

CHAPTER V

CONCLUSIONS

*m*PEI-PLLAs copolymers were successfully synthesized by ring-opening polymerization of *L*-LA with *m*PEI. The PLLA-arm chains length connected with core *m*PEI molecules was determined by quantitative analysis from ¹H-NMR spectra. The T_g of *m*PEI-PLLAs increased with increasing of PLLA-arm chains length. After PLA/*m*PEI-PLLAs blending, PLA T_g of the blends was declined whereas their crystallization of PLA was improved, verified by increment of PLA crystallinity and spherulite density. The present work shows that *m*PEI-PLLA simultaneously acts as both nucleating agent and plasticizer to enhance PLA crystallization rate. Not only PLA crystallization acceleration but also miscibility in blends were accomplished by adding *m*PEI-PLLAs in the system, resulting in PLA flexibility enhancement obviously which was based on optimizing crystalline and amorphous phases in the system.