

Synthesis and Luminescence Spectral Properties of New Cyano-Substituted 2,2'-Bipyridine Derivatives

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Abstract—Previously unknown 2-{4-aryl-5-cyano-[2,2'-bipyridin]-6(1*H*)-ylidene}malononitriles were synthesized by reaction of 3-aryl-1-(pyridin-2-yl)prop-2-en-1-ones (azachalcones) with malononitrile dimer. Their colored solutions showed fluorescence in the yellow–orange region with the emission maxima located at λ 565 to 582 nm, depending on the substituent in position 4 of the pyridine ring bearing cyano groups. The synthesized compounds are promising for further study as chemosensors due to a unique combination of 2,2'-bipyridine and buta-1,3-diene-1,1,3-tricarbonitrile fragments in their molecules.

Keywords: 2,2'-bipyridines, cyano-substituted heterocycles, malononitrile dimer, azachalcones, fluorescence

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