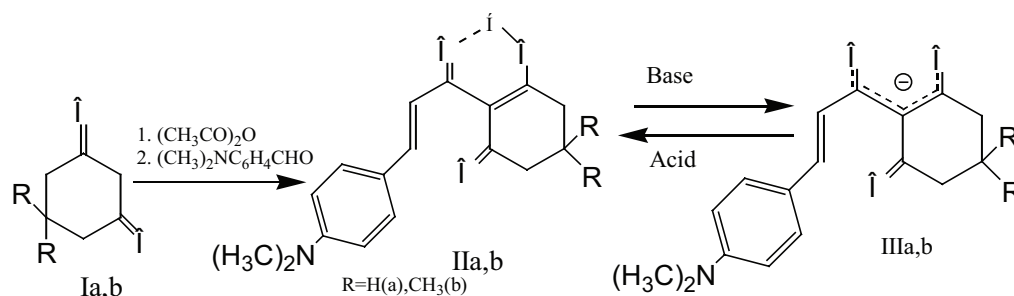


α' , β' -Unsaturated cyclic β -triketones-acid-base titration indicators

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Earlier, we described the synthesis of α' , β' -unsaturated cyclic β -triketones (IIa,b) from cyclohexane-1,3-diones (Ia,b) by two step method.



These compounds exhibit nonlinear optical properties, in particular, the fluorescence intensity with two-photon excitation laser IR radiation with a red fluorescence, the spectrum of which is located in a convenient measurement area (550-700 nm), which determines their use as a visualization of laser infrared radiation. These substances can be suitable fluorescent probe for studying of biological membranes, as the solutions of these compounds possess intense fluorescence in the visible region.

Here we report on the possibility of using these compounds as indicators of acid-base titration, as the color of solutions of triketones (IIa,b) in aqueous-alcoholic solution varies depending on the pH of the medium, their absorption spectra in aqueous-alcoholic solutions containing long-wave band of the charge-transfer (470 nm), whose maximum is shifted to the short-wave region (hypsochromic shift) by adding an alkali to the solution. The color of the solution in this case varies from red to green. This can be explained by the formation enolate anions (IIIa,b), which increases the energy level of the lower free molecular orbital of the acceptor, and hence the displacement of charge-transfer band to shorter wavelengths. Alcohol solutions, compounds (IIa,b) are used as indicators of acid-base titration.

Biography

Anatoliji N. Pyrko, after graduation from Chemistry Department of the Belarussian State University, he worked at the Institute of Bioorganic Chemistry (Belarussian Academy of Sciences) as junior researcher, researcher and senior researcher until 2007. Since 2007, he has been working at the International State Ecological University as sub-professor. His field of scientific interests are synthesis of poly and heterocyclic biologically active compounds. He has published over 60 scientific articles.

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