

CHAPTER V

CONCLUSIONS

A novel chitineous gel with hydroxyapatite to develop a biomaterial for bone regeneration was synthesized. The molecular design was based on conjugating epoxy groups onto chitosan chains such that the crosslink network was achieved via ring opening polymerization. Initially, the reactivity and solubility of chitosan was improved by phthaloylation. The epoxy group was successfully introduced onto the hydroxyl group by reacting epichlorohydrin with *N*-phthaloyl-chitosan in homogeneous system. The removal of phthaloyl group and curing reaction was carried out by treatment with hydrazine. An alternate soaking process was applied to establish hydroxyapatite formation in the epoxy-chitosan matrix. The present work explored the possibility to obtain chitineous glue with hydroxyapatite composite by using epoxy glue strategy.