

A Novel Hydroxyaryl Benzimidazole-Based Schiff Base Sensor for Cyanide Detection in Mixed Aqueous Systems

Dr. Aastha Palta

Department of Chemistry, University Centre for Research and Development, India

Cyanide contamination poses severe environmental risks due to its high toxicity and widespread use in industrial processes. In this study, we report the synthesis, characterization and photophysical behaviour of a novel hydroxyaryl benzimidazole-based Schiff base sensor capable of detecting cyanide ions in mixed aqueous media with remarkable selectivity and sensitivity. The sensor employs synergistic Excited State Intramolecular Proton Transfer (ESIPT), Aggregation-Induced Emission (AIE), and Intramolecular Charge Transfer (ICT) mechanisms to enhance fluorescence response upon cyanide binding.

Biography

Dr. Aastha Palta has completed her PhD at the age of 27 years from Thapar University. She is Assistant Professor at Chandigarh University, a premier Engineering organization. She has published 10 papers in reputed journals.

aasthapalta96@gmail.com

Abstract received : March 23, 2025 | Abstract accepted : March 26, 2025 | Abstract published : June 13, 2025