

عنوان مقاله:

Spectral study of interaction between Silica nanoparticles and molecules of photochromic spirocompounds in solutions

محل انتشار:

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خلاصه مقاله:

A comparative spectral study of water–acetonitrile systems containing photochromic spiropyran and spirooxazine derivatives in the absence and in the presence of silica nanoparticles was carried out. The photoinduced formation of proton complexes between phenolic oxygen of the colored forms of spirocompounds and the surface hydroxyl groups of silica nanoparticles was established for all of the derivatives. The photoinduced proton complexes of the spiropyran exhibit positive photochromism on the surface of silica nanoparticles. It is assumed that the previously discovered negative photochromism is due to the formation of proton complexes with not only phenolic oxygen, but also the OH group at the nitrogen atom of the indoline spiropyran moiety. These complexes can also exist in the absence of nanoparticles, because of interaction with water molecules. A comparative spectral study of water–acetonitrile systems containing photochromic spiropyran and spirooxazine derivatives in the absence and in the presence of silica nanoparticles was carried out. The photoinduced formation of proton complexes between phenolic oxygen of the colored forms of spirocompounds and the surface hydroxyl groups of silica nanoparticles was established for all of the derivatives. The photoinduced proton complexes of the spiropyran exhibit positive photochromism on the surface of silica nanoparticles. It is assumed that the previously discovered negative photochromism is due to the formation of proton complexes with not only phenolic oxygen, but also the OH group at the nitrogen atom of the indoline spiropyran moiety. These complexes can also exist in the absence of nanoparticles,

کلمات کلیدی:

Photochromism, Proton Complexes, Silica nanoparticles, Spectroscopy, Spirocompounds

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