

Supporting information

Polypropylene fabric coated with branched polyethyleneimine derivatives for high antiviral activity

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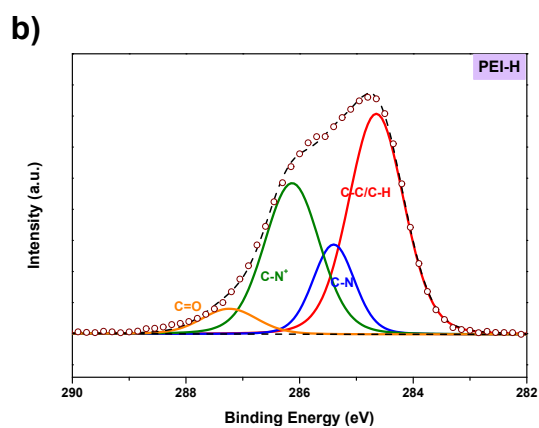
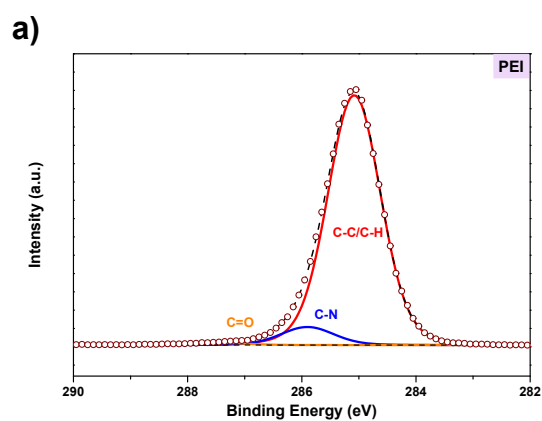
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Table S1. FTIR bands assignment

| Wavenumber (cm ⁻¹) | Functional Group | References |
|--------------------------------|---|--------------|
| $\nu(\text{N-H})$ | | |
| 3400-3250 | Aliphatic Primary Amine – 2 bands Secondary Amine – 1 band | [35, 36] |
| 2955 | $\nu(\text{CH}_3)$ asym. | [10, 35] |
| 2934 | $\nu(\text{CH}_2)$ asym. | [10, 35] |
| 2925 | $\nu(\text{CH}_2)$ asym. | [10, 35] |
| 2858 | $\nu(\text{CH}_2)$ sym. | [10, 35] |
| 2815 | $\nu(\text{CH}_2)$ sym. | [10, 35] |
| 1591 | $\delta_s(\text{NH}_2, \text{NH})$ | [35, 36] |
| 1475-1450 | $\delta_s(\text{CH}_2)$ | [35, 36] |
| 1470-1430 | $\delta(\text{CH}_3)$ asym. | [35, 36] |
| 1378 | $\delta(\text{CH}_3)$ sym. | [35, 36] |
| 1350-1000 | $\nu(\text{C-N})$ | [17, 35, 36] |
| 720 | $\rho(\text{C}-(\text{CH}_2)_n-\text{C } n \geq 4)$ | [35] |



c)

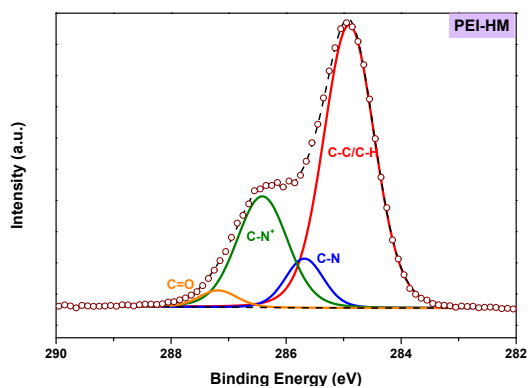
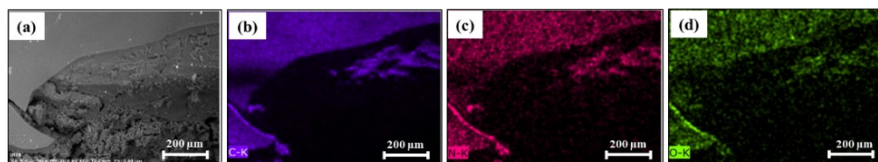
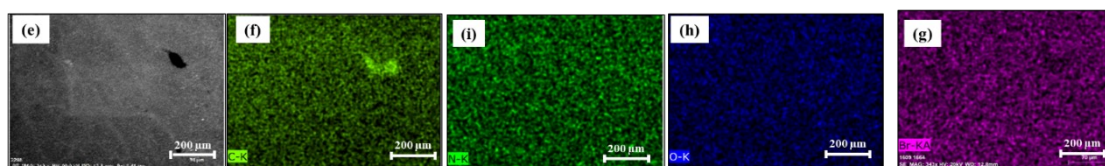


Figure S1. XPS high-resolution spectra of a), b), and c) C1s of PEI, and alkylated PEI derivatives.

Branched PEI-750 kDa



PEI-H



PEI-HM

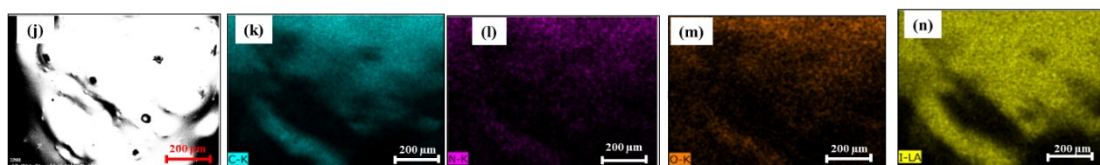


Figure S2. SEM-EDS images and elemental mapping of PEI and alkylated PEI derivatives.

Table S2. Elemental composition obtained from XPS analysis for PEI, PEI-H, and PEI-HM

| Polymers | Elemental composition (at. %) | | | | |
|----------|-------------------------------|------|-----|-----|-----|
| | C | N | O | Br | I |
| PEI | 71.3 | 28.3 | 0.3 | - | - |
| PEI-H | 77.7 | 12.0 | 1.4 | 8.4 | - |
| PEI-HM | 85.6 | 8.4 | 1.5 | - | 4.5 |

Table S3. Reduced viral titer of FCV after 4 hours incubation with PP felt coated with PEI, PEI-H, and PEI-HM at different concentrations.

| Concentration ($\mu\text{mol N/cm}^2$) | Reduction in viability (Log (PFU/mL)) | | |
|--|--|--------------|---------------|
| | PEI | PEI-H | PEI-HM |
| 0.0001 | 6 | 6 | 4 |
| 0.001 | 6 | 6 | 4 |
| 0.01 | 6 | 6 | 4 |
| 0.1 | - | - | 3 |
| 1 | - | - | 1 |