Electronic Supplementary Material (ESI) for Materials Advances.

Compatibilization of PLA/PBAT blends with Epoxidized Canola Oil for 3D printing applications

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SUPPLEMENTARY INFORMATION

Table S1. Formulations of PLA/PBAT and PLA/PBAT/ECO blends.

Sample PLA/PBAT/ECO	PLA (wt%)	PBAT (wt%)	ECO (phr)
PLA	100	0	0
80/20/0	80	20	0
80/20/5	80	20	5
70/30/0	70	30	0
70/30/5	70	30	5
60/40/0	60	40	0
60/40/5	60	40	5

Table S2 PBAT average particle size and polydispersity index

Sample	Average particle size (µm)	Polydispersity Index (PI)
80/20/0	2.73±0.91	1.37
80/20/5	2.55±0.44	1.08
70/30/0	2.91±1.15	1.49
70/30/5	2.68±0.47	1.09
60/40/0	4.59±1.08	1.13
60/40/5	5.30±1.82	1.30

Table S3 Thermal degradation parameters

PLA/PBAT/ECO	$T_{5\%}$ (℃)	T_{max1} (℃)	T_{max2} (℃)
100/0/0	345.9	407.2	-
0/100/0	383.2	-	445.7
80/20/0	319.2	370.4	406.6
80/20/5	307.0	365.7	407.0
70/30/0	296.9	349.6	408.9
70/30/5	296.6	353.5	404.5
60/40/0	316.4	363.0	408.2
60/40/5	307.5	360.1	409.8

Table S4. 3D printing parameters at 190 °C.

Sample PLA/PBAT/ECO	Extrusion pressure	Infill space	Layer height	Print speed	Infill density
70/30/0	30 psi	0.2 mm	0.3 mm	20 mm/s	100%
70/30/5	30 psi	0.2 mm	0.3 mm	20 mm/s	100%

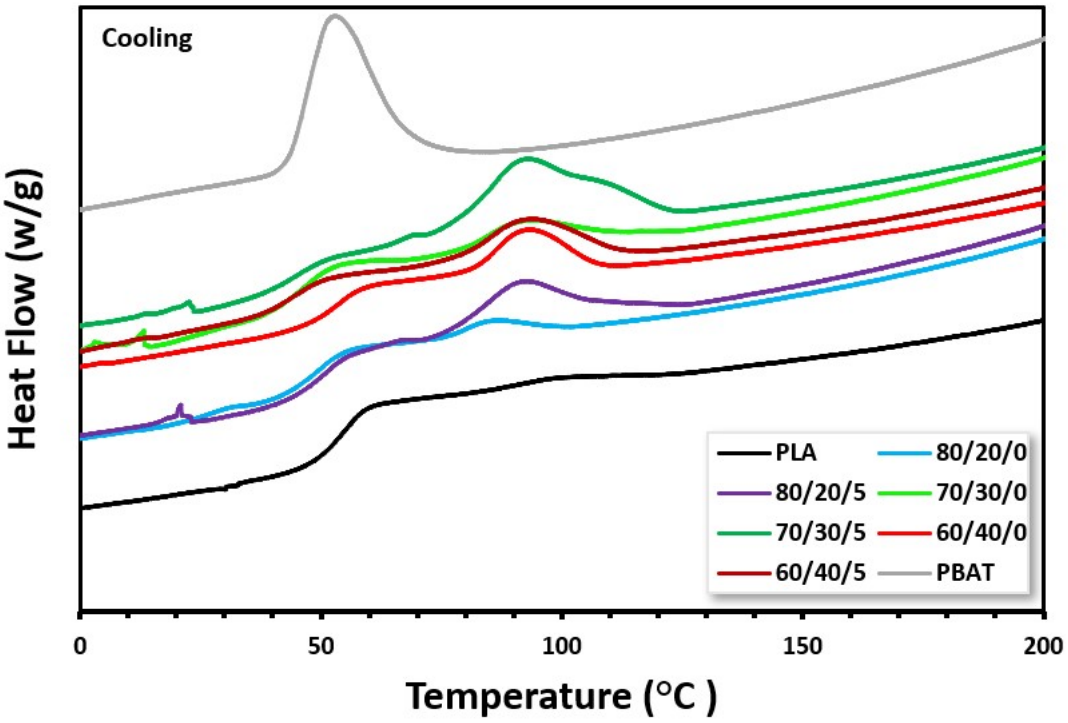

Figure S1. DSC cooling curves for pure PLA, pure, PBAT, and their blends

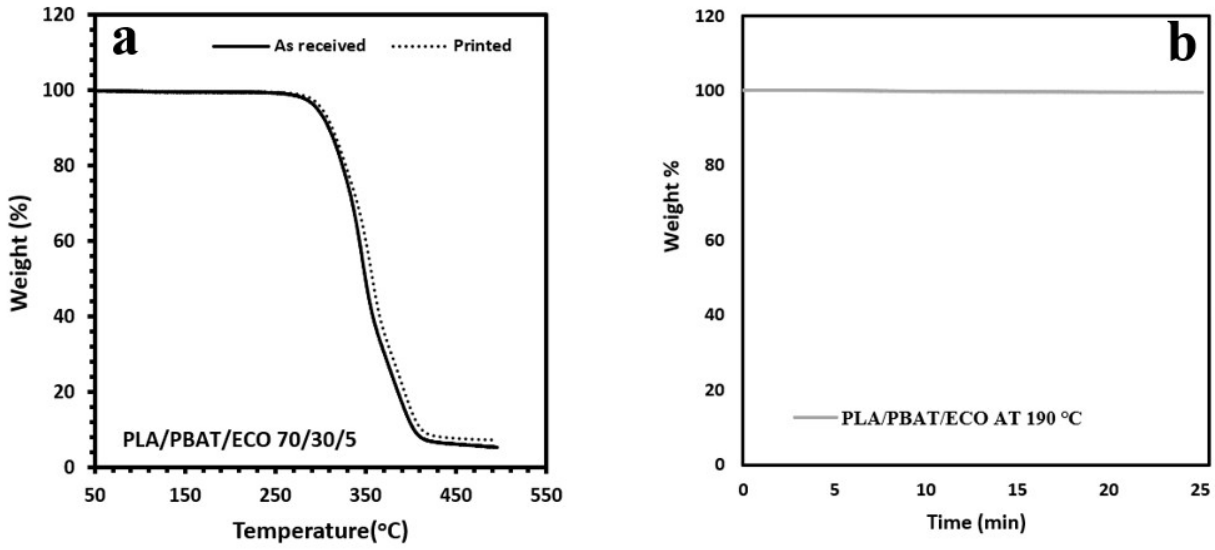

Figure S2. (a) non-isothermal TGA and (b) isothermal TGA at 190 ℃ for 25 mi

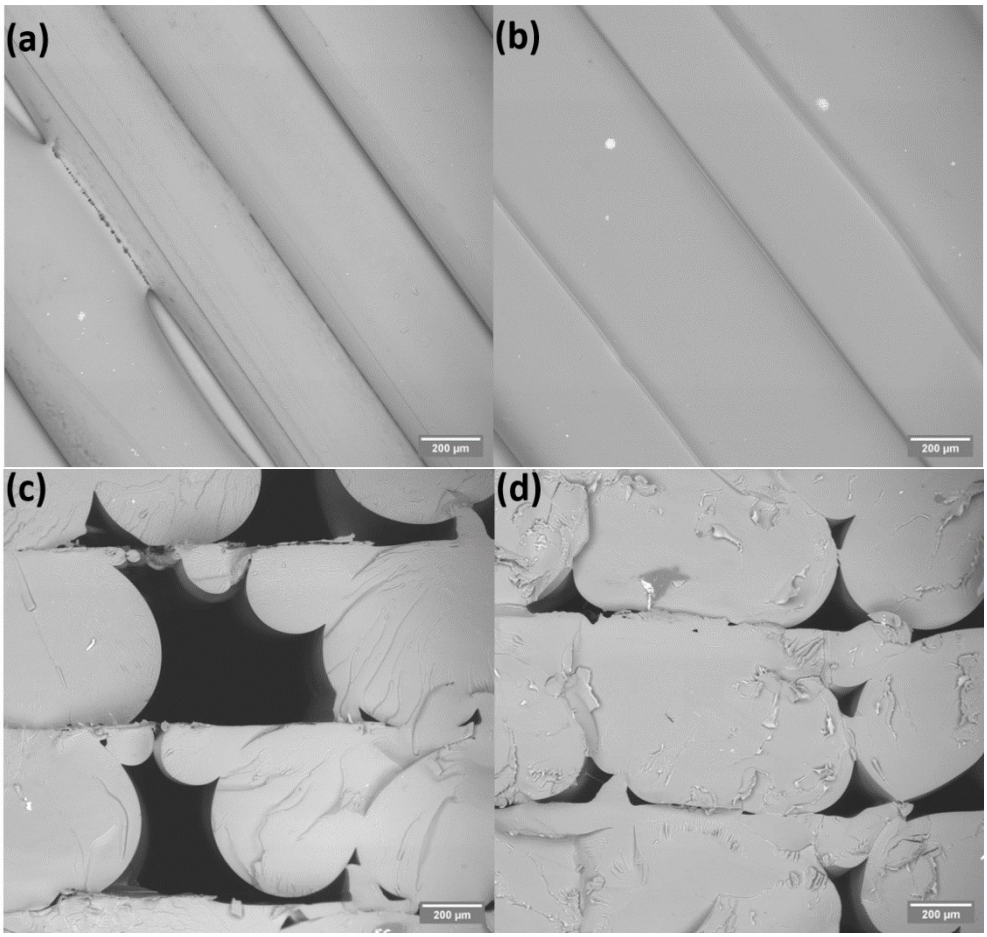

Figure S3. SEM images of PLA strands (a) Neat PLA, top surface; (b) PLA/ECO, top surface; (c) Neat PLA, cross section; (d) PLA/ECO, cross section