

ABSTRACT
CHARLES UNIVERSITY IN PRAGUE
FACULTY OF PHARMACY IN HRADEC KRÁLOVÉ
DEPARTMENT OF PHARMACEUTICAL CHEMISTRY AND DRUG CONTROL

Author: Antonín Cidlina

Supervisor: Assoc. Prof. PharmDr. Petr Zimčík PhD.

Title: Synthesis of cationic phthalocyanines

In my thesis, I dealt with the preparation of cationic phthalocyanines containing quaternary ammonium groups in peripheral chains that are attached to α or β positions of the macrocycle.

The synthesis of precursors for cyclotetramerization was the first step of this work. They were prepared by nucleophilic substitution of aromatic dicyanitriles by 2-(diethylamino)ethanethiolate. These precursors were used to cyclotetramerization in presence of magnesium butoxide. Magnesium phthalocyanines were prepared by this procedure. Magnesium complexes were converted to metal-free phthalocyanines in acidic medium. Then, they reacted with anhydrous zinc acetate to form zinc phthalocyanines.

Subsequently, alkylation of peripheral amino groups by ethyl iodide led to quaternized Pc. In addition, the derivatives with substitution in α positions did not aggregate in aqueous media. Furthermore, zinc phthalocyanine substituted in α positions had very good photochemical properties. That is why it may become potential photosensitizer with promising photodynamic activity.