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Synthetic aspects of preparation of hydrogenated porphyrins

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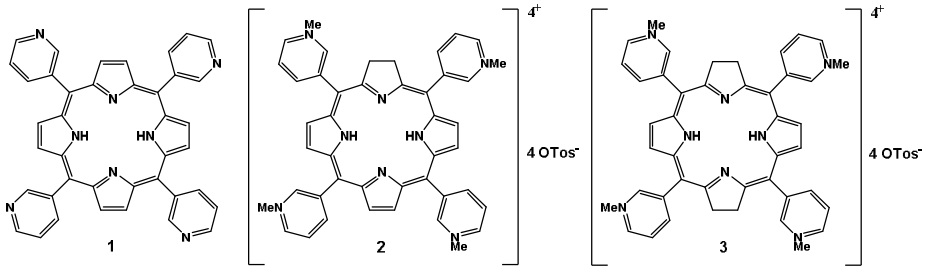
Tetrapyrric macroheterocycles are representatives of organic compounds that are widely used in medicine and ecology. Existing drugs based on porphyrins and related compounds have proven to be effective photosensitizers in the diagnosis and treatment of cancer. The number of publications in the world scientific journals devoted to the search for even more effective compounds in a number of macroheterocycles is steadily growing.
No less urgent problem is the development of methods to improve the effectiveness of existing drugs, which are based on the design of new supramolecular systems with improved characteristics, compared with individual components. The combination of several compounds in the active component of the drug, each of which has individual characteristics and contributes to an increase in the total effectiveness of the action, also determines the actual direction of research.
In this study, we have conducted a detailed study of experimental aspects of the reduction reaction of 5,10,15,20-tetrakis(pyridine-3-yl)porphine (1) with subsequent quaternization of the obtained hydrogenated derivatives.



For the first time from a mixture of chromatographically isolated and fully characterized 5,10,15,20 tetrakis(pyridine-3-yl)chlorine and 5,10,15,20 tetrakis(pyridine-3-yl)bacteriochlorin, which allowed to obtain on the basis of their respective individual water-soluble derivative 2 and 3.
A complex study of the properties of synthesized hydrogenated porphyrins was carried out.

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