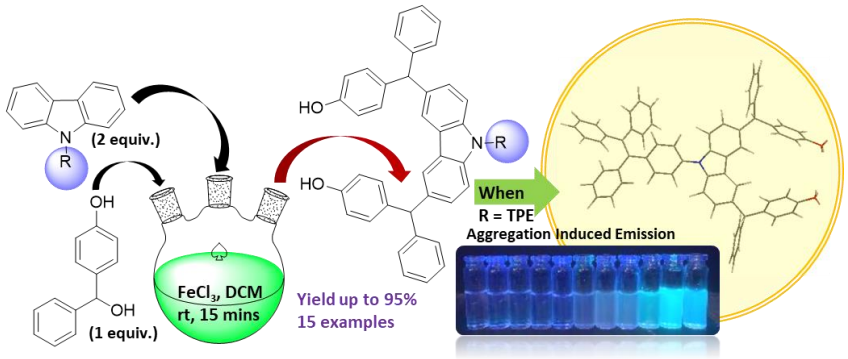
Abstract – Poster Presentation
9th INTERNATIONAL CONVENTION OF COLORANTS (COC)
on March 2 and 3, 2023 at The Club, Andheri, Mumbai, India
Jointly organized by Department of Speciality Chemicals Technology, ICT Mumbai, and Dyestuff Manufacturers Association of India (DMAI)

Efficient $FeCl_3$ Mediated Two-Fold Friedel Crafts Alkylation Reaction of Carbazole Towards the Synthesis of Solid-State Emissive Material

Mansi Singh, Chinmay Thakkar, Valmik Jejurkar and Dr. Satyajit Saha*
Department of Speciality Chemicals Technology, Institute of Chemical Technology, Mumbai, Matunga 400019

Abstract: Carbazole has gained substantial attention from the synthetic community because it provides a highly versatile heterocyclic platform with application in natural products and medicinal chemistry, biochemistry, and materials chemistry. Interest in carbazole derivatives has stimulated the development of several synthetic methods directed toward the total synthesis of biologically active carbazole alkaloids, antitubercular agents, specific DNA binding, antiproliferative agents, receptors for anion binding, precursors for meso-porous materials, organic solar cells and blue phosphorescent OLEDs.[1] In view of the immense importance of the carbazole scaffold, we have developed a ferric chloride catalyzed facile two-fold Friedel Crafts alklylation of carbazole derivatives with several benzhydrols in very short time. Excellent product yield, short reaction time, water as the bye product, are some of the features of the methodology. The reaction proceeds via a reactive ortho-quinone methide intermediate.[2] The methodology was further extended towards the development of Aggregation Induced Emissive molecule with interesting photophysical properties. Aggregation-induced emission (AIE) is an intriguing photophysical process in which non-emissive molecules in solutions are caused to emit strongly in the aggregate or solid state. By taking advantage of their strong solid-state emission, excellent photostability, fast and sensitive fluorescence responses, and good biocompatibility, materials with AIE attributes are widely employed in sensing, imaging, pre-clinical diagnosis, optoelectronics as well as theronostics.



Reference:

1. A. Venkateswararao,K. R. Justin Thomas Chuan-Pei Lee Chun-Ting Li, and Kuo-Chuan Ho, *ACS Appl. Mater. Interfaces* **2014**, *6*, 4, 2528–2539.
2. S. Saha, S. Kumar Alamsetti and C. Schneider *Chem. Commun*. **2015**, *51*, 1461-1464.