

## ABSTRACT

This diploma thesis deals with the behavior of cobalt bis(dicarbollide) and its derivatives containing polyethylene oxide linkers in aqueous and salted solution and their interactions with some biocompatible block copolymers. In this study we chose diblock copolymer poly(ethylene oxide)-*block*-poly(2-ethyl oxazoline), PEO-PEOX, triblock copolymer poly(2-ethyl oxazoline)-*block*-poly(ethylene oxide)-*block*-poly(2-ethyl oxazoline), PEOX-PEO-PEOX and starlike polymer 4-arm poly(ethylene oxide)-*block*-poly(2-methyl oxazoline), 4-arm PEO-PMOX. Solubility and change of hydrodynamic radius of metallacarborane particles depending on the cation of corresponding salt solution was studied. Solubility and size of particles changes depending on counterion of metallacarborane and also on the length and type of PEG linker of carborane compound. In solutions with polymer cobalt bis(dicarbollide) and his conjugates form particles composed of complex polymer/caborane. Adding polymer increase solubility of carborane and in most cases it decreases the size of particles in solution. These systems were studied by means of light scattering, UV-VIS spectroscopy, ITC, NMR and SAXS.