SYNTHESIS, STRUCTURE AND PROPERTIES OF THE DIFLUOROBORANES OF SUBSTITUTED 2-PHENACYLBENZOXAZOLES AS POTENTIAL PHOTOSENSITIZERS IN THE PHOTOPOLYMERIZATION PROCESS

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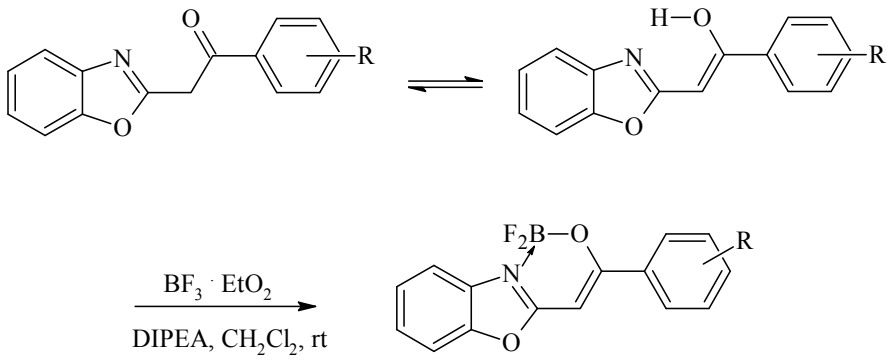
Organoboron complexes are one of the most important types of fluorescent dyes. The proton involved in intramolecular hydrogen bonding of substituted 2-phenacyl-benzoxazoles can be easily replaced by another acid such as the BF_2^+ cation. The presented study provides a report on the basic photophysical properties of a recently synthesized series of substituted 2-phenacylbenzoxazole difluoroboranes (Scheme 1) with a view towards the effect of substitution on their properties [1].



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Scheme 1. The schematic representation of the synthesis of 2-phencylbenzoxazole difluoroboranes where R = 4-NMe_2 (**1**), 4-OMe (**2**), 4-Me (**3**), 3-Me (**4**), H (**5**), 3-OMe (**6**), 4-Cl (**7**), 3-Cl (**8**).

Complexes have been identified based on a magnetic atomic nucleus ^{1}H, ^{11}B, ^{13}C, ^{15}N, and ^{19}F isotope resonance spectra. The photophysical properties of these new dyes have been investigated by fluorescence and ultraviolet-visible (UV-Vis) absorption spectroscopy. The changes in Stokes shifts and the molar absorption coefficients related to the nature of the substituent in 2-phenacyl moiety are also reflected in changes in the fluorescence quantum yields. The study using these compounds as photosensitizers in the photopolymerization process is still in progress.

[1] A. Skotnicka, P. Czeleń, *Molecules* **2020**, *25*, 5420. doi:10.3390/molecules25225420