

Supplementary information (ESI)

Succinylation of Polyallylamine: Influence on Biological Efficacy and the Formation of Electrospun Fibers

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XRD measurements

According to previous research on succinylation of polymers, in some cases, there was a difference in the crystallinity between the product and the base polymer ^{1,2}. With the increase of the DS of PAA, a difference in the macroscopic morphology of each product could be observed (Figure S1). This was especially seen when comparing the base polymer (PAA) to samples with a high DS (PAA-5SA and PAA-10SA).

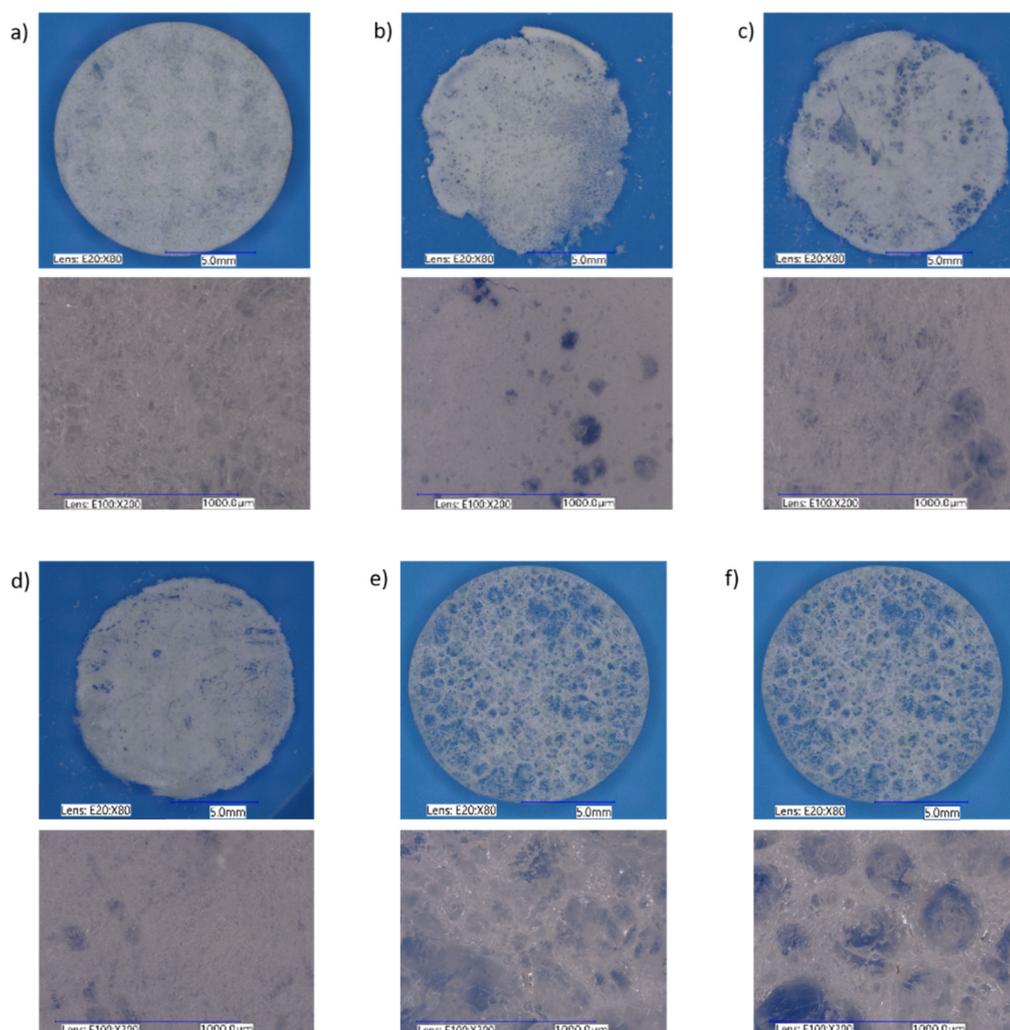


Figure S1: Images of polymer powders: a) PAA, b) PAA-0.5SA, c) PAA-1SA, d) PAA-2.5SA, e) PAA-5SA, f) PAA-10SA, upper rows, photograph, lower rows light microscopy images.

According to XRD measurements, crystallinity of the material did not change with increase DS and was calculated to be at approximately 22 % for each sample.

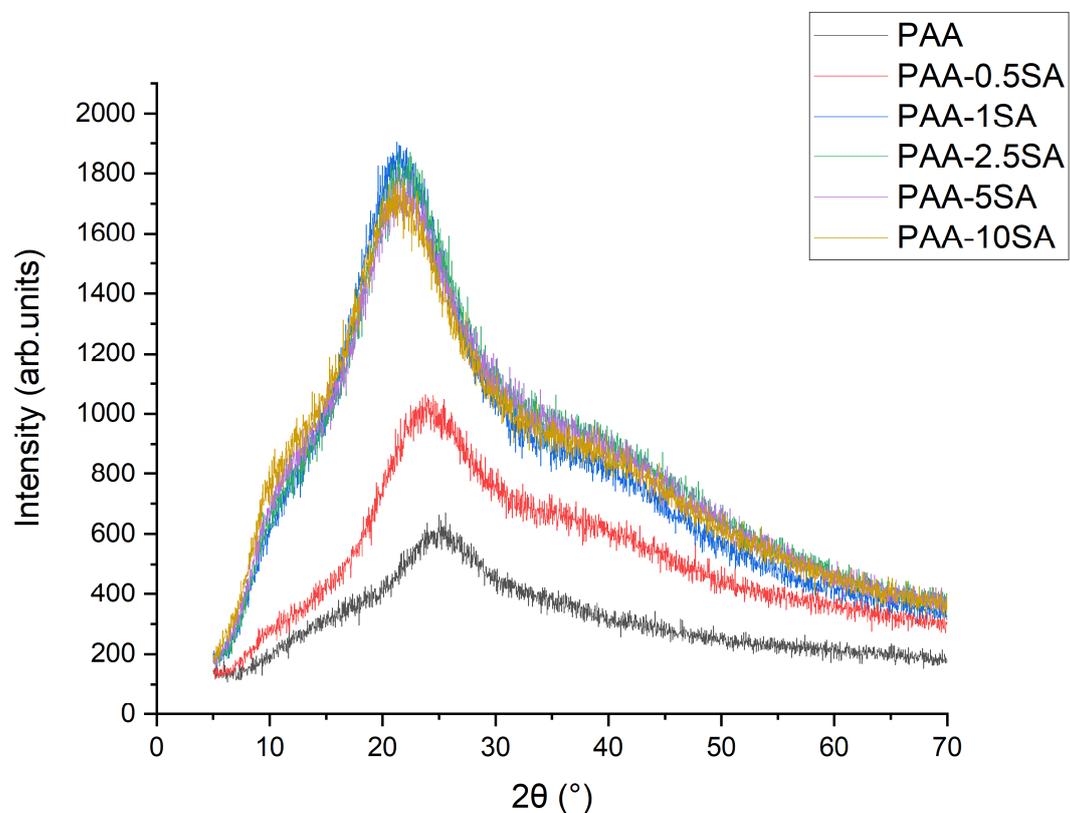


Figure S2: XRD spectra of polymers: PAA, PAA-0.5SA, PAA -1SA, PAA-2.5SA, PAA-5SA, PAA-10SA

Broad peaks of XRD spectra are in correspondence to the amorphous structure of polyallylamine hydrochloride with a 2θ peak between 23 and 28° in correspondence with literature^{2,3,4}.

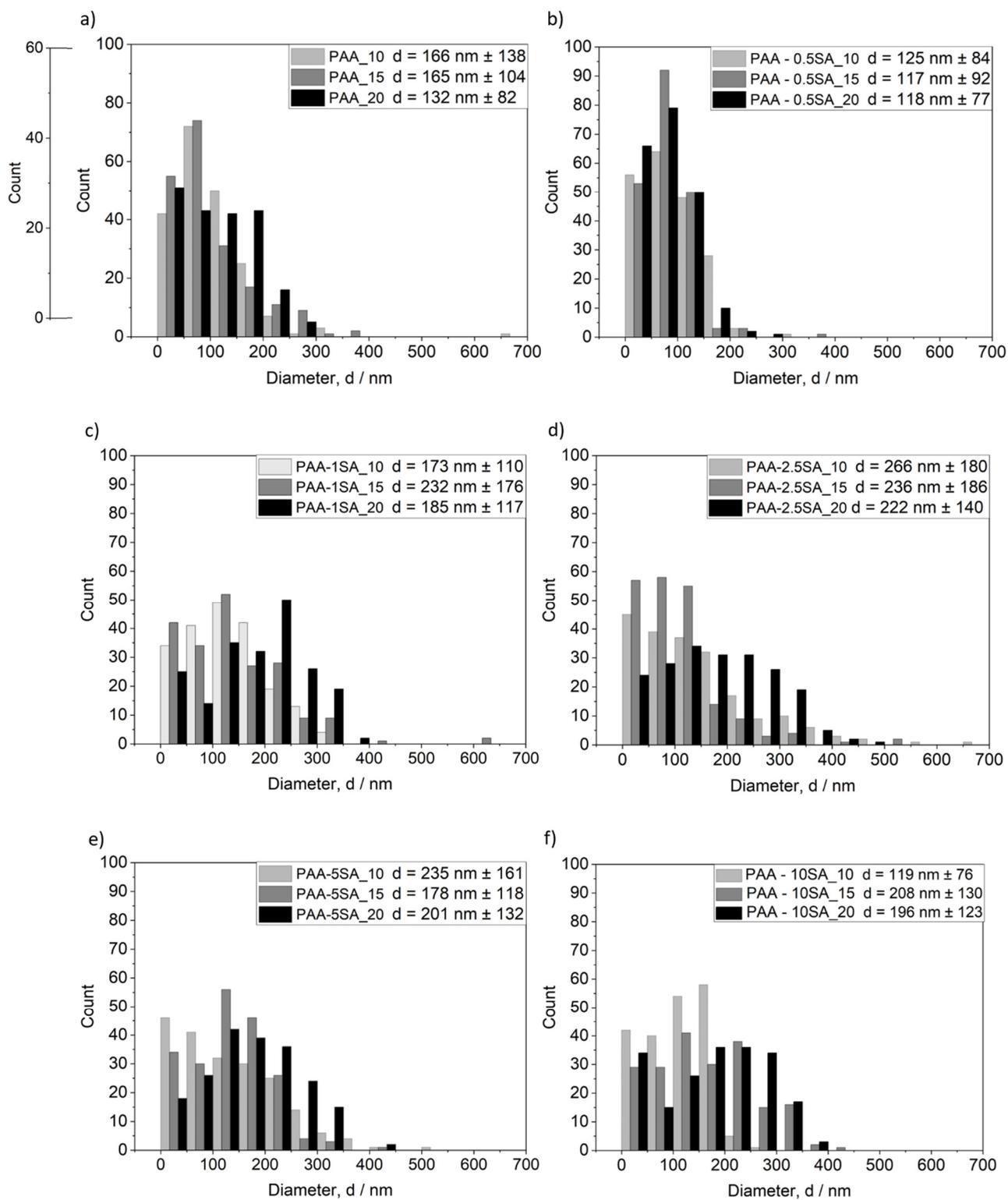
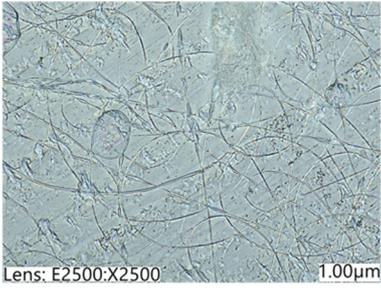
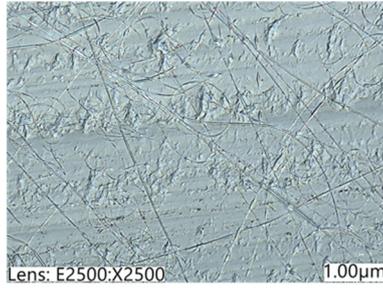


Figure S3: Fiber diameter histograms: PVA fibers (above) with addition of a) PAA, b) PAA-0.5SA, c) PAA-1SA, d) PAA-2.5 SA, e) PAA-5SA and f) PAA-10SA. 200 measurements were made from three repetitions per polymer type.

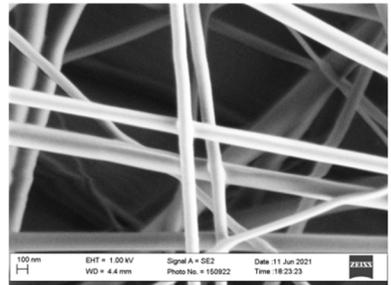
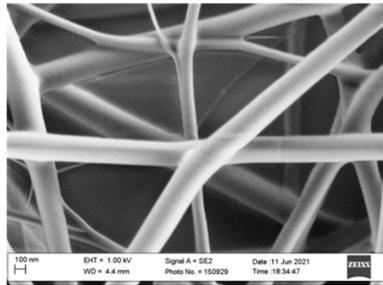
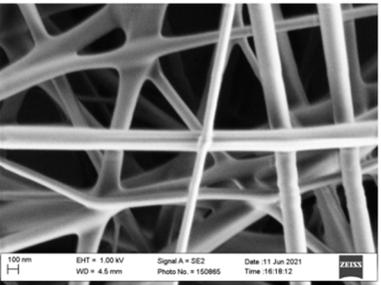
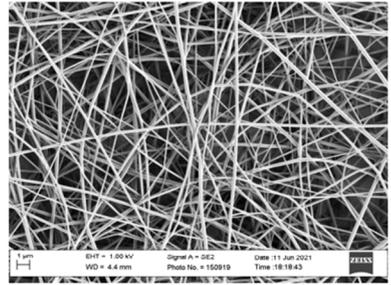
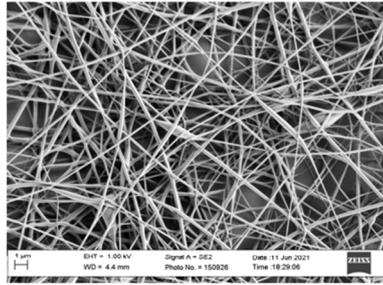
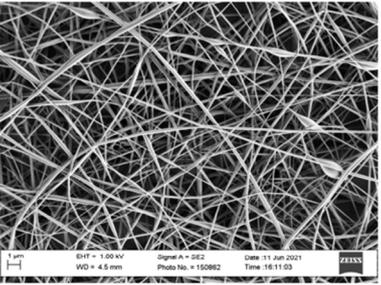
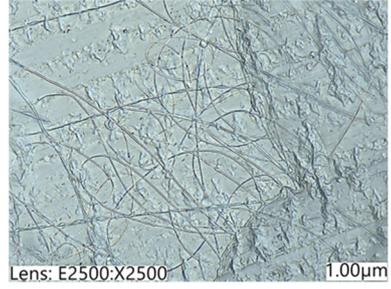
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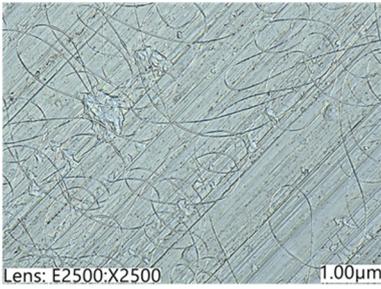
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c)



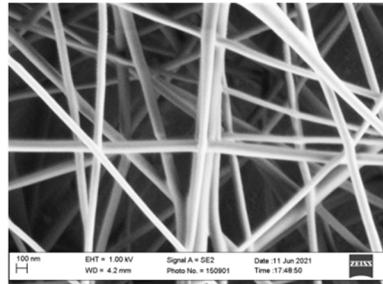
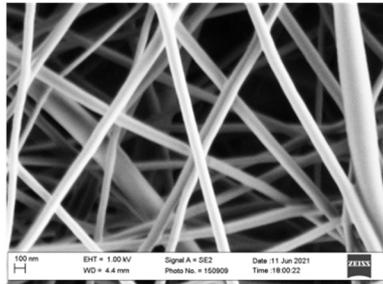
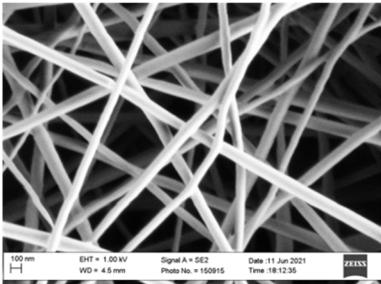
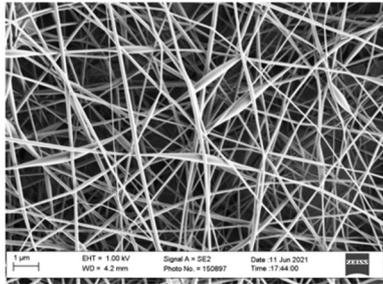
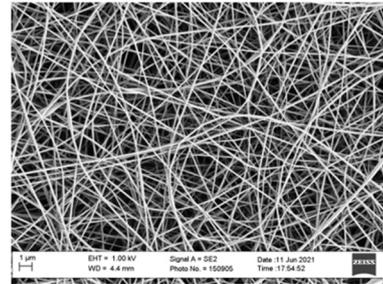
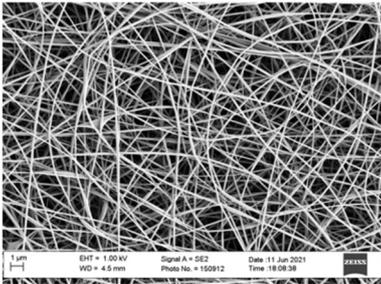
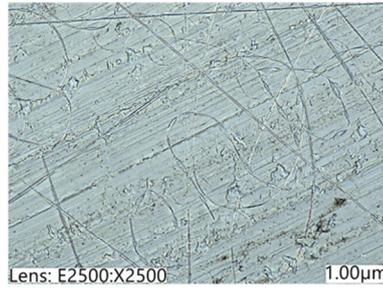
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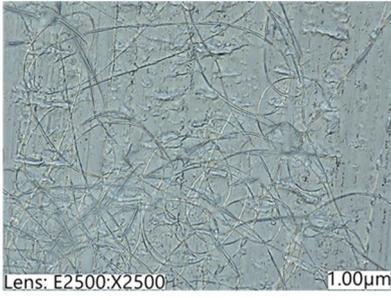
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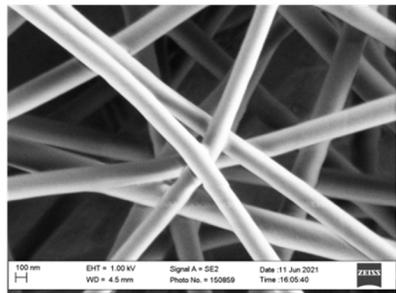
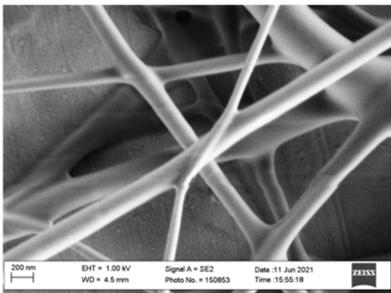
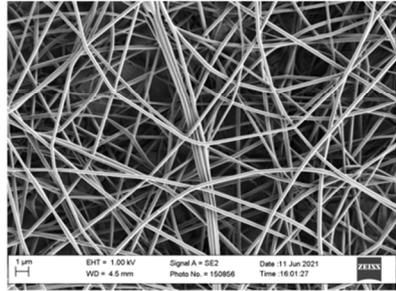
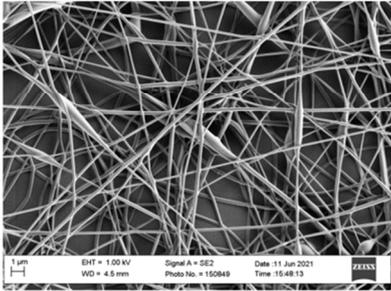
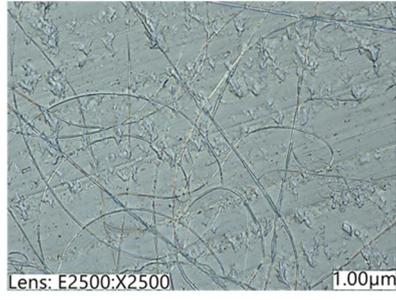
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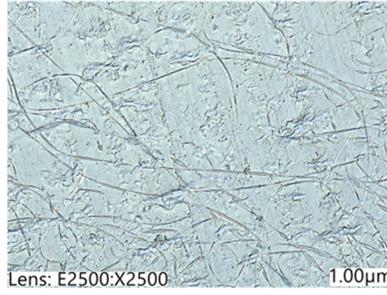
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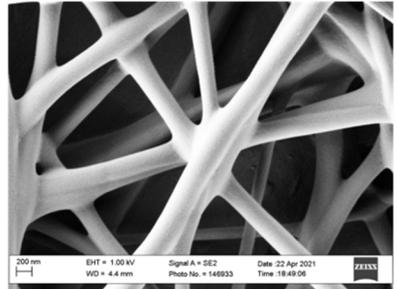
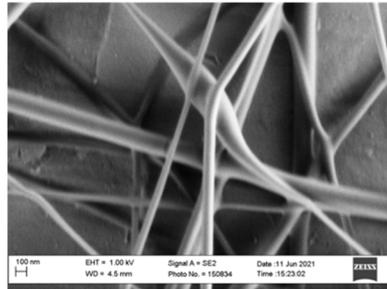
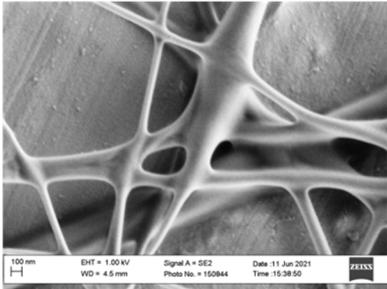
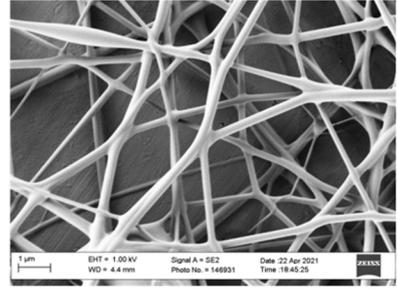
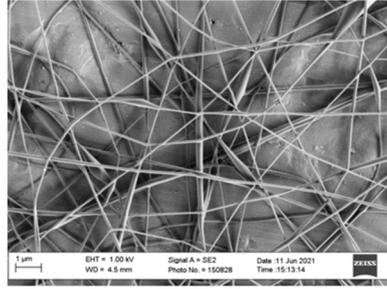
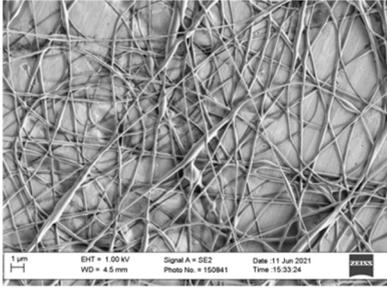
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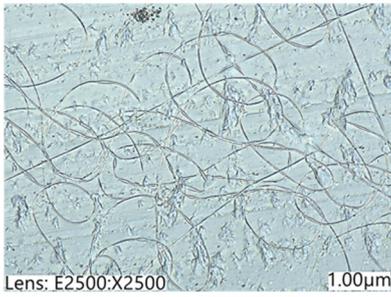
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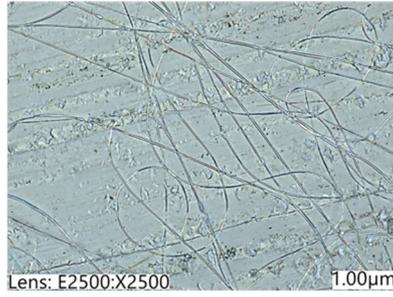
k)



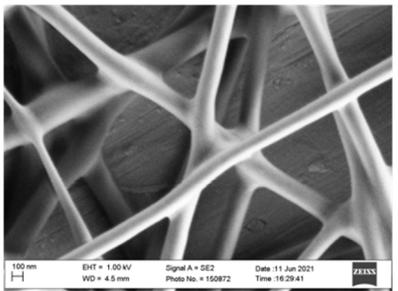
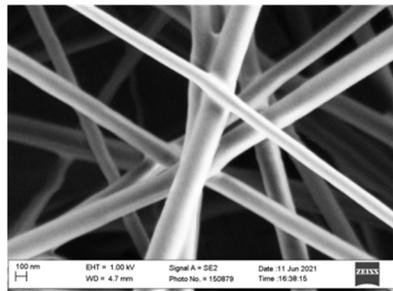
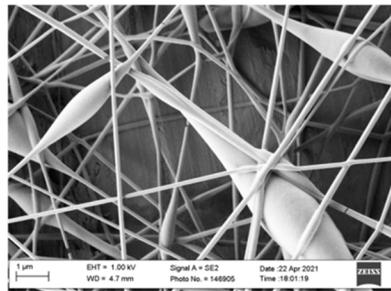
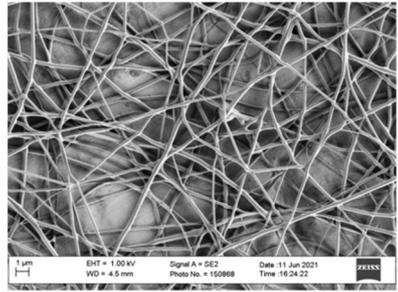
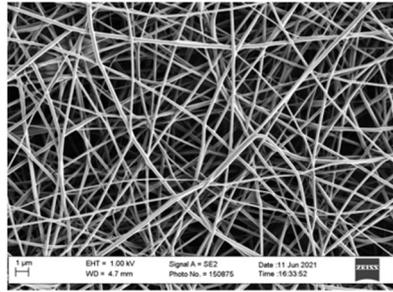
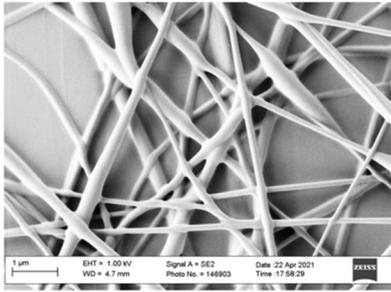
l)



m)



n)



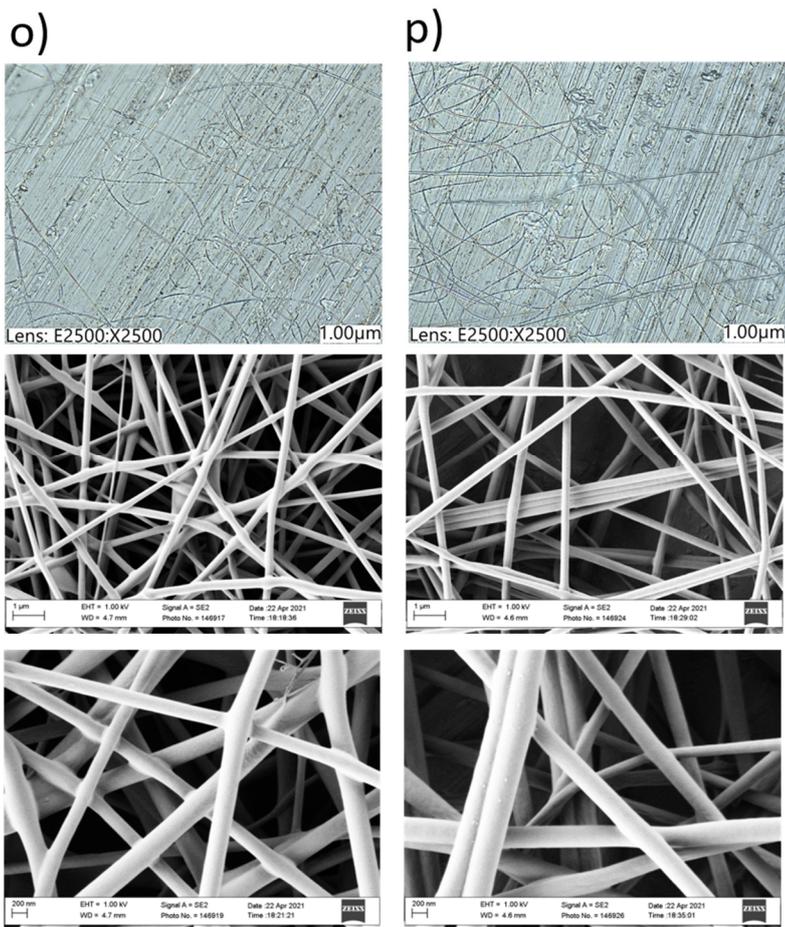


Figure S4: Fiber morphology: Optical microscope (upper row) and SEM images (lower rows) of a) PAA_10, b) PAA_15, c) PAA_20, d) PAA-0.5SA_10, e) PAA-0.5SA_15, f) PAA-0.5SA_20, g) PAA-1SA_15, h) PAA-1SA_20, i) PAA-2.5SA_10, j) PAA-2.5SA_15, k) PAA-2.5SA_20, l) PAA-5SA_10, m) PAA-5SA_15, n) PAA-5SA_20, o) PAA-10SA_15, p) PAA-10SA_20

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2. Wu, X., Liu, P., Ren, L., Tong, J. & Zhou, J. Optimization of corn starch succinylation using response surface methodology. *Starch/Staerke* **66**, 508–514 (2014).
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