

Article

Effect of Extrusion Screw Speed and Plasticizer Proportions on the Rheological, Thermal, Mechanical, Morphological and Superficial Properties of PLA

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Supporting Information

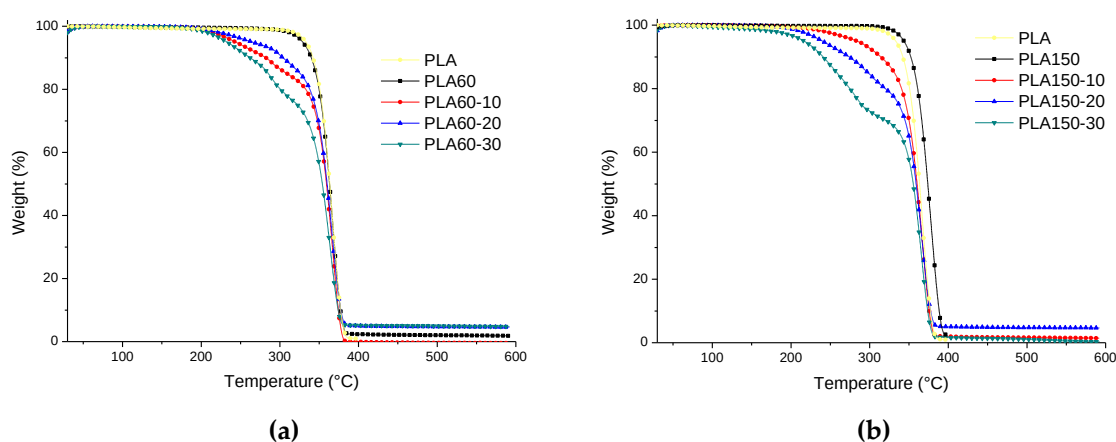
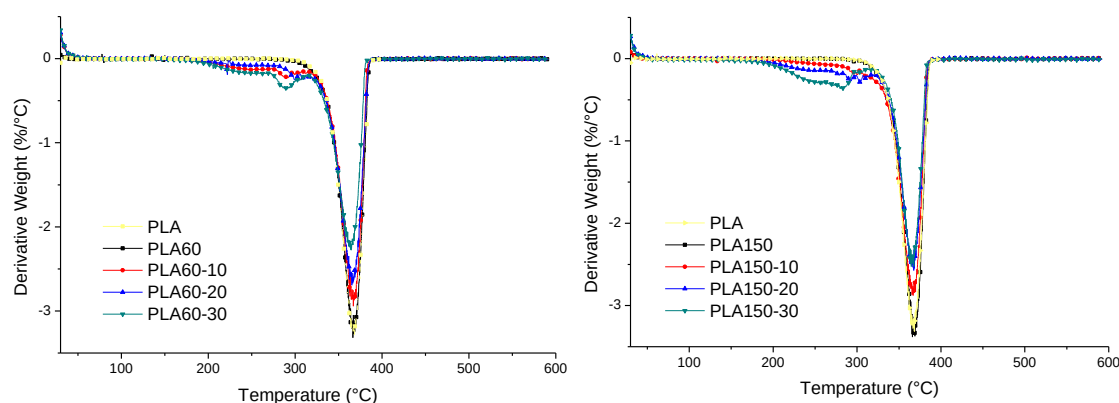


Figure S1. TGA thermograms of the samples of (a) PLA with ATBC at 10, 20 and 30% extruded to 60 rpm. (b) PLA with ATBC at 10, 20 and 30% extruded to 150 rpm.



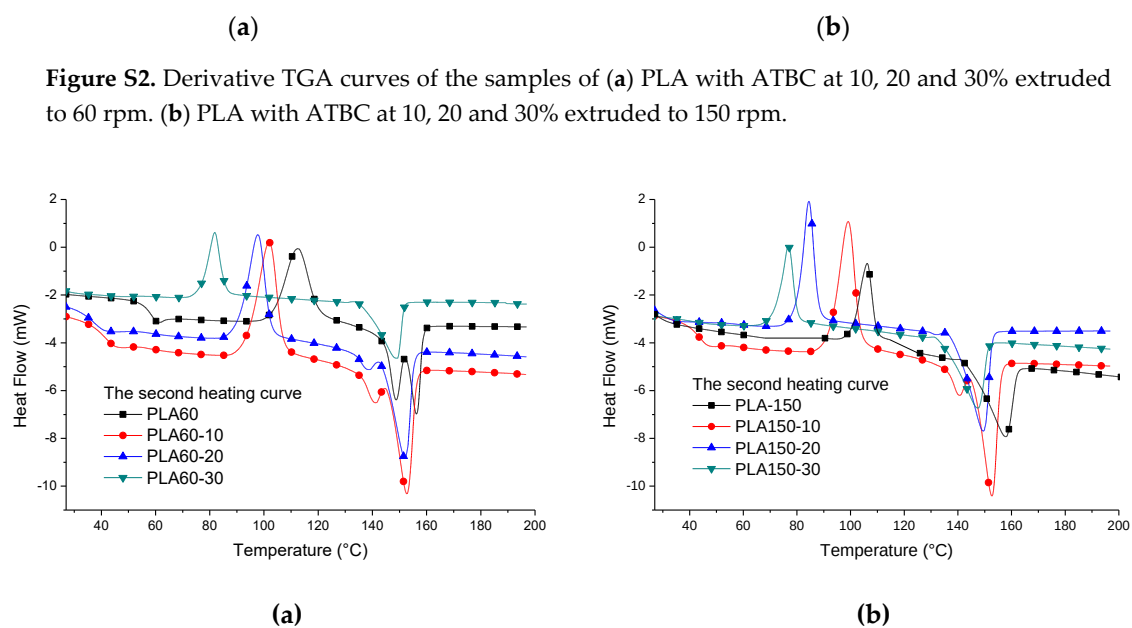
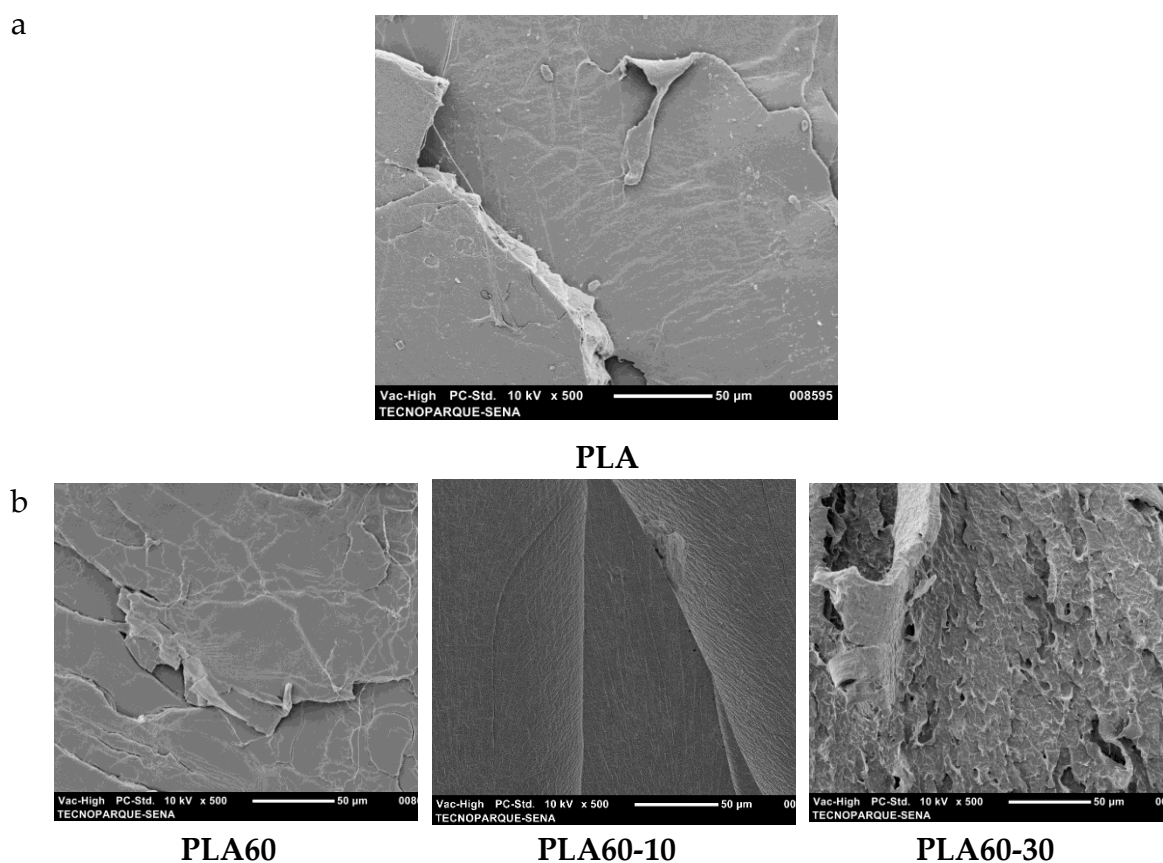


Figure S3. DSC thermograms of the samples of (a) PLA with ATBC at 10, 20 and 30% extruded to 60 rpm. (b) PLA with ATBC at 10, 20 and 30% extruded to 150 rpm.



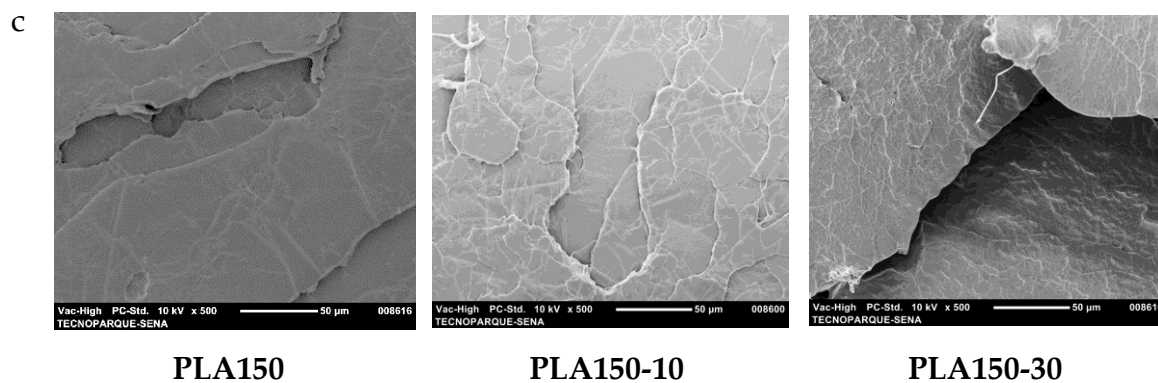


Figure S4. Micrographs obtained by SEM with magnifications of 500x for (a) PLA, (b) PLA60, PLA60-10 and PLA60-30, (c) PLA150, PLA150-10 and PLA150-30.

Table S1. Zero shear viscosity, characteristic relaxation time and molecular weight from the rheological data of PLA and PLA with ATBC.

Sample	η_0	λ (s)	Mw
PLA60	2298,5	0,0288	224090,5
PLA60-10	1147,1	0,0126	182663,8
PLA60-20	1054,8	0,0134	178211,5
PLA60-30	337,5	0,0073	127457,8
PLA150	3202,7	0,0311	247058,6
PLA150-10	1446,2	0,0165	195542,5
PLA150-20	412,4	0,0027	135204,0
PLA150-30	272,4	0,0071	119677,3

Table S2. DMA results of the studied materials.

Sample	E' (MPa)			Tg (°C)*	Full width at half maximum (FWHM) of tan δ peaks**
	-25 °C	25 °C	100 °C		
PLA60	1266	1327	320	63	7.1
PLA60-10	928	888	198	48	9.2
PLA60-30	487	211	89	35	38.4
PLA150	1271	1196	288	60	8.3
PLA150-10	698	685	167	44	11.5
PLA150-30	360	130	76	31	45.5

*T_g values were taken at the maximum peak of tan delta curves.

** FWHM values were taken after a baseline correction of tan delta curves.



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