

## Abstract

This diploma work deals with preparation potentially non-fluorescent quenchers of fluorescence. These quenchers are derived from asymmetrically substituted alkylaminoderivatives of tetrapyrazinoporphyrazines – azaphthalocyanines.

We had to prepare necessary precursors, for example 2,3-dicyanoquinoxaline-6-carboxylic acid, by known reaction methodologies, for synthesis of new compound.

Final products were synthesised by cyclotetramerization reaction and using statistic condensation method. Two structural different precursors were used as initial substances. As two initial substances N-(3-azidopropyl)-2,3-dicyanoquinoxaline-6-carboxamide and 5,6-bis(diethylamino)pyrazine-2,3-dicarbonitrile were selected in this thesis.

These two products reacted in ratio 1:3. The aim was to prepare final substance with peripheral functional moieties. Azide group was selected as peripheral moiety .

This synthesis was not successful. Two unsuccessful trials for preparation this substance showed, that we have to take the other way.

Therefore, the 2,3-dicyanoquinoxaline-6-carboxylic was used for the cyclotetramerisation reaction. However, this way was not successful too. Compound crumbled when the azide moiety was added.

Further Q18-1H2 porphyrazine carboxylic acid, formerly prepared at the department, was derivatized by the azido moiety and zinc was complexed as the central metal into the modified compound.

Products were characterized NMR and UV-vis spectra. These products we can use for quenching of fluorescence such as dark quenchers. Zinc complex was attached to oligonucleotide probes.