Supplementary Information for

Novel Vanillic Acid-based Poly(ether-ester)s: From Synthesis to Properties

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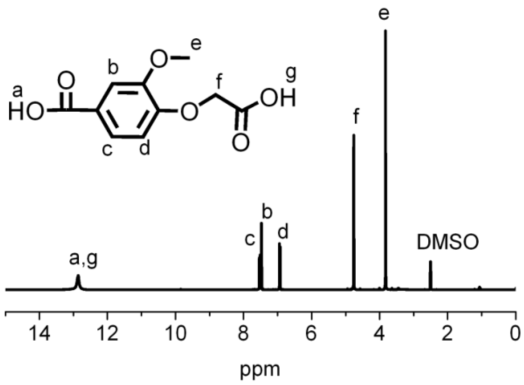


Figure S1. ^{1}H NMR spectra of DVA

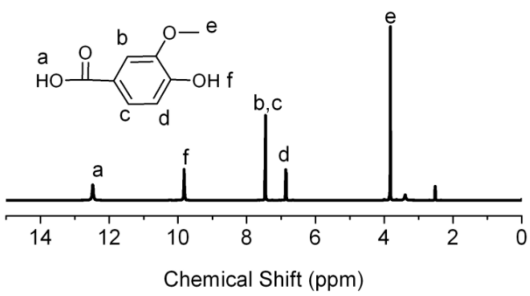


Figure S2. ^{1}H NMR spectra of vanillic acid

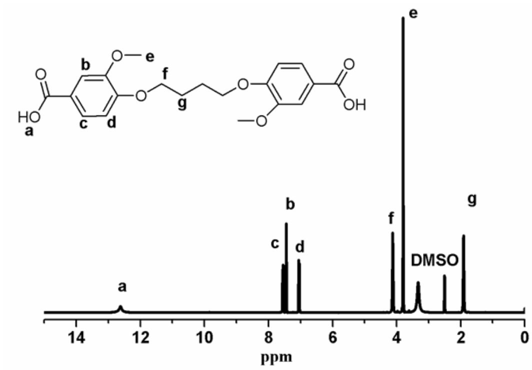


Figure S3. ^{1}H NMR spectra of IIDVA

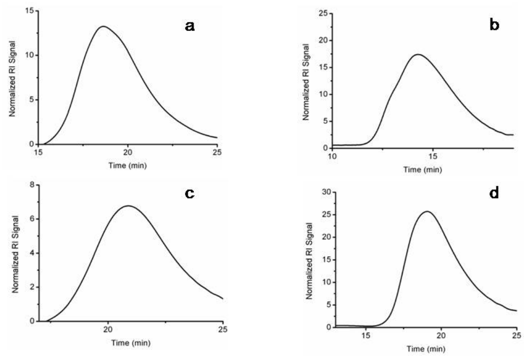


Figure S4. SEC traces of selected synthesized poly(ether-ester)s: (a) PE1-4, (b) PE2-4, (c) PE1-10, (d) PE2-10

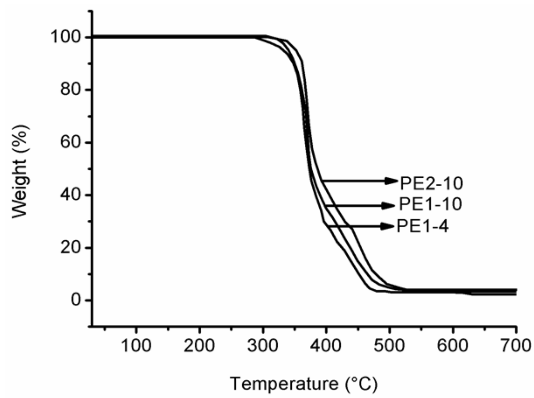


Figure S5. TGA curves of PE1-4, PE1-10 and PE2-10 under air at a heating rate of 10 °C min^{-1}.

Table S1. Thermal properties of the poly(ether-ester)s measured by TGA in air

polymer	$T_{5\%}$^{a}(°C)	W^{b}(%)
PE1-4	330	3.7
PE1-10	341	2.2
PE2-10	351	3.9

^{a}Temperature at which 5% weight loss was observed. ^{b}Remaining weight at 700 °C.

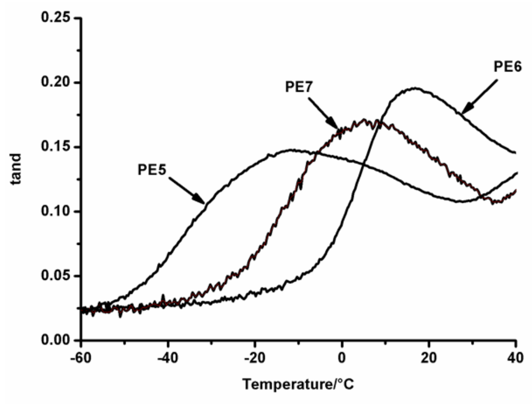
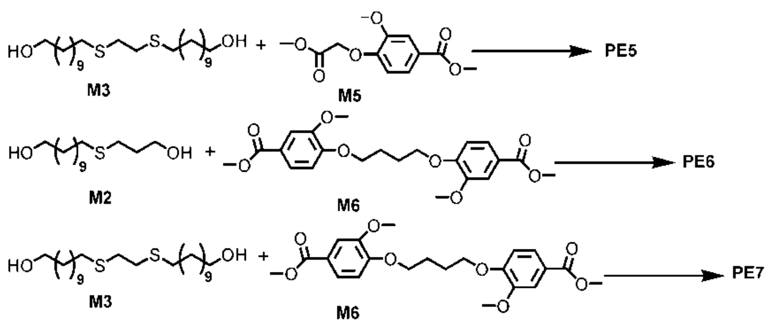


Figure S6. Tan δ as a function of temperature for PEs 5–7

Table S2. Dynamic mechanical properties of PEs 5-7

Polymer	T_g (ºC)	E'(20 ºC) (MPa)	tan δ_{max}
PE5	-2.1	283	0.15
PE6	15.6	581	0.20
PE7	5.3	493	0.17



Scheme S1. Structures of PEs 5-7 from monomers derived from vanillic acid and 10-undecenoic acid.

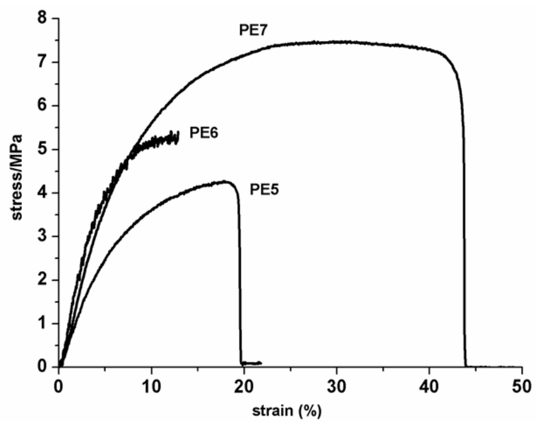


Figure S7. Stress-strain curves of PEs 5-7 at 25 °C, 0.05 mm s^{-1}

Table S3. Tensile properties of PEs 5–7

Polymer	Young's modulus (MPa)	Ultimate strength (MPa)	Strain at break (%)
PE5	50.0 ± 5.1	4.1 ± 0.9	22.8 ± 5.9
PE6	99.7 ± 11.5	5.0 ± 1.1	12.7 ± 3.1
PE7	66.2 ± 13.4	7.0 ± 1.4	43.7 ± 8.2