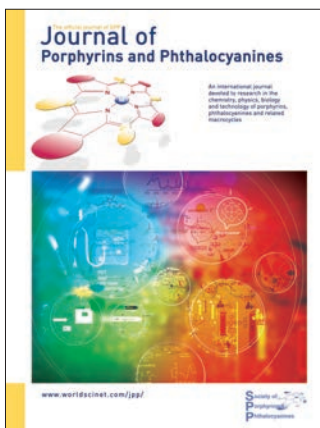


About the Cover



The cover shows a montage of the science presented in the current issue.

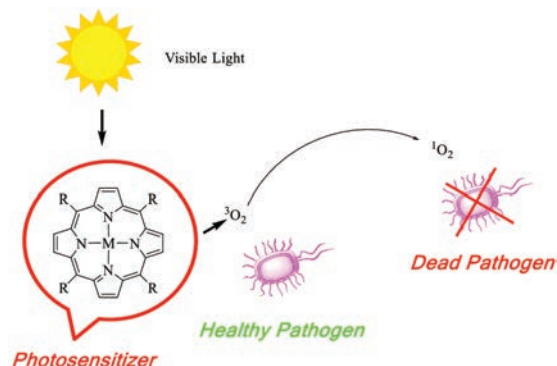
Review

pp. 819–837

Advances in efficacy enhancement of photosensitizer-mediated photodynamic antimicrobial chemotherapy

Benard M. Isaiyah, Edith K. Amuhaya* and Clare I. Muhanji

Photodynamic antimicrobial chemotherapy (PACT) is a treatment approach for inactivating pathogenic microorganisms, where the energy of photons is converted into cytotoxic reactive oxygen species (ROS) by photosensitizer (PS) molecules. To achieve a more effective PACT process, innovative strategies in terms of the structure of the PS as well as their delivery mechanisms have been reported in the literature. This paper reviews the available literature on advances made in enhancing the efficacy of PACT.



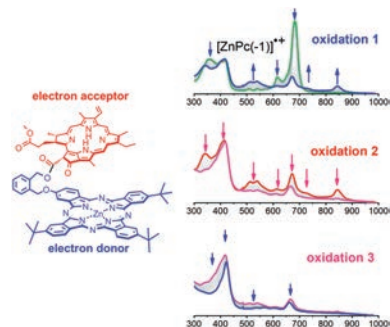
Article - Special: Prof. Tomás Torres (70)

pp. 838–844

Electrochemical and spectroelectrochemical behavior of methyl pheophorbide a - zinc phthalocyanine dyad

Ekaterina O. Moiseeva, Stanislav A. Trashin, Irina O. Balashova, Anton D. Kosov, Tatiana V. Dubinina* and Victor E. Pushkarev

The electrochemical and spectroelectrochemical behavior of a methyl pheophorbide a - zinc phthalocyanine dyad is investigated. The data show π - π interaction between the fragments.



CONTENTS

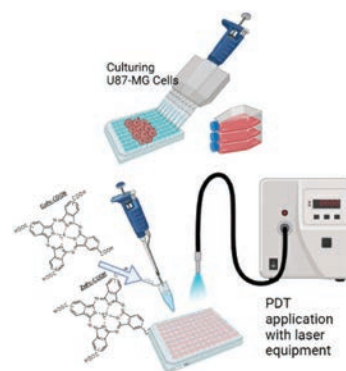
Articles

pp. 845–851

The influence of central metals in phthalocyanines for photodynamic therapy of glioblastoma

Ayça Tunçel Oral, A. Celil Yüzer, Derya Özel, Mine Ince* and Fatma Yurt*

Glioblastoma multiforme is an aggressive brain tumor and for this reason, studies have been carried out in recent years to develop new therapeutic approaches. In this study, we describe an approach to the application of photodynamic therapy with the metal-phthalocyanines ZnPc and CoPc and their carboxylic acid derivatives in U87-MG glioblastoma cell lines. According to our results, the ZnPc-COOH PDT effect was higher than for ZnPc and CoPc.

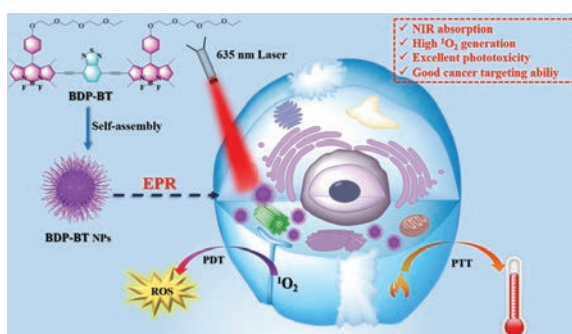


pp. 852–860

Organic nanomaterials from self-assembly of BODIPY-benzothiadiazole conjugate for PDT/PTT synergistic therapy

Qilong Sha, Jingran Deng, Huishuang Zhang, Xiaogang Luo and Fengshou Wu*

A new boron-dipyrromethene molecule (BDP-BT) with a donor-receptor-donor structure was successfully synthesized. The amphiphilic BDP-BT was self-assembled into nanoparticles (BDP-BT NPs) with red-shifted absorption and enhanced hydrophilicity. BDP-BT NPs can simultaneously produce reactive oxygen species and hyperthermia triggered by a single laser.

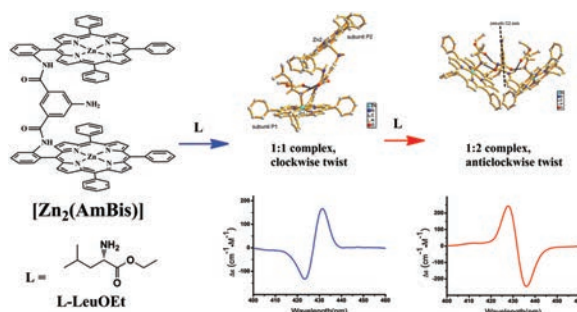


pp. 861–872

Stoichiometry-controlled chirality inversion in the amide-linked zinc bisporphyrinates induced by amino acid esters

Jiaxing Zhu, Fangfang Fu, Zhihao Zhang, Chuanjiang Hu* and Yong Wang*

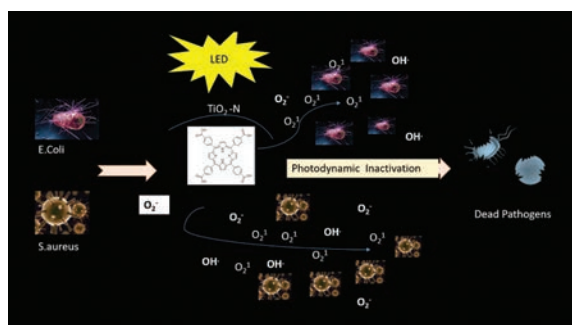
Chirality inversions occurred when two amide-linked zinc bisporphyrinates were mixed with amino acid esters; our investigation demonstrated that the nitrogens in the linkers were coordinated to zinc in the 1:1 complexes, which resulted in different CD signals from the 1:2 complexes.



pp. 873–886

Investigation of antibacterial photodynamic inactivation in urea-doped TiO₂ sensitized with porphyrin photocatalysis

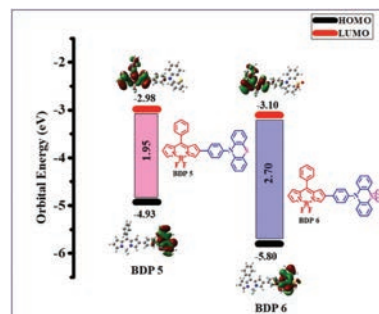
Parisa Nosrati, Rahmatollah Rahimi* and Mahboubeh Hosseini-Kharat
TiO₂ heterostructure nanoparticles containing urea and tetra(4-carboxyphenyl) porphyrin (TCPP) were prepared and used as an antibacterial agent for the photodynamic inactivation of both gram-negative and gram-positive bacteria under visible light (15 W LED).



pp. 887–895 **β -Pyrrole functionalized push-pull BODIPYs: Synthesis, photophysical, electrochemical, thermal and computational studies**

Indresh Singh Yadav and Rajneesh Misra*

A set of six β -pyrrole functionalized push-pull BODIPYs were designed and synthesized *via* a palladium-catalyzed Suzuki cross-coupling reaction and by increasing the oxidation state of the sulfur atom in the thiazine ring.

**pp. 896–901****Synthesis, dark and photoinduced cytotoxicity of a deuteroporphyrin IX derivative with two galactose fragments on the macrocycle periphery**

Tatyana K. Rocheva, Elena S. Belykh, Marina V. Mal'shakova, Yana I. Pylina and Dmitry V. Belykh*

A deuteroporphyrin IX derivative was synthesized with two D-galactose units having an ester bond between the macrocycle and carbohydrate fragments. Galactose fragment introduction resulted in decreased cytotoxicity as compared with the parent deuteroporphyrin IX but photoinduced cytotoxicity of the deuteroporphyrin IX derivative with two D-galactose fragments increased.

