ABSTRACT

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of Pharmaceutical Chemistry and Drug Control

Student: Iveta Křížová

Supervisor: PharmDr. Kamil Kopecký, Ph.D.

Title of diploma thesis:

Binding of azaphthalocyanine on 5´-end of oligonucleotide – „click“ chemistry

This diploma thesis is focused on synthesis of pyrazin-2,3-dicarbonitrile derivates that are substituted with alkylamine substituents in location 5 and 6. Then cyclotetramerization of these compounds to the final azaphthalocyanines was realized. Alkylamine substituents were chosen in the way, that bond on 5´-end of oligonucleotide with terminal alkyn modification could be performed according to Huisgen 1,3-dipolar cycloaddition.

Azaphtalocyanine with one hydoxyl group was prepared and described. Preparation of intended structure with one azide group was unsuccessful. Azaphtalocyanines are characterized by important photophysical and photochemical properties. Therefor were these compounds characterized with NMR, IR and mass spectra.

In section Theory was explained the principle of quenching of fluorescence, practical use of quenching and overview of up to date the most commonly used quencher of fluorescence. There is also comparing of their positive and negative properties and little bit outlining of properties the ideal quencher.