

Electronic Supplementary Material

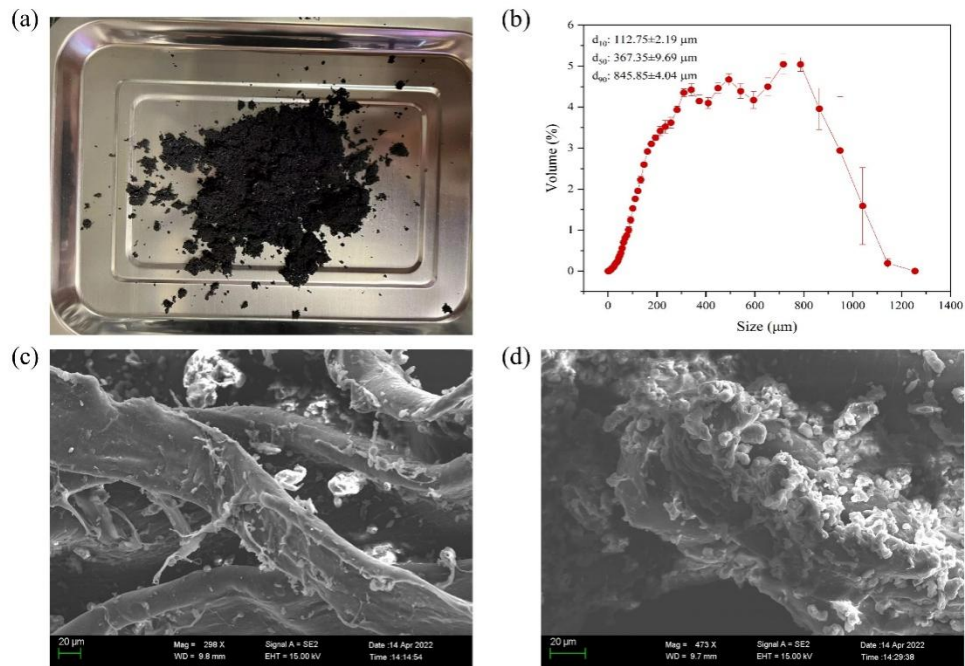


Fig. S1 Characterization of secondary PE-MPs. (a) Secondary PE-MPs, (b) size distribution of secondary PE-MPs, (c) and (d) particle topography of secondary PE-MPs. d_{10} , d_{50} , and d_{90} (μm) indicate that the volume content of particles smaller than this size accounts for 10%, 50%, and 90% of all particles.



Fig. S2 Platforms and diagrams during the experimental processes.

Table S1 Changes of the planting soil of Pak choi in the control and treated groups. Before: the soil before planting. * $p < 0.05$: a significant difference; ** $p < 0.01$: a very significant difference. All the data were shown as mean \pm SD.

Group	Soil density (g/cm ³)	Porosity (%)	Moisture content (%)	CEC (cmol ⁺ /kg)	FDA hydrolase (U/g)	TOC (g/kg)
Before	0.52 \pm 0.03	75.03 \pm 0.11	68.72 \pm 0.40	1.70 \pm 0.27	419.08 \pm 43.30	455.91 \pm 2.02
Control	0.41 \pm 0.05	71.81 \pm 3.86	71.18 \pm 1.37	1.87 \pm 0.35	30.55 \pm 1.08	444.14 \pm 2.08
MPs_Low	0.63 \pm 0.01**	79.69 \pm 0.93*	79.22 \pm 0.06**	57.28 \pm 2.10**	675.82 \pm 234.15**	437.26 \pm 14.15
MPs_Middle	0.85 \pm 0.05**	85.96 \pm 1.26**	80.51 \pm 0.20**	53.69 \pm 0.80**	2531.93 \pm 103.41**	438.46 \pm 2.43*
MPs_High	0.87 \pm 0.06**	86.30 \pm 1.83**	77.93 \pm 0.78**	54.63 \pm 0.36**	1432.79 \pm 614.07*	518.61 \pm 8.41**
DDT	0.82 \pm 0.04**	84.52 \pm 0.82**	82.72 \pm 0.30**	1.75 \pm 0.02	296.55 \pm 4.92**	428.56 \pm 1.66**
MIX_DDT	1.08 \pm 0.04**	88.93 \pm 0.68**	81.93 \pm 0.67**	56.73 \pm 2.51**	2579.03 \pm 53.94**	411.96 \pm 0.835**
Naphthalene	0.81 \pm 0.04**	85.07 \pm 0.93**	82.21 \pm 0.16**	1.74 \pm 0.03	92.87 \pm 2.37**	435.39 \pm 6.50
MIX_Naphthalene	0.98 \pm 0.08**	88.36 \pm 0.81**	82.67 \pm 0.25**	58.67 \pm 0.33**	1121.57 \pm 108.18**	435.43 \pm 0.33**

Table S2 PERMANOVA analysis (multivariate models) of grouping factors and environmental factors (soil density, porosity, moisture content, CEC, FDA hydrolase, and TOC). SumOfSqs: the total variance of each element in grouping factors or environmental factors; MeanSqs: the average variance of each element in each grouping factor or environmental factor; F: the statistical F value; R^2 : the degree of interpretation of the difference. * $p < 0.05$; ** $p < 0.01$. All the data were shown as mean \pm SD.

Name	Df	SumsOfSqs	MeanSqs	F	R^2
Grouping factors	8	0.652	0.081	2.126	0.326**
Moisture content	1	0.361	0.361	9.421	0.181**
CEC	1	0.337	0.337	8.803	0.169**
Soil density	1	0.052	0.052	1.347	0.026
FDA hydrolase	1	0.049	0.049	1.268	0.024
Porosity	1	0.044	0.044	1.158	0.022
TOC	1	0.045	0.045	1.163	0.022
Residuals	12	0.460	0.038	-	0.230
Total	26	1.999	-	-	1