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APPENDICES

Appendix A Structural characterization of *m*PEI-PLLA_{*n*} copolymers

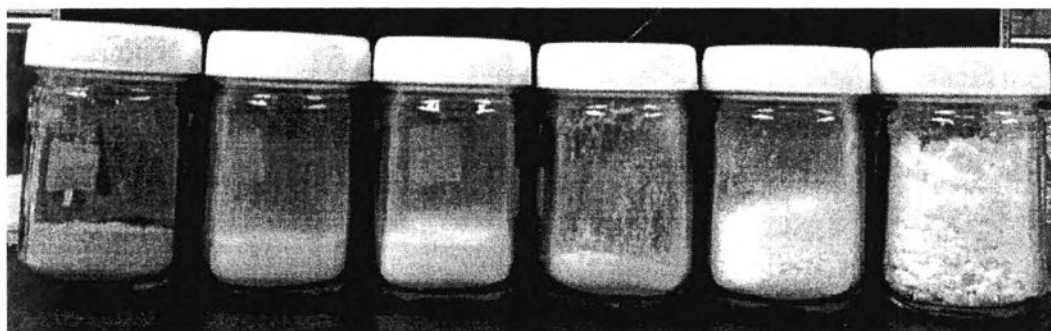


Figure A1 Appearances of the PEI-PLLAs varies chain lengths (a) *m*PEI-PLLA₃, (b) *m*PEI-PLLA₅, (c) *m*PEI-PLLA₇, (d) *m*PEI-PLLA₁₀, (e) *m*PEI-PLLA₁₄, (f) *m*PEI-PLLA₄₀ and (g) *m*PEI-PLLA₈.

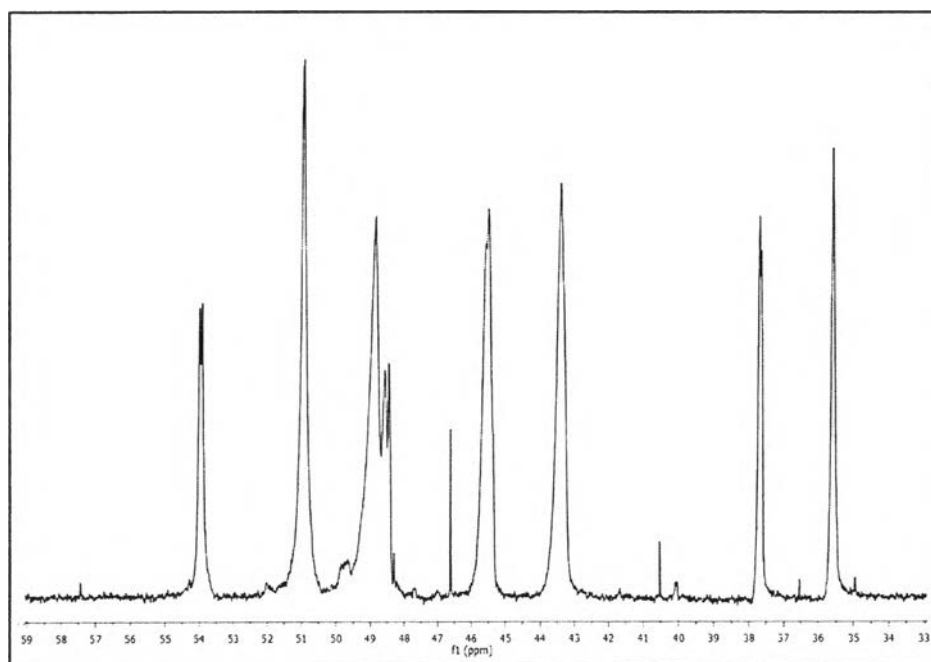


Figure A2 Inverse gated ¹³C NMR spectrum of *m*PEI.

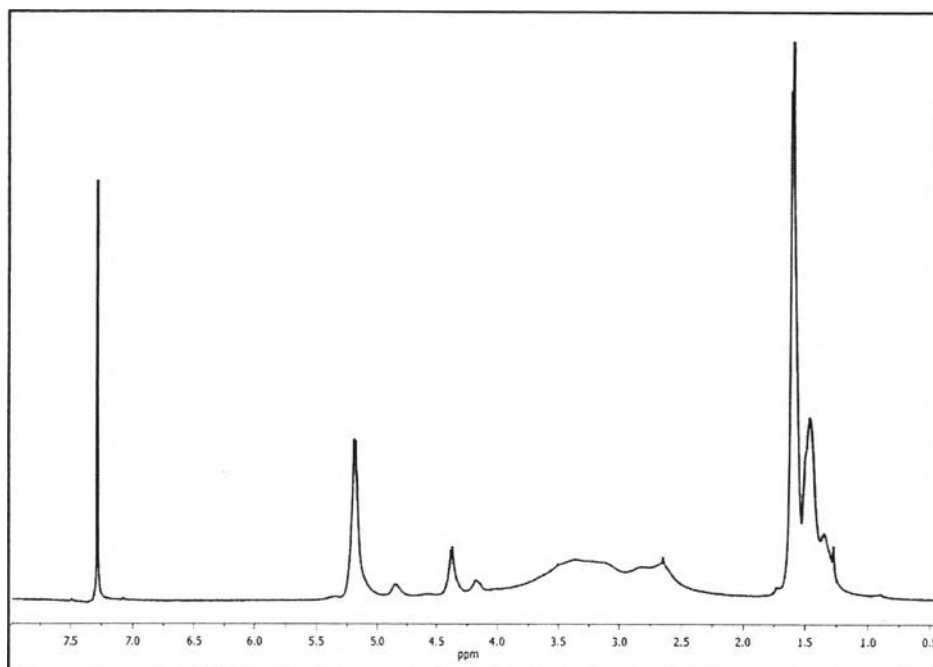


Figure A3 ^1H NMR spectrum of $m\text{PEI-PLLA}_3$.

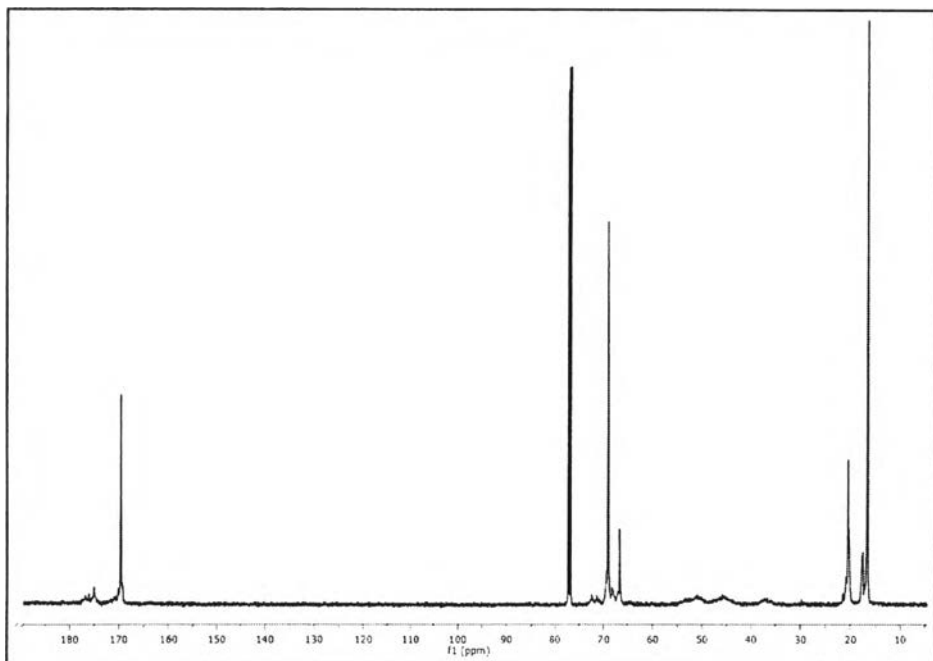


Figure A4 ^{13}C NMR spectrum of $m\text{PEI-PLLA}_n$.

Appendix B Thermal properties of *m*PEI-PLLA_{*s*} copolymers

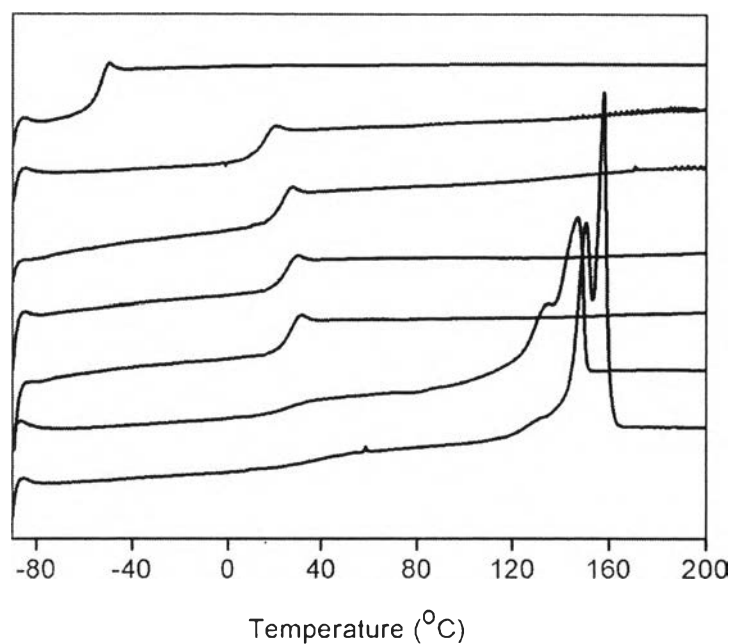


Figure B1 DSC of *m*PEI-PLLA_{*n*} in various chain lengths of PLLA in term of DP_{*n*}.

Table B1 DSC results of *m*PEI-PLLAs at different feed ratios

<i>m</i> PEI-PLLA	T _g (°C)	T _c (°C)	ΔH _c (J/g)	T _m (°C)	ΔH _m (J/g)	%X
<i>m</i> PEI	-52.0	n/d	n/d	n/d	n/d	n/d
<i>m</i> PEI-PLLA ₃	13.3	n/d	n/d	n/d	n/d	n/d
<i>m</i> PEI-PLLA ₅	22.7	n/d	n/d	n/d	n/d	n/d
<i>m</i> PEI-PLLA ₁₀	25.3	n/d	n/d	n/d	n/d	n/d
<i>m</i> PEI-PLLA ₁₄	27.2	n/d	n/d	n/d	n/d	n/d
<i>m</i> PEI-PLLA ₄₀	31.1	n/d	n/d	147.1	52.37	56.25
<i>m</i> PEI-PLLA ₈₀	35.3	n/d	n/d	158.0	65.50	70.35
PLA	55.3	113.1	19.66	153.9	28.32	30.45

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Presentations:

1. Khamsarn, T.; and Chirachanchai, S. (2013) Synthesis of Multi-branched Poly(L-Lactic acid) and Its Function as a Nucleating Agent for PLA. Paper presented at the 4th international conference and exhibition on bioplastics and bio-based materials, InnoBioPlast 2013: Advances in Bioplastics Industry and Opportunities in Asia, Bangkok, Thailand.
2. Phuphuak, Y.; Khamsarn, T.; and Chirachanchai, S. (2013) Multi-branched Poly(L-Lactic acid): A Novel Nucleating Agent for PLA. Oral presented at the 3rd Polymer conference of Thailand (PCT 3), Bangkok, Thailand.
3. Khamsarn, T.; and Chirachanchai, S. (2013) Nucleation and Plasticization Dual Functions of Multi-branched Poly(L-lactic acid) (PLLA) for PLA. Paper presented at the 4rd Research Symposium on Petrochemical, and Material Technology and The 19th PPC Symposium on Petroleum, Petrochemicals, and Polymers, Bangkok, Thailand.