

## CURRICULUM VITAE



### **Dr. K. Suresh Kumar**

Assistant Professor  
Department of Applied Chemistry  
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### **Education**

Ph.D. (Analytical Chemistry) (2005), S. V. University, India  
M.Sc. (Chemistry of Natural Products) (2001), S. K. University, India  
B.Sc. (Botany, Zoology and Chemistry) (1999), S. V. University, India

### **Research Interests**

Suresh Kumar's research interests are in synthesis of nanomaterials and their applications for the analysis various molecules. His research focuses on characterization of functionalized nanomaterials by UV-visible, Fluorescence, FT-IR, Scanning electron microscopy (SEM) and Transmission electron microscopy (TEM), and their applications for the analysis of peptides, proteins, drugs by UV-visible, fluorescence spectrometry. His interest and specialization includes synthesis of functionalized nanomaterials and quantum dots as matrices and affinity probes for the analysis of proteins and enrichment of peptides in matrix-assisted laser desorption/ionization time of flight mass spectrometry (MALDI-TOF-MS), atmospheric pressure matrix-assisted laser desorption/ionization mass spectrometry (AP-MALDI-MS) and electrospray ionization mass spectrometry (ESI-MS). Nanoparticles-based liquid-liquid microextraction and single-drop microextraction techniques for the extraction of peptides, proteins and drugs and their rapid identification by MALDI-MS. Ultra-fast separation and detection of DNA, proteins, peptides and drugs by capillary electrophoresis and microchip electrophoresis.

### **Fellowships/Research Experience**

2010 – 2010 Visiting Scientist, Center for Nanoscience and Nanotechnology,  
Department of Chemistry, National Sun Yat-sen University, Taiwan

- 2009 – Present Assistant Professor, Department of Applied Chemistry, SVNIT, Surat – 395 007, India
- 2008 – 2009 Postdoctoral Fellow at Center for Nanoscience and Nanotechnology, Department of Chemistry, National Sun Yat-sen University, Taiwan.
- 2006 – 2007 Postdoctoral Fellow at Bioanalytical Chemistry Lab, Department of Chemistry, CBNU, South Korea.
- 2006 – 2006 Scientist (Analytical Division), Sami Labs Limited (MNC), India; Bulk drug analysis and Characterization of pure drugs using HPLC, LC-MS, IR & UV Spectrophotometry.

**Publications: International Journals: 21;**  
**Conferences/Seminars: International: 06;**

**National Journals: --**  
**National: 06**

### Selected Publications

1. Semiconductor cadmium sulphide nanoparticles as matrices for peptides and as co-matrices for the analysis of large proteins in MALDI reflectron and linear time-of-flight mass spectrometry, **K. Suresh Kumar**, Hui-Fen Wu, **Rapid Communication in Mass Spectrometry**, 25 (2), 271–280, **2011**. (IF: 2.695)
2. Single drop microextraction coupled with MALDI mass spectrometry for the rapid and direct analysis of hydrophobic peptides from biological samples at high salt condition, Hui-Fen Wu, **K. Suresh Kumar**, Chi-Hsien Lin, **Rapid Communications in Mass Spectrometry**, 25 (2), 307–315, **2011**. (IF: 2.695)
3. Surface modified silver selenide nanoparticles as extracting probes to improve peptide/protein detection via nanoparticles-based liquid phase microextraction coupled with MALDI mass spectrometry, **K. Suresh Kumar**, Hui-Fen Wu, **Talanta**, 83 (2), 527-534, **2010**. (IF: 3.290)
4. Surface-modified TiO<sub>2</sub> nanoparticles as affinity probes and as matrices for the rapid analysis of phosphopeptides and proteins in MALDI-TOF-MS, Yaotang Ke, **K. Suresh Kumar**, Hui-Fen Wu, M. Nawaz, **Journal of Separation Science**, 33 (21), 3400 - 3408, **2010**. (IF: 2.551)
5. High resolution detection of high mass proteins up to 80000 Da via multifunctional CdS quantum dots in laser desorption/ionization mass spectrometry, Y. Ke, **K. Suresh Kumar**, H. F. Wu, Z. Y. Chen, **Talanta**, 83 (1), 178-184, **2010**. (IF: 3.290)
6. Electrostatically self-assembled azides on zinc sulfide nanoparticles as multifunctional nanoprobe for peptide and protein analysis in MALDI-TOF MS, H.F. Wu, **K. Suresh Kumar** and L. Shastri, **Talanta**, 82, 540 – 547, **2010**. (IF: 3.290)
7. Nanoparticle-single drop microextraction as multifunctional and sensitive nanoprobe: Binary matrix approach for gold nanoparticles modified with (4-mercaptophenyliminomethyl)-2-methoxyphenol for peptide and protein analysis in

- MALDI-TOF MS, Lokesh Shastri, **K. Suresh Kumar** and Hui-Fen Wu, **Talanta**, 81, 1176 – 1182, **2010**. (IF: 3.290)
8. Interference free detection for small molecules: Probing the Mn<sup>2+</sup>-doped effect and cysteine capped effect on the ZnS nanoparticles for coccidiostats and peptide analysis in SALDI-TOF MS, **K. Suresh Kumar** and Hui-Fen Wu, **Analyst**, 135, 1115 – 1123, **2010**. (IF: 3.761)
  9. Multifunctional ZrO<sub>2</sub> nanoparticles and ZrO<sub>2</sub>-SiO<sub>2</sub> nanorods for improved MALDI-MS analysis of cyclodextrins, peptides, and phosphoproteins, **K. Suresh Kumar** and Hui-Fen Wu, **Anal. Bioanalytical Chemistry**, 396, 1115 – 1125, **2010**. (IF: 3.480)
  10. Microchip-based capillary electrophoresis for DNA analysis in modern biotechnology: A Review, **K. Suresh Kumar** and Seong Ho Kang, **Separation and Purification Reviews**, 38, 242–288, **2009**. (IF: 2.615)
  11. Quantum dots – electrospray ionization mass spectrometry: 3-mercaptopropanoic acid capped CdS quantum dots as accelerating and enrichment probes for microwave tryptic digestion of proteins, Kamlesh Shrivastava, **K. Suresh Kumar** and Hui-Fen Wu, **Rapid Commun. Mass Spectrom.** 23, 3603–3607, **2009**. (IF: 2.695)
  12. Cysteine-capped ZnSe quantum dots as affinity and accelerating probes for microwave enzymatic digestion of proteins via direct matrix-assisted laser desorption/ionization time-of-flight mass spectrometric analysis, Lokesh A. Shastri, **K. Suresh Kumar**, Hui-Fen Wu, **Rapid Commun. Mass Spectrom.** 23, 2247–2252, **2009**. (IF: 2.695)
  13. Quantum dots laser desorption/ionization mass spectrometry: multifunctional CdSe quantum dots as the matrix, concentrating probes and acceleration for microwave enzymatic digestion for peptide analysis and high resolution detection of proteins in a linear MALDI-TOF MS, Kamlesh Shrivastava, **K. Suresh Kumar** and Hui-Fen Wu, **Proteomics**, 9, 2656–2667, **2009**, (Selected as Featured cover page). (IF: 4.586)
  14. ZnS Nanoparticles Capped with Different Functional Groups as Selective Affinity Probes for Rapid Analysis of Cyclodextrins and Proteins by MALDI-TOF- Mass Spectrometry, **K. Suresh Kumar**, Kamatam Kiran, Hui-Fen Wu, **Analytical Chemistry**, 80, 9681 – 9688, **2008**. (IF: 5.712)
  15. Ultra-fast simultaneous detection of obesity-related coenzymes in mice using microchip electrophoresis with a LIF detector" Hee Gu Lee; **K. Suresh Kumar**, Ju-Ryoun Soh, Youn-Soo Cha, Seong Ho Kang, **Analytica Chimica Acta**, 619, 94 – 100, **2008**. (IF: 3.757)
  16. Facile and Sensitive Determination of Selenium (IV) in Pharmaceutical Formulations by Flow Injection Spectrophotometry, **K. Suresh Kumar**, S. Kanchi, S. H. Kang, **Journal of Pharmaceutical Sciences**, 95 (5), 1928 – 1933, **2008**. (IF: 2.690)
  17. Microchip gel electrophoresis with programmed field strength gradients for ultra-fast detection of canine T-cell lymphoma in dogs, **K. Suresh Kumar**, S. Lee, S. H. Kang, **Talanta**, 75 (1), 49 – 55, **2008**. (IF: 3.290)
  18. Ultra-fast Detection and Differentiation of *Mycoplasma Haemofelis* and

*Candidatus M. Haemominutum* in Korean Feral Cats by Microchip Electrophoresis with Programmed Field Strength Gradients" **K. Suresh Kumar**, Hee Gu Lee, Dong Jin Yoo, Seong Ho Kang, **Bull. Korean Chem. Soc.**, 29, 153-158, **2008**. (IF: 0.936)

19. Speciation Determination of Chromium (III) and (VI) using Preconcentration Cloud Point Extraction with Flame Atomic Absorption Spectrometry (FAAS), K. Kiran, **K. Suresh Kumar**, S. Kanchi, B. Prasad, K. Janardhannam, **Journal of Hazardous Materials**, 150, 582-586, **2008**. (IF: 2.975)
20. Facile and sensitive spectrophotometric determination of vanadium in various samples, **K. Suresh Kumar**, S.H. Kang, S. Kanchi and K. Kiran, **Environmental Toxicology and Pharmacology**, 24, 37 – 44, **2007**. (IF: 1.293)
21. Ultra-fast simultaneous analysis of GMOs in maize by microchip electrophoresis with laser-induced fluorescence detector, **K. Suresh Kumar**, S. H. Kang, **Electrophoresis**, 28 (22), 4247 – 4254, **2007**. (IF: 3.077)