

RESUME

Dr. SOM SHANKAR

E-mail: somshankarbhu@yahoo.co.in

Mob: +919885409389

OBJECTIVE

To obtain a challenging and responsible position in an organization that offers professional growth while being resourceful, innovative & flexible with advancement opportunities that will develop and actively utilize my acquired skills & abilities

ACADEMIC QUALIFICATIONS

- Bachelor's Degree in Science (**Physics, Mathematics, Chemistry**) from Banaras Hindu University, Varanasi, with 61% (**First class**) - 1994-1997
- Master's Degree in **Analytical Chemistry** from Banaras Hindu University, Varanasi, with 65% (**First class**)-1997-1999
- Ph.D in **Surface Chemistry** from Banaras Hindu University, Varanasi - 2000-2004

DOCTORAL WORKS BRIEF

Title of thesis: "**Removal behavior of some metal oxides for cesium, cerium and mercury ions - A radiotracer study**".

Abstract: As we approach forward in the new century, we seem to be reaching our goals for scientific and technological challenges; we are beginning to call worry about congenial environment to meet our needs in future. Wastewater treatment will become even more important in the future as the use of limited water increases tremendously and the volume of waste also increases. Proper processing of waste before disposal in water bodies produces a net increase in the total water supply by preventing pollution of water resources and by salvaging water for subsequent reuse. Wastewater treatment, in its turn, improves the health of humans and aquatic animals, and preserves the natural beauty and recreational values of lakes, streams and rivers.

The radiotracer technique has emerged out to be more sensitive than all other methods, and has been used in the study of adsorption over a wide range of adsorptive concentrations; it is also characterized by its simplicity, rapidity and wide applicability. Radiotracer is the trace amount of radioisotope, in the same chemical form of the element participating in the process, addition of which function and participates identically in every stage of the process; and can be detected/monitored more precisely through its radioactivity.

The research work was carried in the scenario of pollution control of the heavy metal toxic ions such as cesium, cerium and mercury ions. These ions were removed from aqueous solutions by the help of adsorption process. These ions were

adsorbed over various hydrous metal oxides such as hydrous ferric oxide, hydrous manganese oxide, hydrous stannic oxide and hydrous tungsten oxide. The uptake process was studied for different kind of parameters such as (a) effect of adsorbate concentrations, (b) effect of adsorbate solution temperature, (c) effect of pH, (d) effect of irradiation on the adsorbents and (e) effect of presence of diverse ions. These parameters were used to determine the kinetic and thermodynamic parameters of adsorption process. Also the stability of adsorbents was checked with the help of gamma and neutron irradiations. The uptake process was also studied in the presence of some diverse ions. The results indicated that the adsorption process was chemisorptive in nature, obeyed first order kinetics and followed Freundlich adsorption isotherm. The adsorption process was irreversible in nature and followed ion-exchange type mechanism. After irradiation with neutrons the adsorbents showed fairly good radiation stability. In the presence of diverse ions the uptake was diminished to various levels due to competitive adsorption.

Technical Skills

Surface Adsorption:

- Experience in surface adsorption phenomena on different types of solids, including inorganic as well as organic substrates.
- Used radiotracer technique for studying adsorption process and used instruments gamma energy spectrophotometer and beta counters (G.M. Counters).
- Worked for removal of different toxic heavy metal ions such as mercury, cesium and cerium by the help of hydrous metal oxides (hydrous ferric oxide, hydrous stannic oxide, hydrous manganese oxide and hydrous tungsten oxide).

Water Environment

- Water sampling techniques for surface, groundwater and marine sampling.
- Routine & Specified analytical methods for Water Quality parameters like - pH, Alkalinity, conductivity, Turbidity, Solids, Chloride, Hardness, Sulphates, Phosphates, Ammonia, Nitrite, Nitrate, DO, BOD, COD, TOC, Trace Elements, Heavy Metal Analysis.
- Data compilation, processing and its Interpretation.
- Preparation of inventory of water polluting sources and quantification of pollution load.
- Prediction and evaluation of the impacts.
- Delineation of water environment management plan

Air Environment

- Air sampling technique.
- Collection of suspended particulate matter and Respirable Suspended Particulate Matter

- Analysis of gaseous pollutant viz. oxides of nitrogen, oxides of sulphur, ammonia, Carbon Monoxide.
- Assessment of existing status of ambient air quality.
- Prediction of impacts on air environment due to proposed development

Land Environment

- Sampling Techniques & Analysis of soil samples (Soil parameters like - Sodium, Potassium, Phosphorous, Calcium, Magnesium, and Nitrogen).
- Quantification of pollution load.
- Knowledge in segregation & characterization of solid and hazardous waste, and Leachate studies, solid and hazardous waste minimization, handling, storage, collection and labeling techniques, transport and safety aspects.

Field of Specialization:

- HPLC, GC, Gamma-ray spectrophotometer

Area of interest

- Instrumentation, Pollution control

Computer literacy

- Operating Systems : MS-DOS, WIN 98, WIN-2000, WIN-XP
- Packages : MS-Office 97, Office-2000, Office-XP

Acquired Skills:

Research Skills: Ability to source, analyze and interpret data.

Project Management Skills: Ability to organize resources and to support the timely and effective completion of projects.

Facilitation Skills: Ability to assist delivery of high- level training and consultancy in workplaces and to facilitate events.

Strengths:

Communication Skills: Ability to communicate ideas and information effectively both orally and in writing.

Team Skills: Ability to work closely and effectively with colleagues, partners and clients from diverse backgrounds and disciplines.

Networking Skills: Potential to manage a range of competing demands and the ability to tackle a range of problems. Ability to work with minimum supervision, with a high level of **self - motivation**.

WORK EXPERIENCE:

- Worked as **Junior Research Fellow** in “Nuclear and Radio Chemistry Laboratory”, Banaras Hindu University, Varanasi, from September, 2000 to June 2004.
- At present working as **Assistant Professor** (Engineering Chemistry) since August 16th 2004, at College of Engineering, GITAM, Visakhapatnam.

PAPER PUBLISHED:

1. Ion-exchangers in radioactive waste management Part XIV: Removal behavior of hydrous titanium oxide and sodium titanate for Cs(I): *J. Radioanal. Nucl. Chem.* **261(2)**, (2004), 457-463.
2. Removal of mercury ions from aqueous solutions by composite of polyaniline with polystyrene: *Separation and Purification Technology*, **38**, (2004), 225-232.
3. Toxic waste removal from aqueous solutions by polyaniline: A Radiotracer Study: *Adsorption Science and Technology*, **22(6)**, (2004), 485-496.
4. Inorganic particulates in removal of heavy metal toxic ions IX: Rapid and efficient removal of Hg(II) by hydrous manganese and tin oxides: *J. Colloid and Interface Science*, **279**, (2004), 61-67.
5. Removal behavior of Babool bark (*Acacia Nilotica*) for submicro concentrations of Hg²⁺ from aqueous solutions: A Radiotracer study: *Separation and Purification Technology*, **41**, (2005), 21-28.

SEMINARS ATTENDED / PARTICIPATED

1. **Efficient Removal of Ce(III) from Aqueous Solutions by Hydrous Ferric Oxide and Tungsten Oxide.** The Emerging Trends in Separation Science and Technology **SESTEC-2004**, July 22-23, Mumbai (2004).
2. **The uptake behavior of hydrous manganese oxide and hydrous tin oxide for Cs(I) from aqueous solutions: A radiotracer study.** Proc. Symp. Indian Council of Chemists 2003, Institute of Technology, Oct. 17-19. Roorkee (2003).

3. **Efficient Removal of Cs(I) from Aqueous Solutions by Hydrous Ferric Oxide and Tungsten Oxide.** Proc. Symp. on Nucl. and Radiochem., Dec. 17-19 Kalpakkam (2003).
4. **Uptake Behavior for Hg(II) ions from Aqueous Solutions by Hydrous Metal Oxide Surfaces: A radiotracer Study.** Proc. Annual Convention of Chemist. Dec. 23-27, Bundelkhand University, Jhansi (2003).
5. **Inorganic Particulates in Removal of Heavy Toxic Metal Ions: Removal Behavior of Tungsten Oxide for Hg(II) ions from Aqueous Solutions-A radiotracer Study.** NUCAR-2003, 10-13 Feb. BARC, Mumbai, (2003).

ADDITIONAL QUALIFICATIONS

Summer School on Catalyst Characterization, and Reactor Design. Institute of Technology, Banaras Hindu University, Varanasi.

PERSONAL PROFILE:

Name : **Dr. SOM SHANKAR**
Father's Name : **Dr. PREM SHANKAR DUBE**
Date of Birth : 30th May 1973
Postal Communication : S.8/520,
Police Line,
Varanasi - 221 002,
Uttar Pradesh, INDIA.
Nationality : Indian
Gender : Male
Languages Known : English and Hindi

REFERENCES:

Prof.S.N. Upadhaya
Director,
IT BHU Varanasi,
IT-BHU,
Varanasi.
Ph.No. +919415372465

Prof. P.N. Tiwari
Professor,
Dept of Chemical Engineering,
BHU University,
Varanasi.
Ph. No. 0542-2500153.

Prof. V.K. Gupta
Professor,
Dept of Chemistry,
IIT Roorkee
Roorkee.
Ph. No. 0133-2285801

Given a chance to work in your Organization, I assure you that I will discharge my duties to the entire satisfaction of my superiors and management and I assure that the information given above is correct to the best of my knowledge.

Thanking you

Yours truly,

(Dr. SOM SHANKAR)
Assistant Professor,
Engineering Chemistry,
College of Engineering,
Gandhi Institute of Technology and Management,
Rishikonda,
Visakhapatnam-530045
INDIA