[Supporting information]

Antibacterial and Biocompatible ABA-Triblock Copolymers Containing Perfluoropolyether and Plant-Based Cardanol for Versatile Coating Applications

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Synthesis of 2-hydroxy-3-cardanylpropyl methacrylate (HCPM). To a DMAc solution (30 mL) of cardanol (10 g, 33 mmol) and potassium hydroxide (1.85 g, 33 mmol), glycidyl methacrylate (9.44 g, 66 mmol) was added and reacted in nitrogen (N_2) atmosphere for 24 h at room temperature. After the reaction was finished with dropping few drops of a concentrated HCl solution, DMAc was evaporated. The crude product was dissolved in methylene chloride (MC) and transferred to a separatory funnel. After extraction with 0.5 *N* HCl solution, the MC layer was dried over anhydrous magnesium sulfate and filtered. The obtained product was purified by silica gel column chromatography (ethyl acetate : *n*-hexane = 1 : 6 vol%). The yield was 49 % (7.18 g).

^{1}H NMR (300 MHz, $CDCl_3$, trimethylsilane (TMS) ref): δ = 0.88 (t, J = 6.78 Hz, 3 H, –CH_3), 1.20-1.40 (m, $CH_3(CH_2)_{12}CH_2$–), 1.60 (m, 2 H, $CH_3(CH_2)_{12}CH_2CH_2$–), 1.97 (s, 3 H, –OC(O)C(CH_3)=CH_2), 2.02 (m, –$CH_2CH_2CH_2$CH=CHCH_2–), 2.57 (t, J = 8.04 Hz, 2 H, –$OC_6H_4CH_2$–), 2.75-2.90 (m, –CH_2CH=CHCH_2CH=CH–), 3.94-4.40 (m, 5 H, –OCH_2CH(OH)CH_2OC(O)–), 5.20-5.50 (m, –CH_2CH=CHCH_2–), 5.62 and 6.26 (s, 2 H, –OC(O)C(CH_3)=CH_2), 6.67-6.83 (m, 3 H, aromatic), 7.19 (t, J = 7.5 Hz, 1 H, aromatic).

FT-IR: 3471 cm^{-1} (O-H stretching vibration), 3010 cm^{-1} (C-H vibration of the unsaturated hydrocarbon), 1720 cm^{-1} (C=O stretching vibration (α,β-unsaturated ester), 1261 cm^{-1} (C(Ar)–O–C asymmetric stretching vibration (*m*-alkyl phenol)), 1049 cm^{-1} (C(Ar)–O–C symmetric stretching vibration (*m*-alkyl phenol)), 775 cm^{-1} (–CH_2– rocking vibration), 721 cm^{-1} (–$(CH_2)_n$–, n>3; rocking vibration), 694 cm^{-1} (aromatic out of plane C–H deformation vibration of *m*-substituted benzene).

Mass *m/z* calculated $C_{28}H_{44}O_4^+$: 444.32, found 444.

Table S1. Calculated molecular weight (M_n) and content of HCPM in PHCPMF#s

Samples	Calculated M_n[a]	Content of HCPM in polymer (wt%)
PHCPMF2	3,700	48.6
PHCPMF4	5,400	64.8
PHCPMF12	12,300	84.6

[a]Determined by ^{1}H NMR.

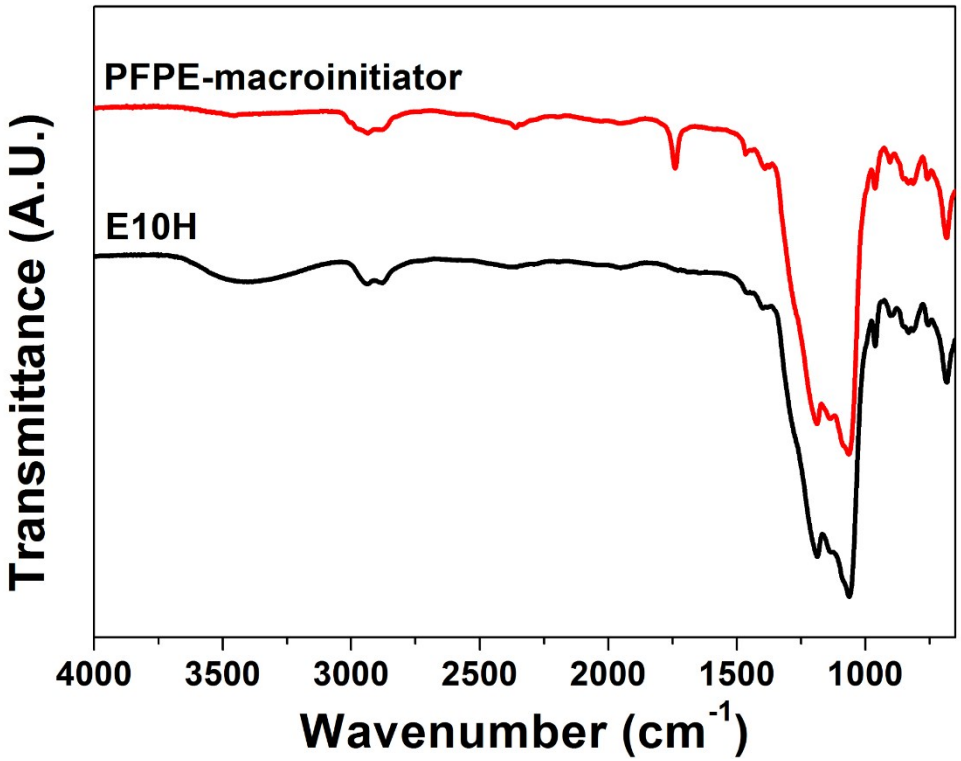

Figure S1. FT-IR/ATR spectra of E10H after and before modification.

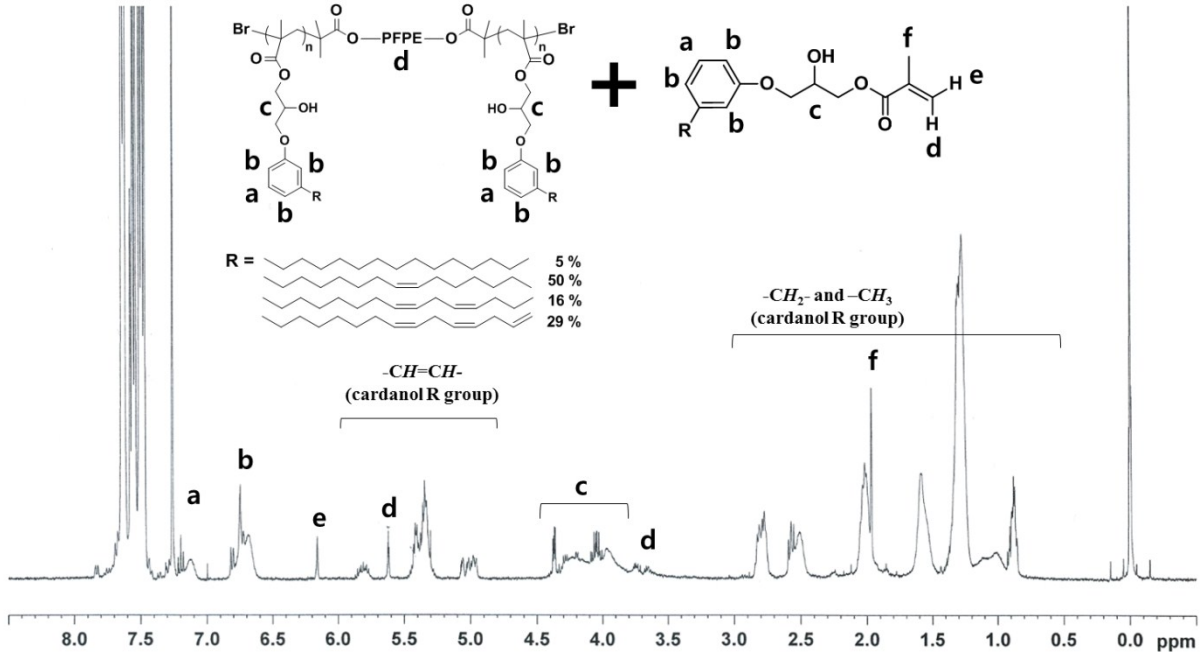

Figure S2. ^{1}H NMR spectrum of crude PHCPMF12 obtained after 18 h polymerization. (Mixture of PHCPMF12 and HCPM)