

FULERENIC MATERIALS WITH BIOMEDICAL APPLICATIONS

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Rezumat: *Derivații solubili de tip fuleneric sunt esențiali numeroaselor tehnici biomedicale care exploatează structura chimică unică și proprietățile fizice ale nanosferei de carbon. Toxicitatea lor, demonstrată in vitro și in vivo, este importantă pentru caracterizarea și limitarea acestor aplicații. Fototoxicitate unor molecule fulerene a fost identificată ca un instrument terapeutic viitor. Alte studii, axate pe reducerea fototoxicității fulerenelor hidrosolubile urmărește utilizarea acestor compuși ca sisteme de livrare de droguri sau folosirea lor în domeniul protecției mediului. Pornind de la caracteristicile acestor compuși, care pot fi ei înșiși citotoxici, sau ar putea deveni în timpul iradierii (fotosintetizatori) am încercat să obținem noi materiale bazate pe fullerene și diade/triade fullerene/porphyrines sau fullerene/complexe calixarenes. Complexele obținute au fost caracterizate prin spectroscopie UV Vis și IR.*

Abstract: *Soluble fullerene derivatives are essential for numerous biomedical techniques that exploit the unique structural chemical and physical properties of carbon nanospheres. Their toxicity, demonstrated in vitro and in vivo is important for the characterization and limitation of those applications. The phototoxicity of some fullerene molecules was identified as a future therapeutic instrument. Other studies focused on the decrease of the phototoxicity of hydrosoluble fullerenes follow the use of those compounds as drug delivery systems or their use in environment protection. Starting from the characteristics of those compounds, which can be by themselves cytotoxic, or could become during irradiation (photosensitizers) we have tried to obtain new materials based on fullerenes and diads/triads fullerene/porphyrines or fullerenes/calixarenes. The obtained complexes were characterized by UV Vis and IR spectroscopy.*

Keywords: fullerene, porphyrines, calixarenes, biomedical applications

1. Introduction

Soluble fullerene derivatives are essential for numerous biomedical techniques that exploit the unique structural chemical and physical properties of carbon nanospheres [1-5]. Their toxicity, demonstrated in vitro and in vivo is important for the characterization and limitation of those applications. The phototoxicity of some fullerene molecules was identified as a future therapeutic instrument.

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