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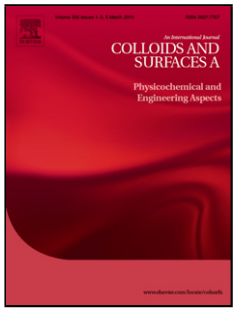

Title: Solubilization of azo-dye-modified isatin derivative by amphiphilic carboxyresorcinarenes: the effect of macrocycle structure on the supramolecular association

Authors: Victor V. Syakaev, Julia E. Morozova, Andrei V. Bogdanov, Yana V. Shalaeva, Alina M. Ermakova, Alexandra D. Voloshina, Vladimir V. Zobov, Irek R. Nizameev, Marsil K. Kadirov, Vladimir F. Mironov, Alexander I. Konovalov

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ACCEPTED MANUSCRIPT

Solubilization of azo-dye-modified isatin derivative by amphiphilic carboxyresorcinarenes: the effect of macrocycle structure on the supramolecular association

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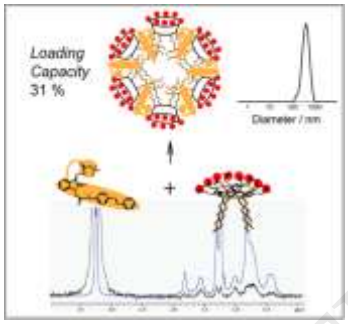
Graphical abstract



Abstract: Here we present the consecutive study of colloid systems formed by novel isatin derivative as compound with high pharmacological potential and series of carboxyresorcinarenes. The azo-modified isatin derivative bearing ammonium moiety (**I-3**) was synthesized and its antimicrobial activity was investigated. To increase its solubility the solubilization experiment using amphiphilic carboxyresorcinarenes, characterized by low hemolytic activity, was carried out. The **I-3** – macrocycles systems were studied by NMR, UV-VIS, DLS and TEM. The FT PGSE and 2D NOESY NMR methods demonstrated, that solubilization of **I-3** is caused by the incorporation of its molecules in the hydrophobic part of the macrocycles associates. Herewith the loading efficiency of **I-3** into the macrocycles associates was reached of 20-30 % due to the change of the volume of hydrophobic part of associates by varying the length and structure of hydrophobic substituents of macrocyclic amphiphiles.

Keywords. Isatin derivative, NMR spectroscopy, resorcinarene, solubilization, supramolecular systems.

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