

11th Global Experts Meeting on

CHEMISTRY AND COMPUTATIONAL CATALYSIS

May 18-19, 2018 Singapore



Kiramat Shah

University of Swat, Pakistan

Synthesis and characterization of supramolecules and its applications as a chemosensor for drugs

The monitoring of pharmaceutical drugs in the environment is of great importance world wide. For example, in Karachi Pakistan due to contaminated water six children were died and about 200 fell ill in 2005. A large number of pharmaceutical drugs in highly alarming amount were found in different components of drinking water (surface water, drainage and effluent) of Karachi in the microgram-per-liter range during bioassay directed chemical analysis. The photophysical evaluation of supramolecular organic molecules as optical probes for detection of water toxins has been recognized to be very selective, sensitive and economical as compared to the previously used methodologies. Synthesis, characterization and molecular recognition properties of fluorene based supramolecular cleft is reported. The cleft molecule was prepared in a single-step with good yield (85% yield), by linking fluorene with 1-ethyl piperazine. The cleft molecule was carefully characterized using various spectroscopic techniques such as NMR and mass spectrometry. The supramolecular interaction of cleft with *amoxicillin*, *6APA*, *aspirin*, *captopril*, *cefotaxime*, *ceftriaxone*, *cefuroxime*, *diclofenac*, *penicillin* and *cephradine* was evaluated by fluorescent spectroscopy. The molecular recognition studies showed that amoxicillin selectively binds with cleft in the presence of other drugs. The analytical method developed for the supramolecular interaction of molecular cleft and amoxicillin was validated at varying pH, concentration and temperature during recognition process. Job's plots indicated that the stoichiometry of the interactions between the cleft and the amoxicillin was 1:1.

Recent Publications

1. Azeem Ullah, Faheem Shah, Imran Khan, Muhammad Anwar, Kiramat Shah, Munira Taj Muhammad, Farid Ahmad (2018) Unprecedented chemosensing behavior of novel tetra-substituted benzimidazole zinc (II) phthalocynine for selective detection of Bi³⁺ ion: Synthesis, characterization and ROS generation. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*; 192: 188-193.
2. Farid Ahmed, Samina Perveen, Kiramat Shah, Muhammad Raza Shah, Shakil Ahmed (2018) Synthesis and characterization of triazole based supramolecule for interaction with cefuroxime in tap water and blood plasma. *Ecotoxicology and Environmental Safety*; 147: 49-54.

Biography

Kiramat Shah is an Assistant Professor at Institute of Chemical Sciences, University of Swat, Pakistan. He has obtained his PhD degree from International Center for Chemical and Biological Sciences, University of Karachi, Pakistan. He is synthesizing macrocycles and macromolecules using different advanced reactions particularly azide-alkyne click reaction, Glaser coupling, Sonogashira coupling, amide bond formation using coupling reagents and Mannich reaction.

kiramatshahg@uswat.edu.pk
kiramat4s@gmail.com