Chromotropism of Imidazole, 2,2'-(2,5-thiophenediyl)bis[4,5-diphenyl]

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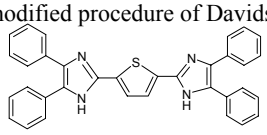
We have prepared new doublelophineimidazole derivative, Imidazole, 2,2'-(2,5-thiophene-diyl)bis[4,5-diphenyl] **(1)**, according to slightly modified procedure of Davidson et al. [1].



(1)

(1) shows solvatochromism, halochromism and photochromism in solution and tribochromism, photochromism and thermochromism in the solid state. We have measured the absorption and the fluorescence spectra of **(1)** in aprotic solvent MeCN at different pH. We have measured the absorption and the fluorescence spectra of **(1)** with different periods of irradiation time in neutral MeCN solution and in basic MeCN solution. It was shown that the fluorescence intensity decreases with increasing irradiation time for both solutions.

When **(1)** was triturated in mortar, the light green colour turned to dark green irreversibly. It was found that **(1)** crystallized as inclusion compound in two different coloures: yellow and green, depending on the guest molecules. Crystallization of **(1)** from MeCN:Acetone (10:1) yields long solvate yellow needles with the ratio of host-guest (1:2 MeCN:2 H_2O). Crystallization of **(1)** from dry MeCN yields large solvate green prisms with the ratio of host-guest (1:2). When the yellow crystals were allowed to stand at room temperature, the yellow needles lost two molecules of water and gradually turned into green needles. The spectroscopic behavior of **(1)** in solutions of different pH, before and after irradiation, the packing pattern of two different inclusion compounds of **(1)** are presented.

[1] Davidson D., Weiss M., Jelling M., *J. Org. Chem.*, 1937, **2**, 319.

Keywords: colour, conjugate compounds, x-ray structure