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ABSTRACT

A.Mironov, M.Grin. Sensitizers of the bacteriochlorin series: prospects of the usage in photodynamic therapy 5

Materials concerning synthesis and chemical modification of the bacteriochlorophyll a for 10-15 years past were collected in this review. Effectiveness of the bacteriochlorin derivatives usage in photodynamic therapy was discussed. Directional chemical modifications, which lead to increasing of stability, improvement of photophysic properties and creation of water-soluble photosensitizers were report.

N.Groza, I.Ivanov, A.Golovanov, G.Myagkova. Chemical synthesis of ω -hydroxyderivatives of plant fatty acid substrates. 29

A common synthetic procedure for the synthesis of (9Z,12Z)-18-hydroxy-9,12-octadecadienoic acid (18-HODE) and (9Z,12Z,15Z)-18-hydroxy-9,12,15-octadecatrienoic acid (18-HOTrE) – analogues of substrates of plant lipids oxygenation was developed. The synthetic route is based on formation of polyacetylenic precursors followed by stereoselective reduction of the triple bonds on Lindlar's catalyst.

L. Guryeva, A. Severyanova, Y. Sebyakin. Active derivatives based on D-galactose and D-lactose in synthesis of neoglycoconjugates. 33

Synthesis of active derivatives of carbohydrates D-galactose and D-lactose and neoglycoconjugates on their basis is carried out. For receiving modified glycolipids the approach with use N-hydroxysuccinimide ethers of carbohydrates is offered.

G. Zheltukhina, E. Efimova, T. Kromova, V. Nebolsin. Synthesis and easy intramolecular cyclization in a number of aspartyl derivatives of histamine 39

A series of natural and novel aspartyl derivatives of histamine were obtained by the classical peptide chemistry methods in a solution. During the synthesis of N-acetylaspartylhistamine easy and spontaneously cyclization of the protected Ac-Asp-OBzl into succinimide derivative was observed even after one day storage.

O. Kradenova, D. Krugovov, E. Larkina, E. Tkachevskaya, O. Kasaikina. Pheophorbide a effect upon dark- and photooxidation of olefins 44

Peculiarities of pheophorbide a behavior in conditions of photosensitized and dark oxidation of natural olefin limonene have been analyzed.

It is shown that phaeophorbide a is the photosensitizer of limonene oxidation, but it does not act upon its dark oxidation and it does not interreact with peroxides. Although pheophorbide is spent in reactions with radicals formed under H_2O_2 catalyzed decomposition, and it forms complexes with compounds including zinc and cobalt.

A.A. Mezentseva, E.V. Burlyeva, A. Mironov. Quantum chemical parameters calculations for chlorine derivatives with additional rings 50

Quantum-mechanical calculations are the important tools for forecasting thermodynamical properties of new photosensitizers which allows to optimize essentially chemical synthesis in a number of chlorine derivatives. The calculations were carried out by means of the program MOPAC 7.0.

N. Morozova, M. Maslov, V. Myagchenkov, G. Serebrennikova. Model synthesis of cationic neoglycolipid 55

A convenient approach for synthesis of both neutral and cationic carbohydrate-based amphiphiles has been elaborated. Compounds synthesized intended for target delivery of pharmaceutical substances into eukaryotic cells.

- F.Toukach, I.Bushmarinov, Y.Knirel. New bacterial carbohydrate structure database (BCSDB). 59
A new free glycomic database (Bacterial Carbohydrate Structure Database) was established. It contains data on the structure, bibliography, NMR spectra, biochemical and other properties of all bacterial carbohydrates reported before 2006. The paper describes the database architecture and interface and BCSDB structure encoding language.
- I. Fedulova, N. Novikov, O. Ugolnikova, N. Bragina, A. Mironov. Synthesis of meso-arylsubstituted lypoporphyrins to design nanosized lipid assembles 67
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- Yu.Strizhakova, T. Ussova, V.Tretjakov. Oil shale – potential feedstock for fuel and energy sector and chemical industry 76
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- V.Tretjakov, M.Yakimova, T.Mastyunina. Bioethanol – source for motor fuel components and petrochemicals production 86
Catalytic conversion of bioethanol to hydrocarbons is a new way for fuel components and other valued organic compounds production from non-petroleum sources. Varying structural parameters of HZSM-5 it is possible to produce selectively either aromatic hydrocarbons, either olefins and paraffins.