

## Supporting Information

for *Plasma Process. Polym.*

### **Plasma-Treated Organic Solutions for Enhanced Electrospun Nanofibers**

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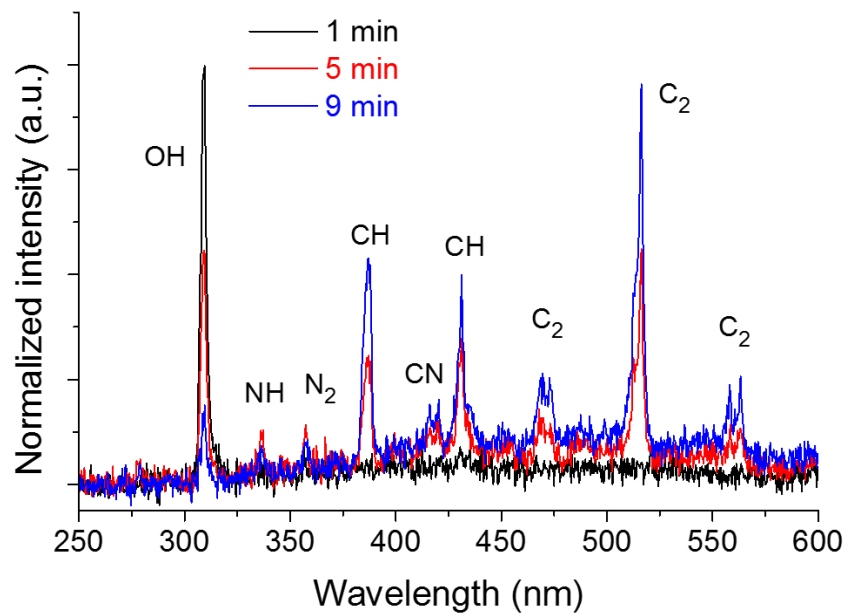


Figure S1. Effect of plasma treatment time on the optical emission spectrum of the plasma jet afterglow sustained in a 6% w/v PLA solution (PEPT parameters: 0.5 L/min, 2 kV).

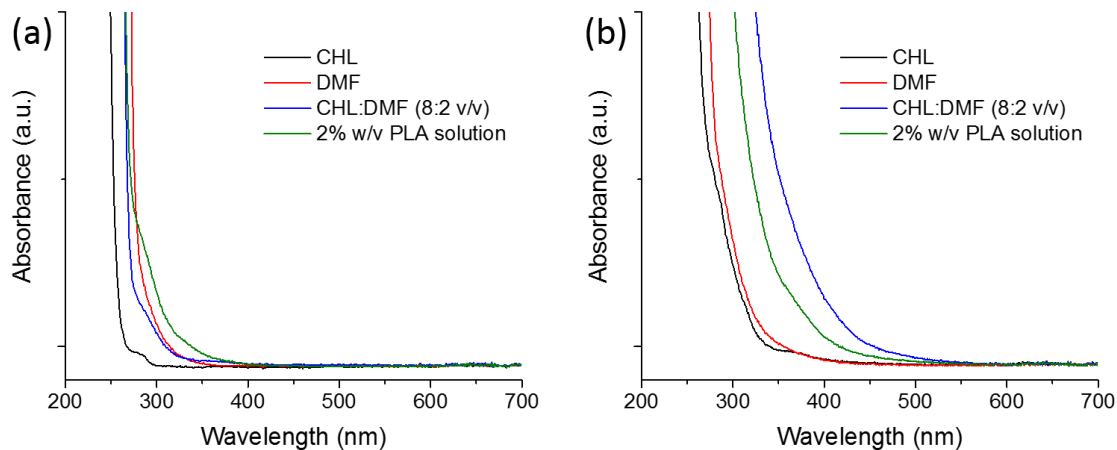
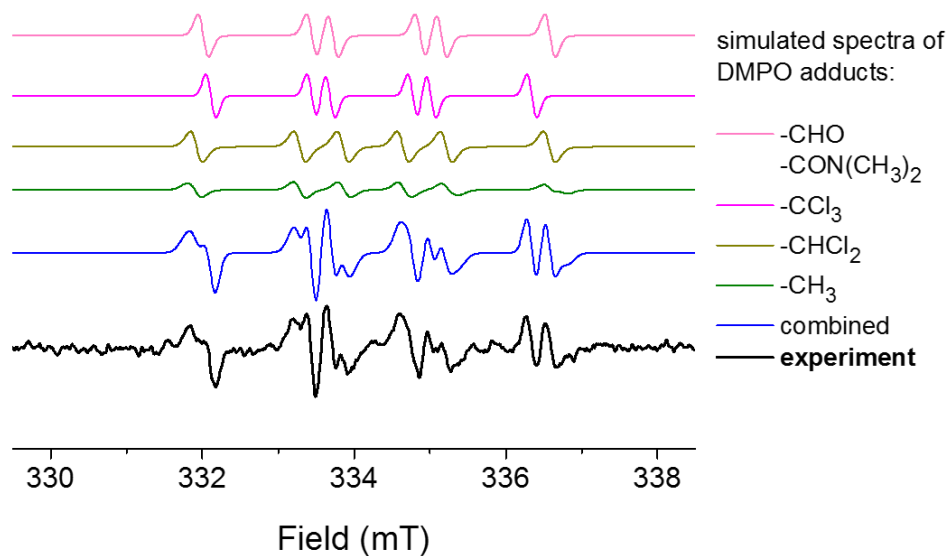
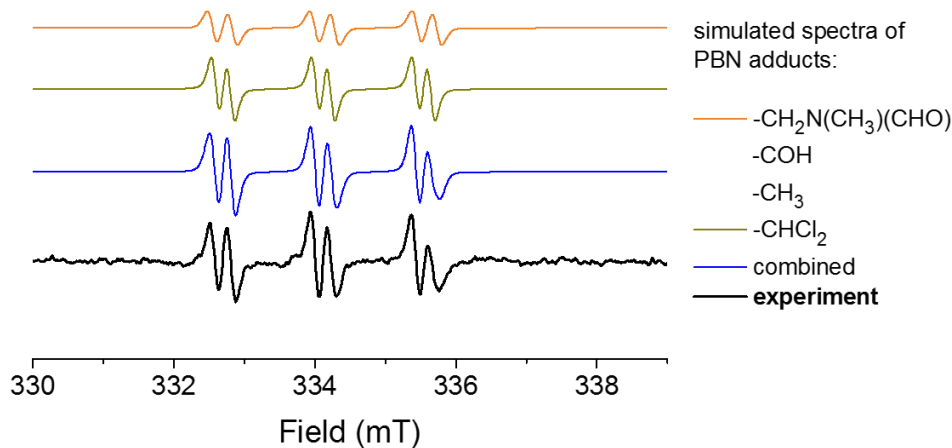


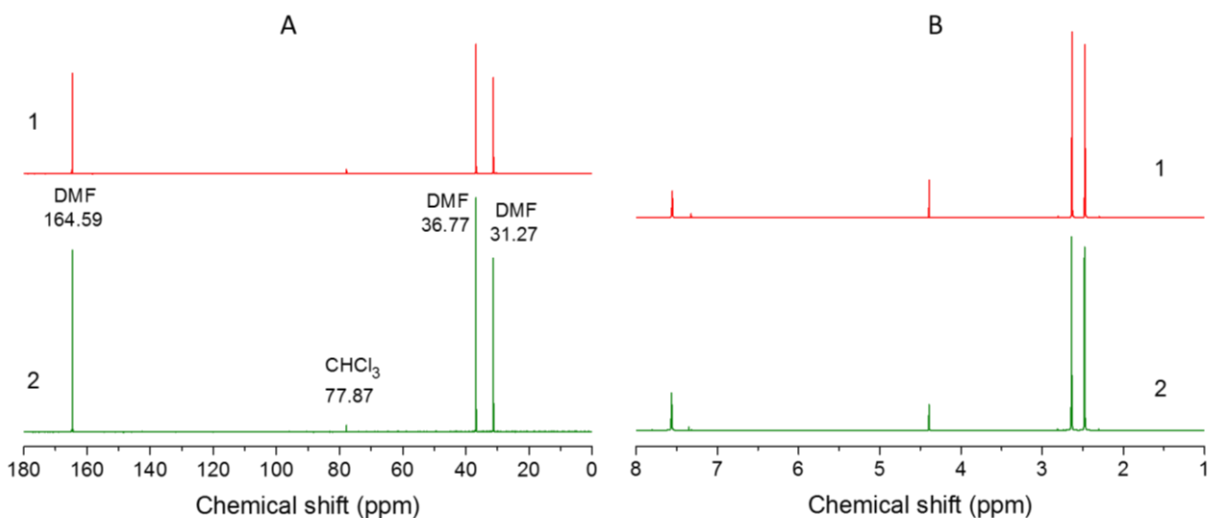
Figure S2. UV-vis absorbance spectra of (a) untreated solvents and a 2% w/v PLA solution, (b) plasma-treated solvents and a plasma treated 2% w/v PLA solution (PEPT parameters: 5 min, 0.5 L/min, 2 kV).



*Figure S3.* DMPO adducts in a 2% w/v plasma-treated PLA solution. Adducts: DMPO-CHO/-CON(CH<sub>3</sub>)<sub>2</sub> ( $a_N = 1.41$  mT,  $a_H = 1.81$  mT); DMPO-CCl<sub>3</sub> ( $a_N = 1.33$  mT,  $a_H = 1.59$  mT); DMPO-CHCl<sub>2</sub> ( $a_N = 1.36$  mT,  $a_H = 1.93$  mT); DMPO-CH<sub>3</sub> ( $a_N = 1.52$  mT,  $a_H = 2.04$  mT).



*Figure S4.* PBN adducts in a 2% w/v plasma-treated PLA solution. Adducts: PBN-CHCl<sub>2</sub> ( $a_N = 1.42$  mT,  $a_H = 0.21$  mT); PBN-CH<sub>2</sub>N(CH<sub>3</sub>)(CHO)/-COH/-CH<sub>3</sub> ( $a_N = 1.45$  mT,  $a_H = 0.28$  mT).



*Figure S5.*  $^{13}\text{C}$  (A) and  $^1\text{H}$  (B) NMR spectra of the aqueous extract from (1) an untreated and (2) a plasma-treated 2% w/v PLA solution.

In the  $^{13}\text{C}$  NMR spectra shown in Figure S5, only the chemical shifts of carbon atoms of DMF and residual  $\text{CHCl}_3$  were detected, with chemical shifts of 31.27, 36.77, 164.59 ppm (DMF) and 77.87 ppm ( $\text{CHCl}_3$ ). No differences in  $^{13}\text{C}$  NMR spectra before and after plasma treatment can be revealed.  $^1\text{H}$ -NMR analysis demonstrated signals with chemical shifts at 2.47 ( $\text{NH}_2$ ), 2.63 ( $\text{OC}=\text{O}$ ), 4.39 ( $\text{H}_2\text{O}$ ), 7.32 ( $\text{CHCl}_3$ ), and 7.56 (DMF) ppm and the same signals were present in the  $\text{D}_2\text{O}$  extract after PEPT (Figure S5B). In the extract of the PEPT solution, the  $\text{H}_2\text{O}$  signals originated either from impurities in  $\text{D}_2\text{O}$  or from generated HCl.

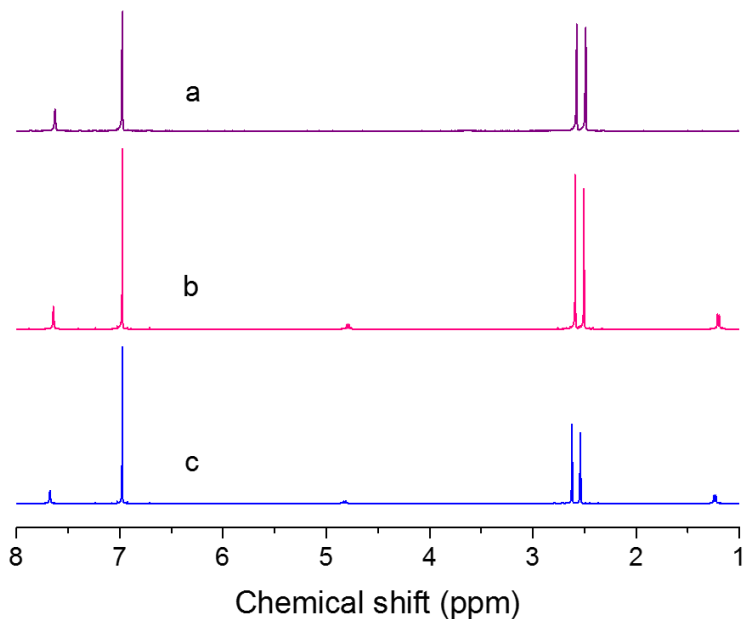


Figure S6.  $^1\text{H-NMR}$  spectra of (a) a plasma-treated mixture solvent, (b) a plasma-treated 2% w/v PLA solution, and (c) an untreated 2% w/v PLA solution in  $\text{CDCl}_3$ .

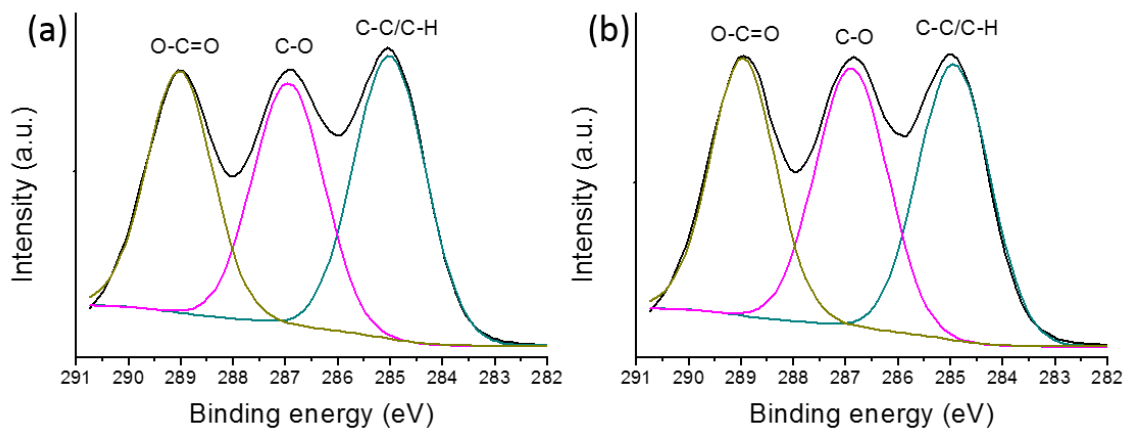


Figure S7. Fitted  $\text{C}1\text{s}$  peak of PLA nanofibers produced from (a) untreated and (b) plasma-treated (PEPT parameters: 5 min, 0.5 L/min, 2 kV) 6% w/v PLA polymer solutions.