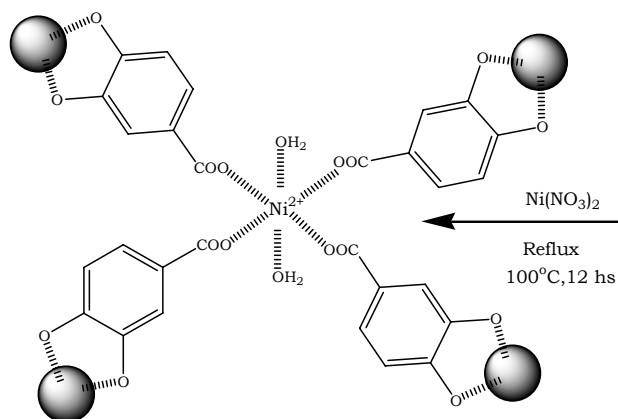
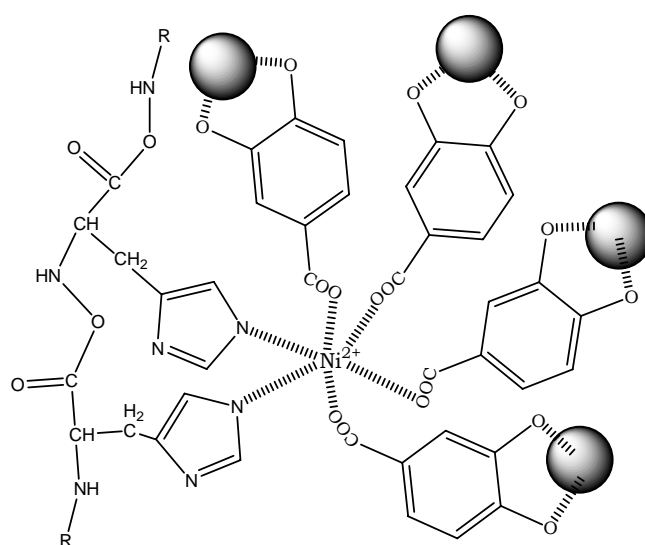


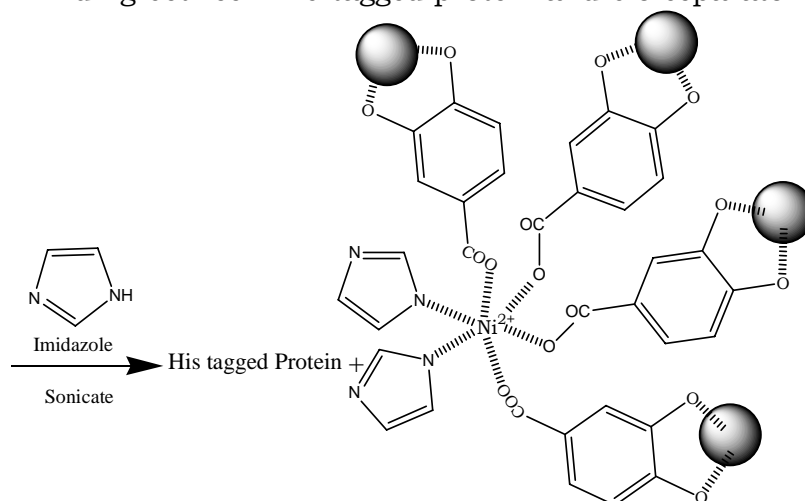
## Abstract



Synthesis of magnetically dragged bioseparator.



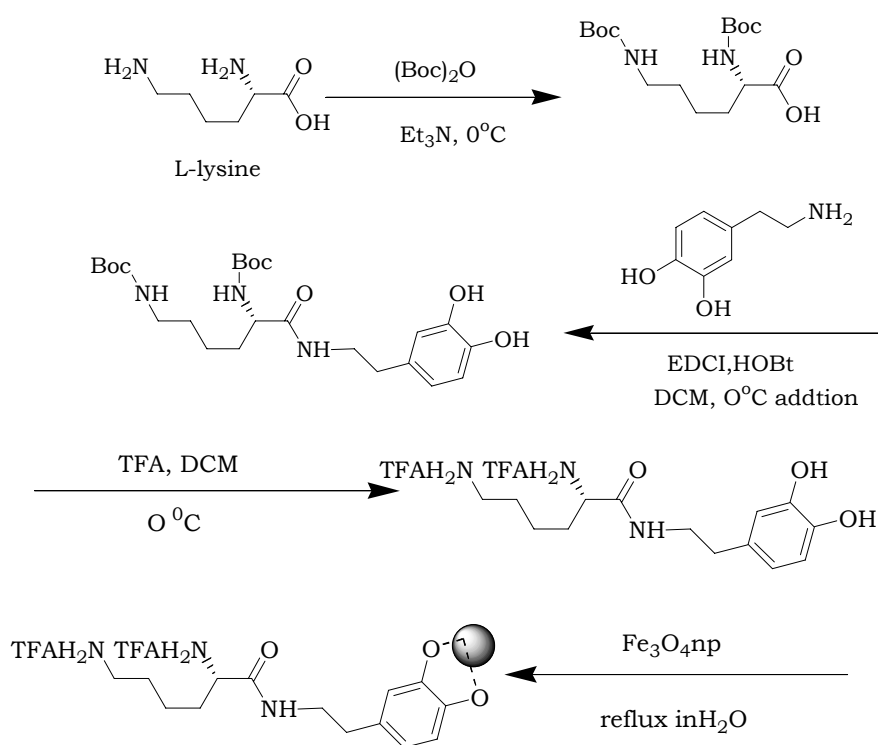
Binding between His-tagged protein and bio separator



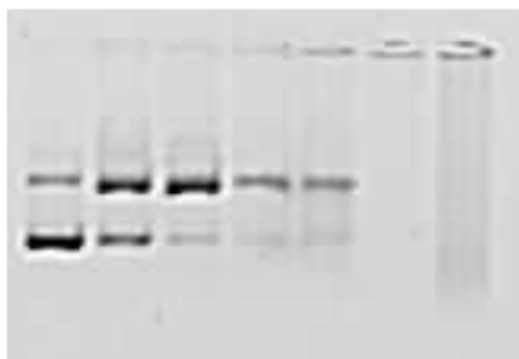
Release of His-tagged protein from bio separator

Part B includes the synthesis and characterization of amine terminated surface modified iron oxide nanoparticles. The total reaction procedure is given below.

Scheme 8:



The synthesized materials are well characterized and it is highly dispersed in water, which is one of the essential criteria for drug delivery system. Using synthesized materials; Gel electrophoresis of DNA and DNA gel retardation assays in agarose gels has been carried out.

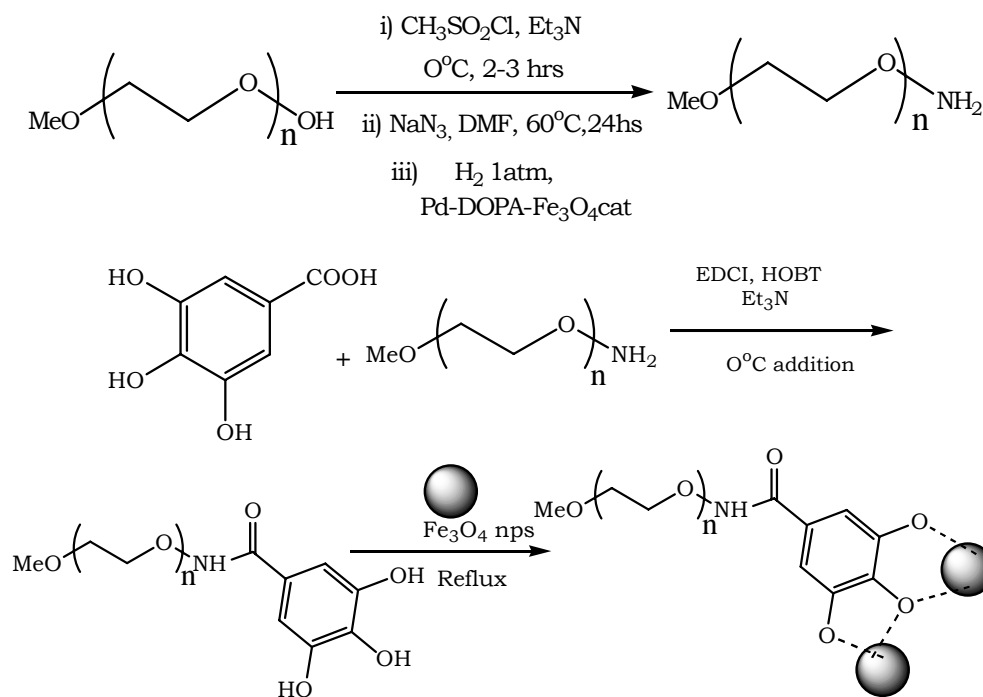


Gel retardation assay of DNA by the magnetic particles

Part C of this chapter deals with the synthesis and characterization of modified polyethylene glycol methyl ether (MeO-PEG) capped iron oxide nanoparticles. Due to the presence of biodegradable polymer like PEG (mw 2,000. 350) the particles are non-toxic and highly soluble in water. Use of this material as MRI contrasting agent is currently underway with other collaborators.

Total synthesis procedure is given below:

Scheme 9:



At the end a mention is made of the inferences drawn from this study and scope for future work.