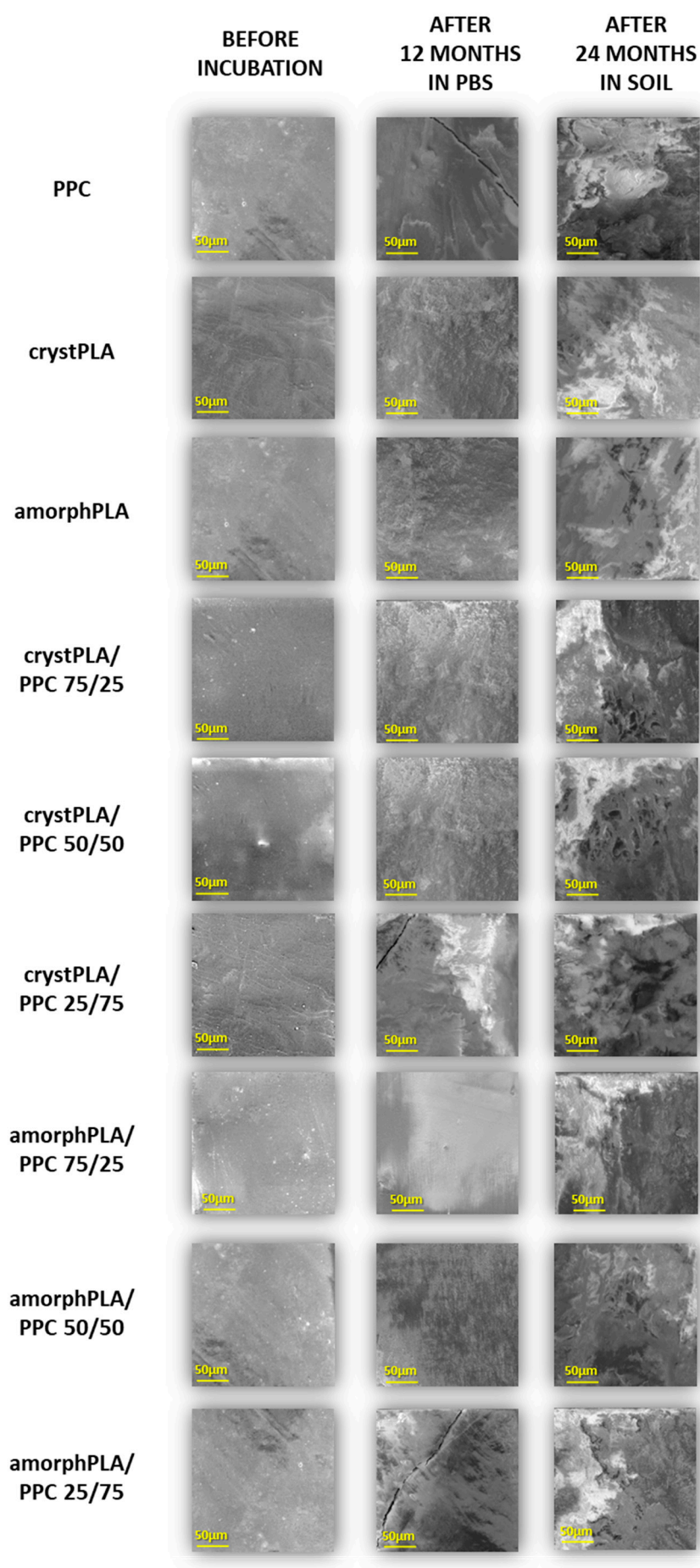


Figure S2. A list of the SEM micrographs of the surfaces of incubated foils before and during incubation.