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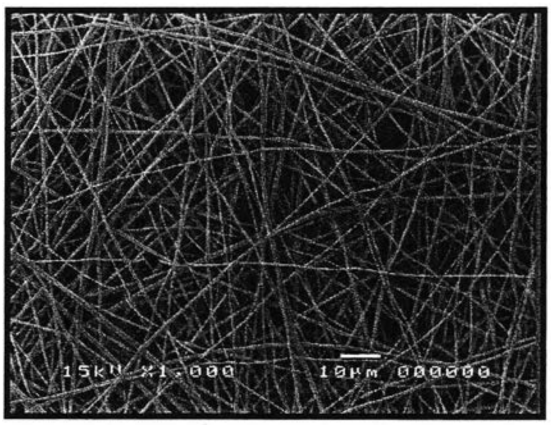
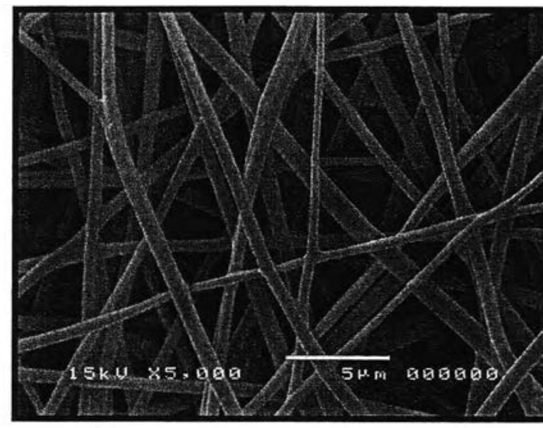
## APPENDICES

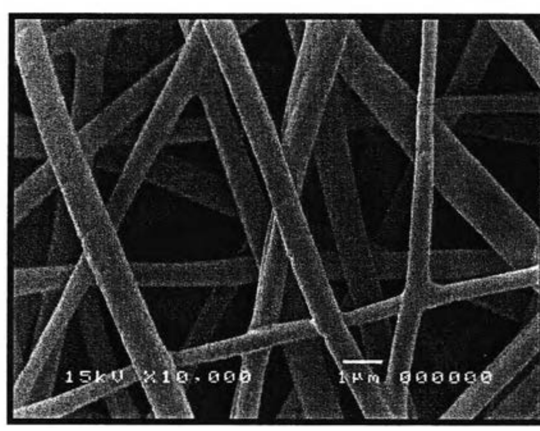
### Appendix A  Morpholoy of Electrospun PLA Fibrous Scaffolds




(a)




(b)




(c)

**Figure A1** SEM image of electrospun PLA fibrous scaffolds a) magnification = 10000x; scale bar = 1 μm b) magnification = 5000x; scale bar = 5 μm c) magnification = 5000x; scale bar = 5 μm.

**Appendix B Mechanical Characterizations**

**Table B1** Mechanical integrity of neat and aminolyzed PLA

| Material | Maximum Load (N) | % Strain at Maximum Load | Load at Break (N) | % Strain at Break | Stiffness (N/m) |
|---|---|---|---|---|---|
| Neat PLA | 6.1381 | 72.618 | 0.61381 | 102.26 | 7488.2 |
| Aminolyzed PLA | 6.3295 | 19.697 | 0.63295 | 24.379 | 24326.0 |

**Appendix C Ninhydrin Analysis**

**Table C1** The absorbance of 1,6-hexanediamine in 1,4-dioxane-isopropanol (1:1, v/v) of known concentration solution

| Std No. | Std. HMD concentration ($x10^{-4}$) | Average Absorbance |
|---|---|---|
| 1 | 0.0728 | 0.00098 |
| 2 | 0.1821 | 0.01907 |
| 3 | 0.3642 | 0.05253 |
| 4 | 0.7283 | 0.10537 |
| 5 | 1.0925 | 0.14794 |
| 6 | 1.8209 | 0.27217 |
| 7 | 3.6417 | 0.43109 |

**Figure C1** The calibration curve obtained with 1,4-dioxane-isopropanol (1:1, v/v) solution containing 1,6-hexanediamine of known concentration.

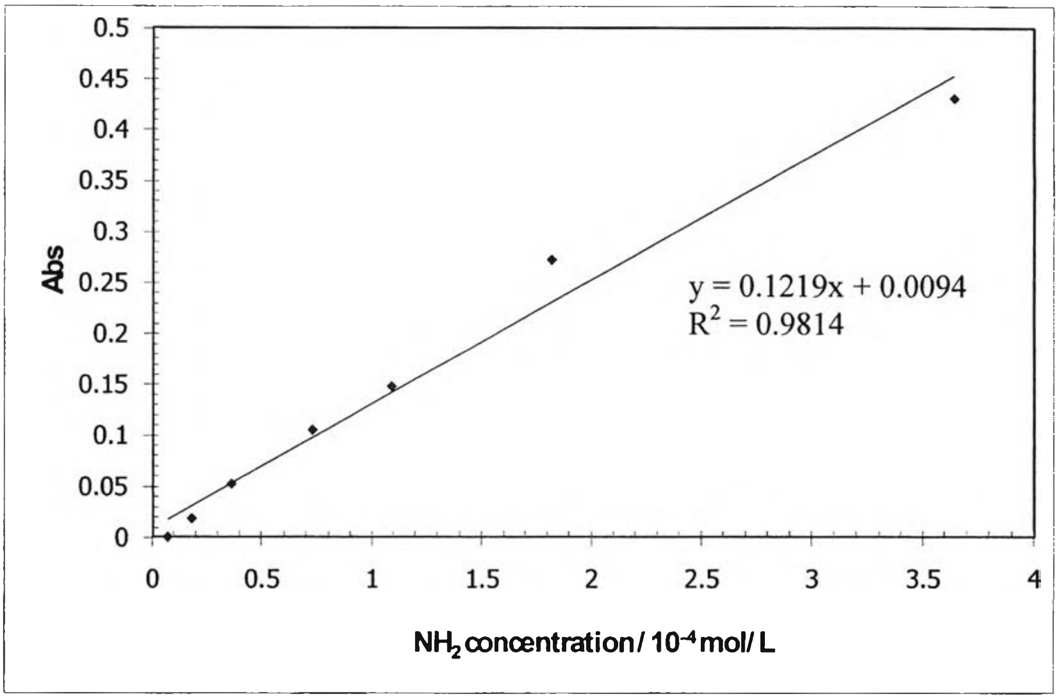



**Table C2** $NH_2$ density as a function of 1,6-hexanediamine concentration

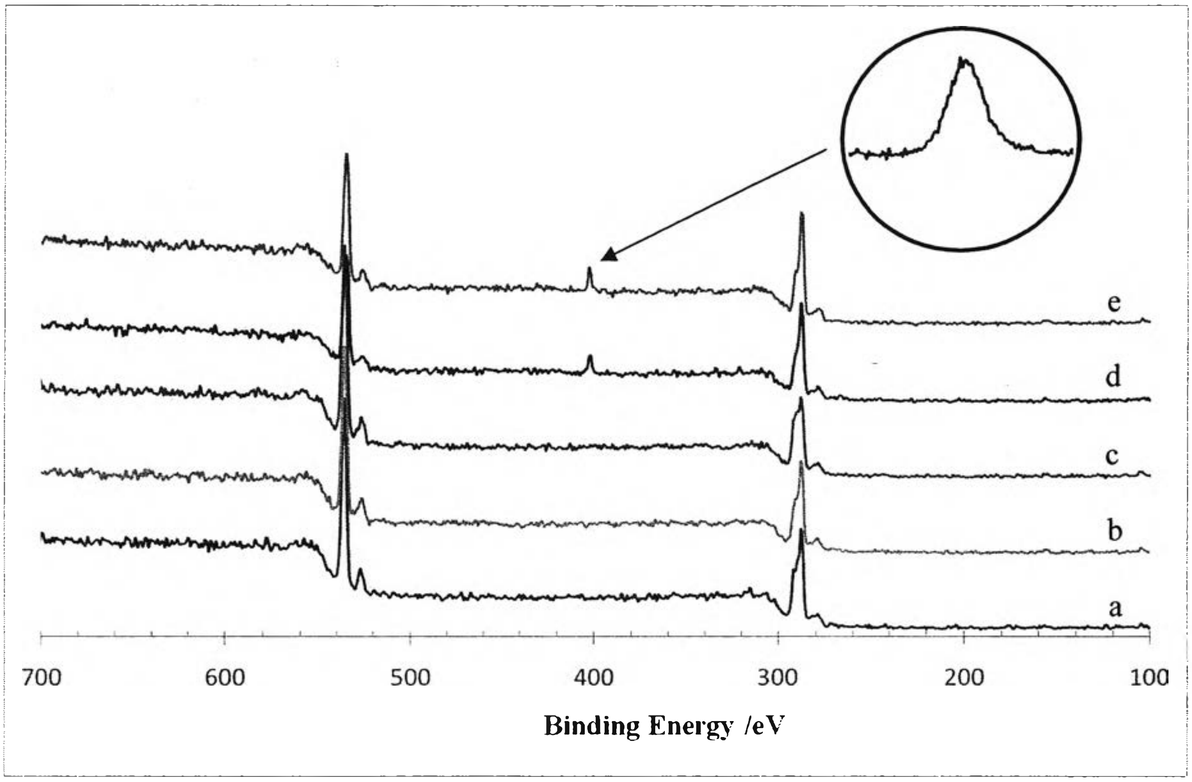
| Diamine concentration (g/mL) | $NH_2$ conc. ($\times 10^{-7}$) mol/cm$^2$ |
|---|---|
| 0.02 | 1.91 ± 0.004 |
| 0.04 | 2.52 ± 0.01 |
| 0.06 | 3.58 ± 0.01 |
| 0.08 | 3.67 ± 0.01 |
| 0.1 | 5.10 ± 0.02 |

**Table C3** $NH_2$ density as a function of aminolyzing time

| Aminolyzing time (min) | $NH_2$ conc. (x$10^{-7}$) mol/cm$^2$ |
|---|---|
| 2 | 1.51 ± 0.01 |
| 4 | 1.57 ± 0.02 |
| 8 | 2.52 ± 0.01 |
| 15 | 3.70 ± 0.02 |
| 20 | 2.78 ± 0.06 |
| 30 | 2.60 ± 0.02 |

## Appendix D X-ray Photoelectron Spectrometer (XPS)

**Figure D1.** The survey XPS spectra of (a) neat PLA, (b) PLA aminolyzed in 0.04 g/ml HMD/IPA solution for 15 min at 50 °C, (c) activatedPLA, (d) PLA immobilized with collagen (0.5 mg/ml), and (e) PLA immobilized with collagen (3 mg/ml).



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**Proceedings:**

1. U-prasitwong, P.; Pavasant, P.; Hoven, V.P.; and Supaphol, P. (2009, April 22) Surface modification of poly(lactic acid) fibers via aminolysis and type-I collagen immobilization for bone tissue engineering. Proceedings of 15th PPC Symposium on Petroleum, Petrochemicals and Polymer 2009, Bangkok, Thailand.

**Presentations:**

1. U-prasitwong, P.; Pavasant, P.; Hoven, V.P.; and Supaphol, P. (2009, April 22) Surface modification of poly(lactic acid) fibers via aminolysis and type-I collagen immobilization for bone tissue engineering. Paper presented at 15th PPC Symposium on Petroleum, Petrochemicals and Polymer 2009, Bangkok, Thailand.
2. U-prasitwong, P.; Pavasant, P.; Hoven, V.P.; and Supaphol, P. (2009, May 3-6) Surface modification of poly(L-lactic acid) via aminolysis and biomolecule immobilization for bone tissue engineering. Paper presented at PERCH-CIC Congress VI 2009, Pattaya, Chonburi, Thailand.