

CHAPTER V

CONCLUSIONS

5.1 Conclusions

Biodegradable poly(D,L-lactide-co-glycolide) (PLGA) nanoparticles containing superparamagnetic iron oxide nanoparticles were successfully synthesized by a double-emulsion method that used the oleic acid-coated magnetite nanoparticles dispersed in the first oil phase led to SPIONs were equally distributed throughout the PLGA particles. Increasing the amount of encapsulated polymer (5mg, 15mg, 30mg, 45mg, and 60mg of PLGA/5mg of magnetite) did not significantly affect the particles size (300 nm to 400 nm) and surface charge (about -25 mV). The weight of magnetite incorporated in the PLGA was readily controlled by adjusting the amount of encapsulated PLGA, and amount incorporated is conversing with amount of encapsulated polymer. Saturation magnetizations were proportional to the magnetite loaded in polymer matrix with high magnetite loading up to 52 – 62 wt. %.