CHAPTER V

CONCLUSION

Polymers bearing 2,5-diphenyloxazole in the main chain and as a pendent chain were synthesized and characterized. The appropriate monomers were designed, mono-functionalized monomers for polymers containing 2,5-diphenyloxazole in main chain.

To construct monomer, 2,5-diphenyl-4-vinyloxazole was prepared in two steps starting from benzoyl chloride. First, benzoyl chloride was treated with CuCN at high temperature to prepare benzoyl cyanide (yield 65%). Then, the prepared benzoyl cyanide was reacted with benzaldehyde to obtain 4-bromo-2,5-diphenyloxazole by using modification of Fischer synthesis. Finally, this oxazole was reacted with tributyl(vinyl)tin by Stille coupling reaction to give 2,5-diphenyl-4-vinyloxazole monomer.

2,5-Diphenyl-4-vinyloxazole monomer was copolymerized with MMA and styrene in 5% feed ratio. These polymers showed a thermal stability of MMA copolymer from 169°C and styrene copolymer from 365°C. The *Tg* valued of MMA copolymer from 104°C and styrene copolymer from 96°C. Thus, these polymers are substantially amorphous in the solid state. Both polymers show a good solubility in a number of common organic solvents.

These two types of polymers containing 2,5-diphenyloxazole have been evaluated the optical properties. Both polymers showed the maximum absorption and emission band in the same range as 2,5-diphenyloxazole, parent molecule. The fluorescent quantum yield was observed for MMA copolymer from 0.13 and styrene copolymer from 0.16.