INCORPORATION OF AXIALLY SUBSTITUTED MONOPHTALOCYANINES OF ZIRCONIUM, HAFNIUM AND SELECTED LANTHANIDES IN MONOLITHIC SILICA BLOCKS AND THEIR OPTICAL PROPERTIES

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Abstract The monolithic silica gels with incorporated phthalocyanine complexes of metals is the good model system for investigations on phthalocyanine based laser, optical waveguides, for searching of photovoltaic effects of phthalocyanine complexes, for investigations on cytostatic activity of this complexes in photodynamic therapy of cancer and as biosensors. The difficulty of obtaining of phthalocyanine dotted transparent monolithic silica gels without chemical changes of phthalocyanine ring and with retaining of stability of metal-phthalocyanine complexes in conditions of gel-formation reactions caused, that most of articles about silica gels, dotted by phthalocyanines are concentrate on metal phthalocyanine complexes with lateral substitutors in phthalocyanine ring (such as aluminum or zinc tetrasulfophthalocyanine), or on sandwich type compounds, in case of phthalocyanato lanthanide complexes. The monolithic transparent silica gel blocks dotted with axially substituted monophtalocyanine complexes of Zr (IV), Hf(IV), Er(III), Tm(III) and Yb (III) were obtained. Stability of complexes in gels on different stages of gel formation was provided by absorption spectra. The influence of silica matrix to absorption and emission spectra of metal monophthalocyanine complexes was investigated in comparison with spectra of these complexes in solid and DMSO solutions.

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