Electronic Supplementary Material (ESI) for RSC Advances.

Toward Detoxification Fabric against Nerve Gas Agents: Guanidine-Functionalized Poly[2-(3-butenyl)-2-oxazoline]/Nylon-6,6 Nanofibers

Wu Bin Ying[a,†], Sohee Kim[a,†], Min Woo Lee[a], Na Yeong Go[a], Hyunsook Jung[b], Sam Gon Ryu[b], Bumjae Lee[a,*], Kyung Jin Lee[a,*]

Department of fine chemical engineering and applied chemistry, College of Engineering, Chungnam National University, 99 Daehak-ro (st), Yuseong-gu, Daejeon, 305-764, Korea

* Corresponding author. Tel.: +82 42 821 7009; fax: +82 42 822 7009.
E-mail addresses: kjlee@cnu.ac.kr

* Corresponding author. Tel.: +82 42 821 6696; fax: +82 42 822 6046.
E-mail addresses: bjlee@cnu.ac.kr

[1] These authors contributed equally to this work.

Content

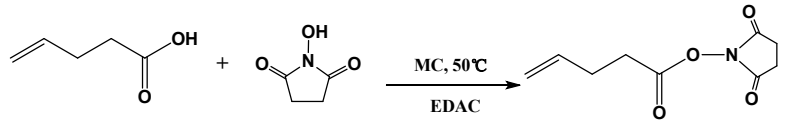
1. Schemes

2. Figures

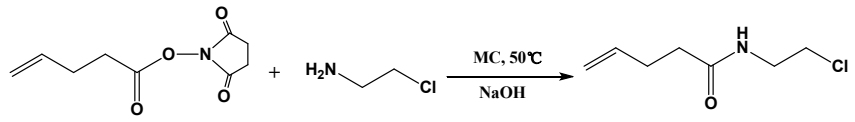
1. Schemes

Scheme S1. BuOxz monomer synthesis

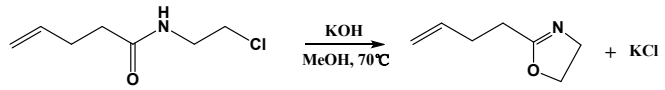
1) 4-pentenoic acid (PA) + N-hydroxysuccinimide (HS) → N-succinimidyl-4-pentenate (SP)



2) N-succinimidyl-4-pentenate (SP) + 2-chloroethylamine (CE) → N-(2-chloroethyl)-4-pentenamide (CP)



3) N-(2-chloroethyl)-4-pentenamide (CP) + potassium hydroxide → 2-(3-butenyl)-2-oxazoline (BuOxz)



2. Figures

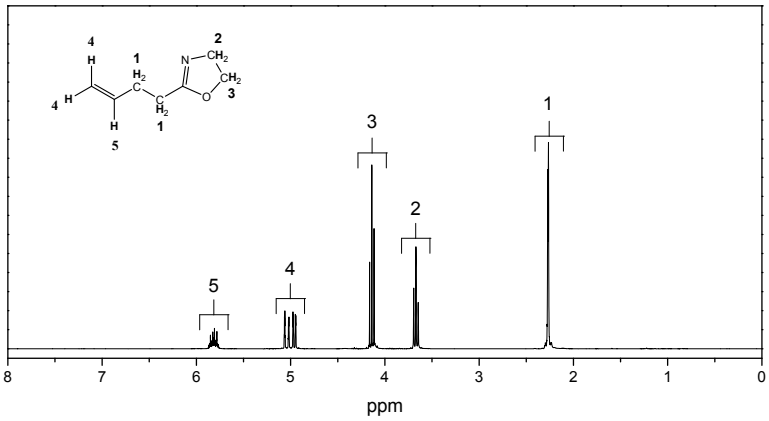


Figure S1. ^{1}H-NMR spectrum of 2-(3-butenyl)-oxazoline

BuOxz has been synthesized successfully after analyzed by ^{1}H-NMR spectroscopy as shown in **Figure S1**. The intensity ratio of N-(2-chloroethyl)-4-pentenamide was P1: P2 : P3: P4 : P5 = 3.8 : 2.0 : 1.9 : 2.0 : 1.1, which was consistent with the theoretical value of 4 : 2 : 2 : 2 : 1.

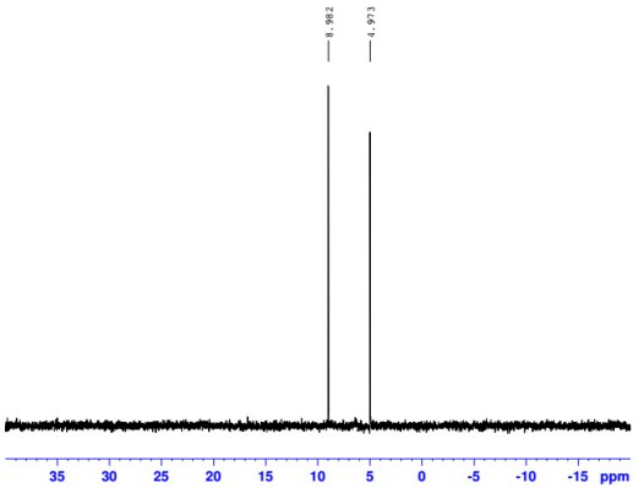
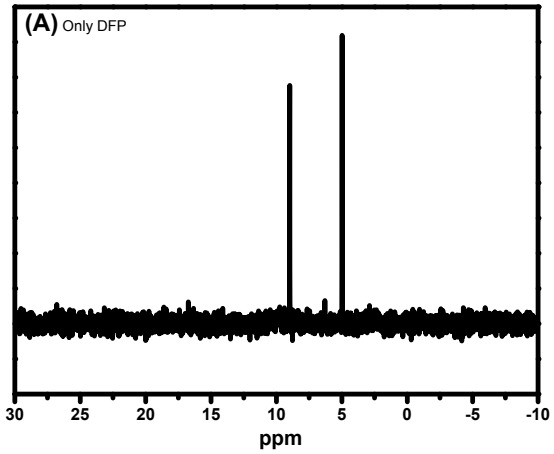
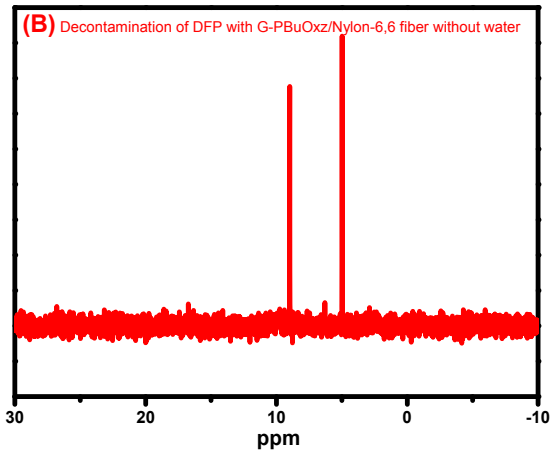


Figure S2. ^{31}P-NMR spectrum of DFP in the presence of G-PBuOxz/Nylon-6,6 fiber co-electrospinned in formic acid, [Guanidine]/[DFP] = 10/1





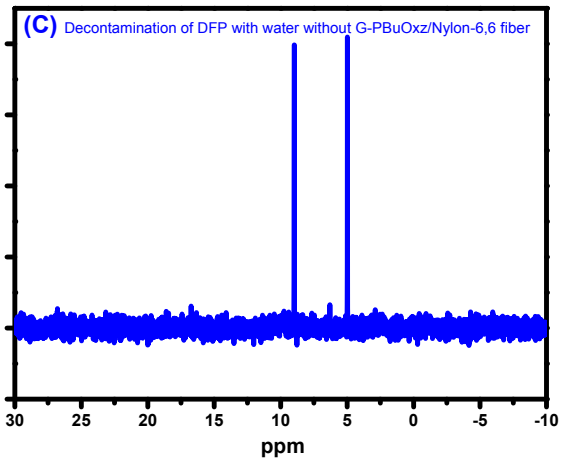


Figure S3. ^{31}P-NMR spectra of decontamination of DFP **(A)** with nothing only DFP; **(B)** with G-PBuOxz/Nylon-6,6 fiber without water; **(C)** with water without G-PBuOxz/Nylon-6,6 fiber for 2 hours.