

Chemical sensors for monitoring the heavy metals, anions and drugs

Vinod Kumar Gupta

Indian Institute of Technology, Indiat

In the present talk, an overview on chemical sensors that are capable of detecting cat ions, drugs and anions, will be presented. Notwithstanding the tremendous work performed so far, it is obvious that still severe limitations do exist in terms of selectivity, limits of detection, dynamic ranges, applicability to specific problems, and reproducibility. A review on important advances in chemical sensors with regard to high selectivity, lower detection limit, fast response time and on-line environmental analysis will be discussed. Literature showed that a large number of novel and analytically useful ionophores have been discovered only in the past few years, indicating that this field is steadily moving forward. The advantages of ISEs over many other methods for ion detections are their easy handling, non-destructive analysis and inexpensive sample preparation. Traditional ISE detection limits have been reasonably improved and measurement down to picomolar range is now possible.

Biography

Vinod Kumar Gupta obtained his Ph.D. degree in chemistry from the University of Roorkee (now Indian Institute of Technology Roorkee) Roorkee, India, in 1979. Since then he is pursuing research at the same Institute and presently holding the position of Professor and Head of Chemistry Department, at Indian Institute of Technology Roorkee, Roorkee. He worked as a post-doctoral fellow at University of Regensburg, Germany, in 1993 as an EC fellow and was DAAD visiting professor at University of Chemnitz and Freie University of Berlin in 2002. He has published more than 325 research papers, many reviews and two books which fetched him more than 12600 citation with h-index of 76. He was awarded the Indian Citation Laureate Award in 2004. His research interests include chemical sensors, wastewater treatment, environmental and electroanalytical chemistry. He is an elected Fellow of the World Innovation Foundation (FIWF) since July 2004 and Fellow of the National Academy of Sciences (FNASc) since 2008.

vinodfcy@iitr.ernet.in