



Aggregation of Organic Compounds and its effect on their photophysical properties

Nidhi Gour

Indrashil University, Gujarat, India

Abstract:

The present study describes two small organic compounds PTC1 and NG1, their self-assembling characteristics and its effect on their photophysical properties. PTC1 is a pyridothiazole based small organic compound which revealed aggregation induced emission properties as assessed by fluorescence and AFM studies. AFM study at supramolecular level shows when the aggregation of PTC1 is more fluorescence is also enhanced, while the addition of Cu^{2+} ion causes disruption of self-assemblies leading to fluorescence quenching. Particularly, after the addition of amyloid fibre the fluorescence regeneration was observed which is accompanied by reaggregation. Hence, application of PTC1 in monitoring the amyloid fibrillation was assessed. The second molecule NG1 is acyl thiourea conjugate which assembles to fibrillar structures. Addition of Cu^{2+} to NG1 solution also leads to disruption of its fibrillar aggregates. However, in case of NG1 it was accompanied by a color change from colorless to yellow and fluorescence enhancement in blue region. Strikingly, addition of lactic acid regenerates the assembly and also change yellow color solution to colorless. Hence, NG1 was used for the sequential and cellular detection of Cu^{2+} ions and lactic acid. Notably, both PTC1 and NG1 also exhibit panchromatic emission properties and reveal fluorescence under blue, green, and red filter. The studies pertaining to their panchromatic behavior and its application in cellular imaging is being currently pursued.

Biography:

Dr. Nidhi Gour is currently Assistant Professor at Indrashil University an education initiative of Cadila Pharmaceuticals, India. She was formerly associated to IAR, Gandhinagar as Faculty. Dr. Nidhi did her doctoral stud-



ies from Indian Institute of Technology Kanpur (IITK). Her PhD thesis was awarded with Eli Lilly Asia Outstanding Thesis Award. After two short post-doctoral stints at Tata Institute of Fundamental Research (TIFR), Mumbai and Albert Einstein College of Medicine, New York, USA, she joined University of Geneva, Switzerland as post-doctoral fellow for two years and finally CSGI, University of Florence for one year. Her research is based on synthesis and characterization of compounds/nanoparticles with potential applications in biology with particular focus on molecular self-assembly. Her research has been published in reputed international journals and she has regularly received many national and international research grants and fellowships

Recent Publications:

- Nidhi Gour, ACS Chem Neurosci. 2019
- Nidhi Gour, Macromol Rapid Commun. 2015
- Nidhi Gour Chem Commun (Camb). 2014
- Nidhi Gour, J Pept Sci, 2012
- Nidhi Gour, Chem Commun (Camb) 2012.

Webinar on Nanophotonics and Electronics | June 22, 2020 |

Citation: Nidhi Gour, Aggregation of Organic Compounds and its effect on their photophysical properties Webinar on Nanophotonics and Electronics, June 22, 2020.