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Design and use of an imidazolium ion-tagged fluorescent chemosensor for sensing metal ions in water



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In present scenario for the accurate detection of a contaminant in unprocessed environmental samples, there is need to develop innovative chemosensors which provides excellent selectivity and sensitivity to heavy and transition metal ions. A major challenge of developing chemo sensors is the design of chelators possessing both high affinity and high selectivity. Most of the metal ions are carcinogens and lead to serious health concerns, hence, fast and accurate detection of metal ions has become a critical issue. We have developed a simple fluorescent chemosensor containing only imidazolium ionic tag along with Schiff base for the detection of metal ion contamination in water. Ionic tags are entirely composed of ions, are drawing extensive interest, since they can be tailored to satisfy the functional requirements for building organic materials by changing either the cation or anion species. Ionic tags have achieved great success in acting as luminescent materials, exhibit strong fluorescence with high quantum yields. Schiff bases also are readily obtained by simple synthetic procedures and usually exhibit strong emission upon binding to specific foreign ions. For this work, 8-aminoquinoline was used as an amine source, which is a traditional fluorophore, which is widely employed in the design of sensors due to its coordination function. Details of synthesis, characterization and sensing studies will be shown in presentation during the conference.

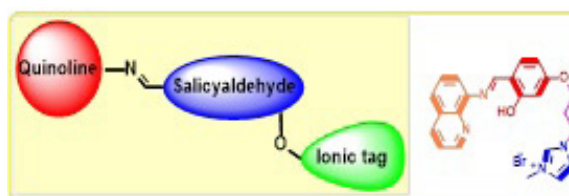


Figure: Chemosensor architecture.

Biography

Bharti Khungar is an Associate Professor and Head of the Department of Chemistry, BITS Pilani, Pilani Campus, India. She carried out her Doctoral Research in Chemistry at University of Rajasthan, Jaipur, India and obtained her PhD degree in 2002. She is working in the field of Green Chemistry for synthesis, characterization and applications of ion-tagged moieties. These ion-tagged molecules have been screened for biological applications, and catalytic properties on complexation with metal ions. Currently, she is working for designing water soluble sensing material for detection of toxic metal ions in water.

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