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Photophysical properties of boron trifluoride complexes based on 2(2',4'-dihydroxyphenyl) benzothiazole and benzimidazole

Sang Hun Lee and Suk-Kyu Chang
Chung-Ang University, Republic of Korea

New boron trifluoride-introduced 2(2',4'-dihydroxyphenyl) benzothiazole (2,4-DHBT) and benzimidazole (2,4-DHBI) was synthesized and its photophysical characteristic were investigated. Each compound was generated well by using 2-aminophenol or ortho-phenylenediamine with 2,4-dihydroxybenzaldehyde. 2,4-DHBT and 2,4-DHBI have difference fluorescence patterns on the basis of the excited-state intra-molecular proton transfer (ESIPT) system. It is well known that ESIPT is significantly affected by the properties of solvent. UV-Vis data and emission spectra of each compound were observed in various type of solvent such as dichloromethane, acetonitrile, dimethyl sulfoxide and they showed stokes shift of 60-70 nm approximately. Furthermore, difference of spectra was noticed by comparing new compound to those without boron trifluoride. Absorption and fluorescence intensity depending on pH, in water with small amount of ethanol were also tracked and pKa value of individual derivatives were calculated.

Biography

Sang Hun Lee studied chemistry which is his major for 6 years at Chung-Ang University, and completed bachelor's degree on chemistry in 2015. He is presently on a master's candidate. His main research area is organic synthesis of sensors signaling chemical species such as metal ion or oxidants which can be harmful for human and environment, or important in modern industry.

cp95lsh@gmail.com

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