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Horse heart carboxymethylated-cytochrome c (CM-cyt c) displays myoglobin-like properties due to the cleavage of the heme-Fe-Met80 axial bond. Under anaerobic conditions, the addition of NO to CM-cyt c(III) leads to the transient formation of CM-cyt c(III)-NO in equilibrium with CM-cyt c(II)-NO+. In turn, CM-cyt c(II)-NO+ is converted to CM-cyt c(II) by OH−-based catalysis. Then, CM-cyt c(II) binds NO very rapidly leading to CM-cyt c(II)-NO.

Articles

pp. 1–9
Reactive nitrosylation of ferric carboxymethylated-cytochrome c
Paolo Ascenzi*, Chiara Ciaccio, Giovanna De Simone, Roberto Santucci and Massimo Coletta

Horse heart carboxymethylated-cytochrome c displays myoglobin-like properties due to the cleavage of the heme-Fe-Met80 axial bond. Carboxymethylation facilitates the reactive nitrosylation of ferric cytochrome c and NO binding to the ferrous derivative.

pp. 10–15
Stabilization of meso-tetraferrocenyl-porphyrin films by formation of composite with Prussian blue
Kalil Cristhian Figueiredo Toledo, Bruno Morandi Pires, Juliano Alves Bonacini* and Bernardo Almeida Iglesias*

In this manuscript, we have studied a strategy to stabilize films of meso-tetraferrocenyl-porphyrin (TFcP) with Prussian blue (PB) on electrodes and we have used the chemically modified electrode by the composite in sensing of dopamine.
Lyotropic liquid crystalline phthalocyanines containing 4-((S)-3,7-dimethyloctyloxy)phenoxy moieties
Sibel Eken Korkut*, Hale Ocak, Belkis Bilgin-Eran, Dilek Güzeller and M. Kasım Şener*

The novel metal free phthalocyanine and its copper complex which are octa-substituted at the peripheral positions with 4-((S)-3,7-dimethyloctyloxy)phenoxy moieties were synthesized and characterized. The mesomorphic behavior and aggregation properties of these new materials are described.

Preparation and biological evaluation of a carrier free 90yttrium labelled porphyrin as a possible agent for targeted therapy of tumor
Mahvash Abedi*, Mohammad Reza Nabid, Simindokht Shirvani-Arani, Ali Bahrami-Samani and Nasim Vahidfar

The radiolabeling of 5,10,15,20-tetrakis(phenyl)porphyrin (H2TPP) was performed using the carrier free Y-90 which was prepared by the use of a home-made yttrium imprinted sorbent with a suitable radiochemical purity (95±2% ITLC, 99±0.5% HPLC) and specific activity (1.0±0.1 GBq/mmol). Furthermore, the biodistribution study demonstrated that the kidneys could mostly remove the radio-complexes from the blood circulation and in lesser extent from the liver. As a result it is expected that due to its lipophilicity the higher mitochondrial content and thus, tumor cell uptake of this radiolabeled porphyrin happens and therefore 90Y-TPP could act as an efficient potential agent for targeted therapy of tumor.

Preparation, characterization and investigation of photophysical properties of thio­phene-substituted rare-earth bisphthalocyanines
Jiří Černý*, Lenka Dokládalová, Antonín Lyčka, Tomáš Mikysek and Filip Bureš

A series of bis[octakis-(2-thienyl)phthalocyaninato] rare-earth metal(III) bis-phthalocyanine complexes of Pr, Sm and Gd were synthesized for the first time. The new compounds were characterized by UV-vis, NMR, FT-IR, mass spectrosco­pies as well as elemental analysis and cyclic voltammetry. Production of singlet oxygen was also estimated by 9,10-dimethylanthracene method.

Symmetrical and difunctional substituted cobalt phthalocyanines with benzoic acids fragm­ents: Synthesis and catalytic activity
Artur Vashurin*, Vladimir Maizlish, Ilya Kuzmin, Serafima Znoyko, Anastasiya Morozova, Mikhail Razumov and Oscar Koifman

Series of phthalonitriles bearing with benzoic acid fragments was synthesized. Symmetrically and bifunctionally substituted phthalocyanines were obtained using these phthalonitriles. Their spectral properties and catalytic activity for aerobic oxidation of thiols were studied.
Flying-seed-like liquid crystals 7: Synthesis and mesomorphism of novel octakis(4-chloropyridyloxy)phthalocyaninato copper(II) complexes
Kazuchika Ohta*, Kaori Adachi and Mikio Yasutake

Three novel octakis(4-chloropyridyloxy)phthalocyaninato copper(II) complexes, \[\text{x-PyO}(m\text{-Cl})_8\text{PcCu} (x = 2, 3, 4; 2a–2c),\] have been synthesized to investigate their mesomorphism. Mesomorphism appears for the \([2\text{-PyO}(m\text{-Cl})]_8\text{PcCu} (2a)\) and \([4\text{-PyO}(m\text{-Cl})]_8\text{PcCu} (2c)\) derivatives, but not for the \([3\text{-PyO}(m\text{-Cl})]_8\text{PcCu} (2b)\) derivative. The mesomorphism of \(2b\) may be suppressed by the intramolecular N…Cl halogen bond.

Photophysical properties of sinoporphyrin sodium and explanation of its high photo-activity
Lixin Zang*, Huimin Zhao, Qicheng Fang, Ming Fan, Tong Chen, Ye Tian, Jianling Yao, Yangdong Zheng*, Zhiguo Zhang* and Wenwu Cao*

Extinction coefficients of DVDMS at 405 and 630 nm are \(4.36 \times 10^5\) and \(1.84 \times 10^4\) M\(^{-1}\) cm\(^{-1}\). \(\Phi_F\) of DVDMS is 0.026 and its \(\Phi_P\) is 0.92. Although \(\Phi_F\) of DVDMS is only 10% higher than that of Photofrin® (0.83), its 10-fold greater extinction coefficient leads to an amazing reduction of dosage (about 1/10 of Photofrin®). Fluorescence diagnosis ability of DVDMS at 0.2 mg/kg is comparable to that of 2 mg/kg Photofrin® under the illumination of 405 nm laser because of the large difference of extinction coefficients.

Synthesis of a novel \(\text{CB}_2\) cannabinoid-porphyrin conjugate based on an antitumor chromenopyrazoledione
Paula Morales, Laura Moreno, Javier Fernández-Ruiz and Nadine Jagerovic*

The synthesis of a cannabinoid-porphyrin conjugate based on an antitumor chromenopyrazoledione is reported. The novel conjugate binds weakly but selectively to \(\text{CB}_2\).