

Low-temperature fluorescence of oxystyryls

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Introduction

In our previous article [1], the features of the electron structure and molecular geometry as well as absorption spectra of the oxystyryls containing the donor groups with the regularly varied basicity were studied in detail. The state dipole moment was found from the calculation to decrease considerably in the dyes with high basic pyridinium and quinolinium residues while the change of this parameter in the indo- and benz[*c,d*]indooxystyryls is practically negligible. Also, it was shown that the magnitudes of the dipole moments depend, first at all, on the basicity of the donor end groups. For example, in the ground state, the dipole moment increases markedly in the series indo-, benz[*c,d*]indo-, quino- and pyridooxystyryl: 0.86, 3.44, 8.55 and 11.72 D (calculated in the AM1 approximation). It is in good agreement with the experimental fact that the absorption spectra of the oxystyryls as extreme unsymmetrical cyanine dyes are highly sensitive to solvent polarity [2], [3], [4].