

CHAPTER V

CONCLUSIONS

In this work, we propose molecular design and synthesis of benzoxazine macrocycle based molecular necklace via Click chemistry

The first step, propargylamine was used to prepared benzoxazine monomer followed by the ring opening dimerization and the polycondensation with diacid chloride to obtain macrocycle benzoxazine containing alkyne unit. Moreover, alkane chain containing azide was synthesized by modification of dibromo-alkane with sodium azide. In the final step, Click chemistry was applied to connect benzoxazine macrocycles and diazido-alkane with Cu catalyst to obtain molecular necklace.

In the macrocyclization step, the interfacial polycondensation system of benzoazine dimer and diacid chloride provides several kinds of product which were further purified by column chromatography. In this step, the only [2+2] macrocycles was obtained. In order to link the macrocycle benzixazine via Click chemistry, the azide unit was reacted with alkyne unit to achieve triazole linkage as product 4.