Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supplementary Information

Preparation of new bio-based antibacterial acrylic bone cement via modification with biofunctional monomer of nitrofurfuryl methacrylate

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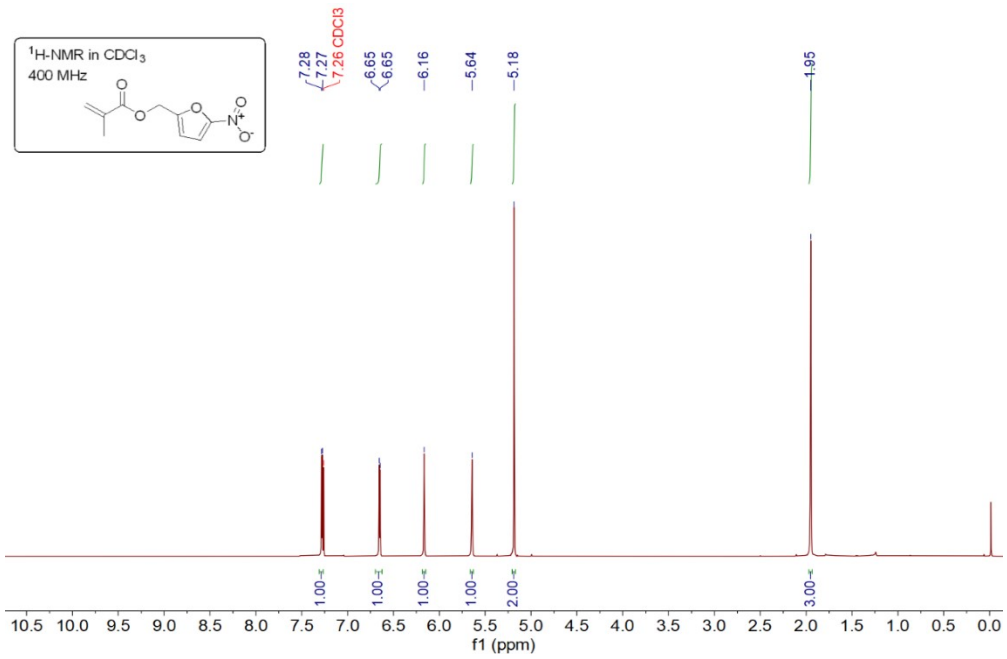
Table S1 Formulations of experimental bone cements.

Formulations	Solid component (g)			Liquid component (g)	
	p(NFMA-co-MMA)	$BaSO_4$	BPO	MMA	DMPT
PMMA	16.6	3.0	0.4	9.8	0.2
p(5%NFMA-co-MMA)	16.6	3.0	0.4	9.8	0.2
p(10%NFMA-co-MMA)	16.6	3.0	0.4	9.8	0.2
p(20%NFMA-co-MMA)	16.6	3.0	0.4	9.8	0.2
PNFMA	16.6	3.0	0.4	9.8	0.2



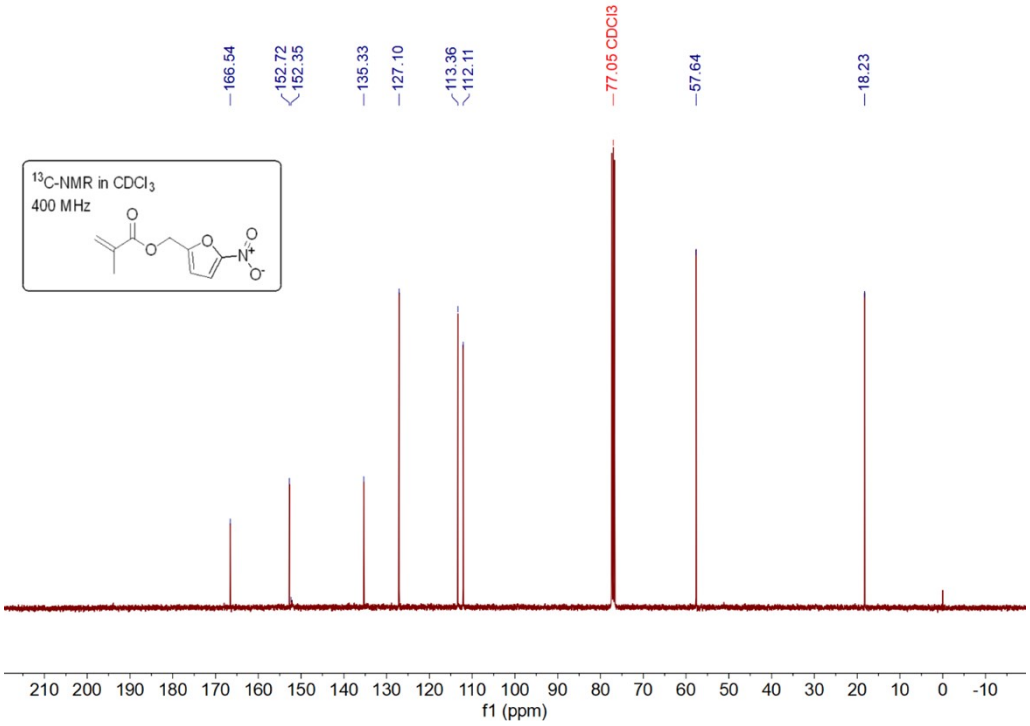
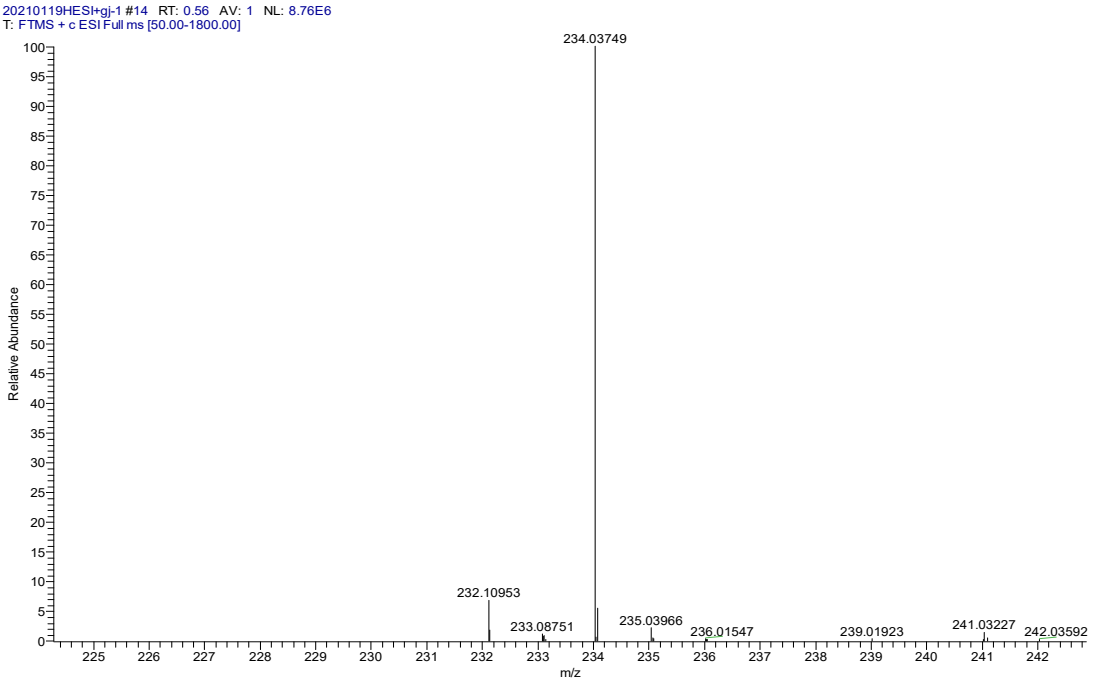


Figure S1. The ^{1}H NMR spectra and ^{13}C NMR spectra (ppm, CDCl3) of NFMA.



m/z	Intensity	Relative	Theo. Mass	Delta(mmu)	Composition
234.0375	8755501	100	234.03729	0.2	$C_9 H_9 O_5 N Na$

Figure S2. The mass spectrum of NFMA

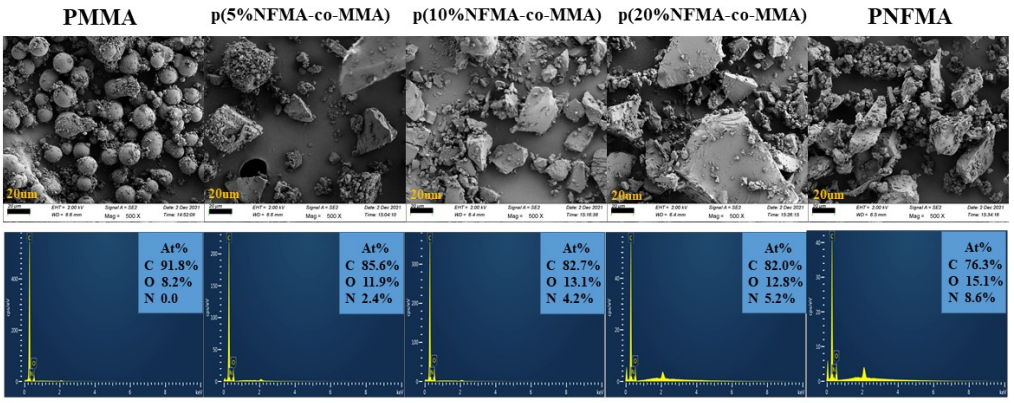


Figure S3. SEM images and EDS spectrums of PMMA, PNFMA and the p(NFMA-co-MMA) biomass-based bone cement materials.

Figure S4. Mapes of antimicrobial testing from the plate counting method

Method of antimicrobial test has been listed in paper that direct contact test (DCT) was used to evaluate bone cements' antibacterial activity. For counting of colonies, the plate counting method was accounted: Concentration gradients was set as original sample, 10^{-1}, 10^{-3}, 10^{-5} and 10^{-7} dilution to promise the serises begins with a sample containing an unknown concentration of cells and ends with a very dilute mixture containing only a few cells. The plates with 30-200 colonies was used to calculate the bacterial concentration.

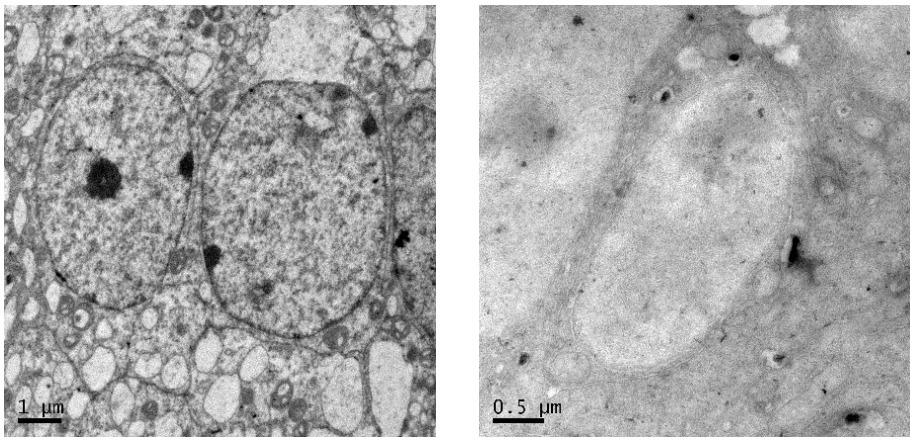


Figure S5. The SEM and TEM mapes of bacterial morphology.