

## Profile of Dr. S. MEENAKSHI



### 1. Present Position

Professor of Chemistry

### 2. Address for Communication

#### Official Address

Department of Chemistry  
Gandhigram Rural Institute  
Gandhigram -624 302  
Dindigul District  
Tamilnadu, India  
Phone : +91-451-2452371  
E-mail: drs\_meena@rediffmail.com

#### Residence Address

ABINAVA, No 1, RMTTC Colony  
Near Chinnalapatti By Pass Road  
Gandhigram - 624 302  
Dindigul District  
Tamilnadu, India  
Phone: +91-451-2452096  
E-mail: drs\_meena@yahoo.co.in

### 3. Educational Qualifications

📖 M.Sc., PhD

### 4. Teaching and research experience

✍ Teaching -19 Yrs

✍ Research-21 Yrs

### 5. Research Interests

Safe Drinking Water - Water and Waste Water Treatment - Fluoride and Other Anions Removal - Heavy Metal Removal - Photocatalytic Removal of Dyes- Polymeric Resins - Biopolymers - Nanomaterials - Nanocomposites - Organic-inorganic Hybrid Materials - Ion Exchangers - Clay and Ceramics - Activated Carbons.

## 6. Research Guidance

### Ph.D

#### Guided: 6

Dr. A. Shanmuga Sundarraj (Scientist, UNICEF, Kolkata)  
Dr.C. Sairam Sundaram (Senior Lecturer, Karaikal Polytechnic College, Karaikal),  
Dr.N. Viswanathan (Assistant Professor, Anna University of Technology Madurai)  
Dr.G.N. Kousalya (Assistant Professor, GTN Arts College, Dindigul)  
Dr.George Sebastian (Senior Lecturer St. Berchmans College, Kerala)  
Dr.P. Ravichandaran (Sr. Quality Assurance Officer, Textiles Committee, Karur)

#### Guiding: 6

Mr.M. Rajiv Gandhi (Full-time) Senior Research Fellow-CSIR-SRF  
Mr.N. Sivasurian (Part-time) IOC, New Delhi  
Ms.A Sowmya (Full-time) UGC-JRF-Meritorious Fellow  
Mr.P. Sivakumar (Part-time) IGCAR-Kalpakkam  
Mrs.M. Hasmath Farzana (Full-time) UGC-MRP- Project Fellow  
Mr.R. Karthik (Full-time) DST-Inspire Fellow

## 7. Research Projects undertaken

### Completed: 3

S. No	Title of the Project	Funding Agency	Amount (Rs)	Period	Status
1	Synthesis and Characterization of Polymeric Compounds and their Defluoridation Studies	UGC -Major Research Project	9.2 Lakhs	2005 to 2007	Completed
2	Assessment of Loss of Ecology and Environment due to Tannery Effluents in and around Dindigul District	Authorities of Loss of Ecology, Govt. of India	3.0 Lakhs	1999 to 2001	Completed
3	Defluoridation of water using burnt clay	UGC-Minor Research Project	0.12 Lakhs	2000	Completed

### Ongoing: 3

S. No	Title of the Project	Funding Agency	Amount (Rs)	Period	Status
1	Development of Eco-friendly and Cost effective Biosorption and Photodegradation Methods for the Reversal of Textile Effluents	UGC- Major Research Project	6.668 Lakhs	2010 to 2013	Ongoing
2	Feasibility Studies of a Few Developed and Experimental Defluoridation Technologies in Selected Fluorotic Villages of Dindigul District in Tamilnadu	DST-WTI Major Research Project	27.6 Lakhs	2009 to 2012	Ongoing
3	Synthesis and Characterization of Polymeric Resins and Nanocomposites for the Removal of Heavy Metal Ions from Water and Development of Viable Technology	DRDO – Extramural Research - Major Research Project	14.8 Lakhs	2008 to 2011	Ongoing

### 8. Laboratory details

❖ A water lab has been established with necessary equipments utilizing the funds mobilized from the projects

❖ Expandable Ion Analyzer EA 940 with Fluoride Ion Selective Electrode

BN 9609 - UGC-MRP

❖ Brookfield Dial Reading Viscometer using Electronic drive-RVT model-

UGC-MRP

❖ Ion Chromatography System-DST-WTI-MRP

❖ Voltammetric Trace Analysis System- DST-WTI-MRP

- ❖ UV-Vis Spectrophotometer PHARO 300 Merck- DRDO-ER-MRP
- ❖ Photo Reactor-UGC-MRP
- ❖ Ball Mill-DRDO-ER-MRP
- ❖ Temperature controlled water bath-2- UGC-MRP
- ❖ Temperature controlled oven- UGC-MRP
- ❖ Room temperature shaker-2
- ❖ Conductivity meter, pH meter, RO water system and 2D distill water equipment.

## 9. List of Publications

**Total citation index: 198      Science Citation Index Journal: 28      h- index: 14**

42. Sorption of Fe(III) using modified forms of chitosan beads  
M. Rajiv Gandhi, G.N. Kousalya and S. Meenakshi  
Journal of Applied Polymer Science. (2011) Accepted. (Impact Factor: 1.240)
41. Removal of reactive red 2 and acid blue 158 onto chitin/chitosan  
G. Kalaivani, A. Sowmya and S.Meenakshi  
Indian Journal of Environmental Protection, 31 (2011) 292-300.
40. Sorption behaviour of copper on chemically modified chitosan beads from aqueous solution  
M. Rajiv Gandhi, G.N. Kousalya, N. Viswanathan and S. Meenakshi  
Carbohydrate Polymers, 83 (2011) 1082-1087. (Impact Factor 3.463)
39. Removal of copper(II) using chitin/chitosan nano-hydroxyapatite composite  
M. Rajiv Gandhi, G.N. Kousalya and S. Meenakshi  
International Journal of Biological Macromolecules, 48 (2011) 119-124.  
(Impact Factor 2.502)
38. Sorption of chromate and fluoride onto Duolite A 171 Anion exchange resin - A comparative study  
M. Rajiv Gandhi, G. Kalaivani and S. Meenakshi  
Elixir Pollution, 32 (2011) 2034-2040.

37. Preparation and application of alumina/chitosan biocomposite  
M. Rajiv Gandhi, N. Viswanathan and **S. Meenakshi**  
International Journal of Biological Macromolecules, 47 (2010) 146-154.  
(Impact Factor 2.502)
36. Adsorption mechanism of hexavalent chromium removal using Amberlite IRA 743 resin  
M. Rajiv Gandhi, N. Viswanathan and **S. Meenakshi**  
Ion Exchange Letters, 3 (2010) 25-35.
35. Synthesis of nano hydroxyapatite chitin/chitosan hybrid biocomposites for the removal of Fe(III)  
G.N. Kousalya, M. Rajiv Gandhi, C.Sairam Sundaram and **S. Meenakshi**  
Carbohydrate Polymers, 82 (2010) 594-599. (Impact Factor 3.463)
34. Sorption of chromium(VI) using modified forms of chitosan beads  
G.N. Kousalya, M. Rajiv Gandhi and **S. Meenakshi**  
International Journal of Biological Macromolecules, 47 (2010) 308-315.  
(Impact Factor 2.502)
33. Preparation and metal uptake studies of modified forms of chitin  
G. N. Kousalya, M. Rajiv Gandhi, N. Viswanathan and **S. Meenakshi**  
International Journal of Biological Macromolecules, 47 (2010) 583-589.  
(Impact Factor 2.502)
32. Removal of toxic Cr(VI) ions from aqueous solution using nano-hydroxyapatite based chitin and chitosan hybrid composites  
G.N. Kousalya, M. Rajiv Gandhi and **S. Meenakshi**  
Adsorption Science and Technology, 28 (2010) 49-64. (Impact Factor 0.559)
31. Preparation of modified chitin for the removal of chromium(VI)  
G.N. Kousalya, M. Rajiv Gandhi and **S. Meenakshi**  
Bioremediation Journal, 14 (2010) 203-213.
30. Adsorption of Acid Blue 158 onto Activated Carbons Prepared from industrial wastes  
P. Ravichadran, G. Kalavani and **S. Meenakshi**  
Indian Journal of Environmental Protection, 30 (2010) 705-718.
29. Development of chitosan supported zirconium(IV) tungstophosphate composite for fluoride removal  
N. Viswanathan and **S. Meenakshi**  
Journal of Hazardous Materials, 172 (2010) 459-465. (Impact Factor 3.723)
28. Enriched fluoride sorption using alumina/chitosan composite  
N. Viswanathan and **S. Meenakshi**  
Journal of Hazardous Materials, 178 (2010) 226-232. (Impact Factor 3.723)

27. Selective fluoride adsorption by a hydrotalcite/chitosan composite  
N. Viswanathan and **S. Meenakshi**  
Applied Clay Science, 48 (2010) 607-611. (Impact Factor 2.303)
26. Removal of fluoride from aqueous solution using protonated chitosan beads  
N. Viswanathan, C. Sairam Sundaram and **S. Meenakshi**  
Journal of Hazardous Materials, 161 (2009) 443-450. (Impact Factor 3.723)
25. Role of metal ion incorporation in ion exchange resin in the selectivity of fluoride  
N. Viswanathan and **S. Meenakshi**  
Journal of Hazardous Materials, 162 (2009) 920-930. (Impact Factor 3.723)
24. Defluoridation of water using magnesia/chitosan composite  
C. Sairam Sundaram, N. Viswanathan and **S. Meenakshi**  
Journal of Hazardous Materials, 163 (2009) 618-624. (Impact Factor 3.723)
23. Sorption behaviour of fluoride on carboxylated crosslinked chitosan beads  
N. Viswanathan, C. Sairam Sundaram and **S. Meenakshi**  
Colloids and Surfaces B: Biointerfaces, 68 (2009) 48-54. (Impact Factor 2.780)
22. Development of multifunctional chitosan beads for fluoride removal  
N. Viswanathan, C. Sairam Sundaram and **S. Meenakshi**  
Journal of Hazardous Materials, 167 (2009) 325-331. (Impact Factor 3.723)
21. Fluoride sorption using organic-inorganic hybrid type ion exchangers  
C. Sairam Sundaram and **S. Meenakshi**  
Journal of Colloid and Interface Science, 333 (2009) 58-62.  
(Impact Factor 3.066)
20. Enhanced and selective fluoride sorption on Ce (III) encapsulated chitosan polymeric matrix  
N. Viswanathan and **S. Meenakshi**  
Journal of Applied Polymer Science, 112 (2009) 1114-1121.  
(Impact Factor 1.240)
19. Synthesis of Zr(IV) entrapped chitosan polymeric matrix for selective fluoride sorption  
N. Viswanathan and **S. Meenakshi**  
Colloids and Surfaces B: Biointerfaces, 72 (2009) 88-93. (Impact Factor 2.780)
18. Fluoride sorption using nano-hydroxyapatite/chitin composite  
C. Sairam Sundaram, N. Viswanathan and **S. Meenakshi**  
Journal of Hazardous Materials, 172 (2009) 147-151. (Impact Factor 3.723)

17. Defluoridation of drinking water using pink kaolin  
C. Sairam Sundaram, Rugmini Sukumar and **S. Meenakshi**  
Indian Journal of Environmental Protection, 29 (2009) 385-391.
16. Enhanced fluoride sorption by mechanochemically activated kaolinites  
**S. Meenakshi**, C. Sairam Sundaram and Rugmini Sukumar  
Journal of Hazardous Materials, 153 (2008) 164-172. (Impact Factor 3.723)
15. Enhanced fluoride sorption using La(III) incorporated carboxylated chitosan beads  
N. Viswanathan and **S. Meenakshi**  
Journal of Colloid and Interface Science, 322 (2008) 375-383.  
(Impact Factor 3.066)
14. Selective sorption of fluoride using Fe (III) loaded carboxylated chitosan beads  
N. Viswanathan and **S. Meenakshi**  
Journal of Fluorine Chemistry, 129 (2008) 503-509. (Impact Factor 1.719)
13. Defluoridation chemistry of synthetic hydroxyapatite at nano scale: Equilibrium and kinetics studies  
C. Sairam Sundaram, N. Viswanathan and **S. Meenakshi**  
Journal of Hazardous Materials, 155 (2008) 206-215. (Impact Factor 3.723)
12. Uptake of fluoride by nano-hydroxyapatite/chitosan, a bioinorganic composite  
C. Sairam Sundaram, N. Viswanathan and **S. Meenakshi**  
Bioresource Technology, 99 (2008) 8226-8230. (Impact Factor 4.365)
11. Effect of metal ion loaded in a resin towards fluoride retention  
N. Viswanathan and **S. Meenakshi**  
Journal of Fluorine Chemistry, 129 (2008) 645-653. (Impact Factor 1.719)
10. Impact of dyeing effluents on Ground water quality and its suitability for irrigation  
N. Viswanathan and **S. Meenakshi**  
Indian Journal of Environmental Protection, 28 (2008) 617-624.
9. Characteristics of dairy effluents and its suitability for irrigation  
M. Seethalakshmi and **S. Meenakshi**  
Indian Journal of Environmental Protection, 28 (2008) 348-354.
8. Identification of selective ion exchange resin for fluoride sorption.  
**S. Meenakshi** and N. Viswanathan  
Journal of Colloid and Interface Science, 308 (2007) 438-450.  
(Impact Factor 3.066)

7. Influence of soil characteristics on the leaching of fluoride from soils in selected fluoride environments of Tamilnadu in South India  
G. Karthikeyan, S. Meenakshi and T.G. Satheesh Babu  
Pollution Research, 26 (2007) 503-506.
6. Water defluoridation using indigenous plant materials  
G. Karthikeyan, S. Meenakshi and C. Sairam Sundaram  
Indian Journal of Environmental Protection, 26 (2006) 25-29.
5. Adsorption dynamics and the effect of temperature of fluoride at alumina-solution interface  
G. Karthikeyan, A. Shanmuga Sundarraj, S. Meenakshi and K.P. Elango  
Journal of Indian Chemical Society, 81 (2004) 461-466. (Impact Factor 0.301)
4. Ground Water Pollution Due to Tannery Effluents in Certain Areas of Dindigul Town of Tamilnadu  
B.V. Appa Rao, V.Gopal, G.Karthikeyan, Anitha Pius and S. Meenakshi  
Indian Journal of Environmental Protection, 11 (1991) 568-571.
3. The pH dependent of efficiency of activated alumina in defluoridation of water  
S.Meenakshi, P. Anitha Pius, G.Karthikeyan and B.V.Apparao  
Indian Journal of Environmental Protection, 7 (1991) 511-513.
2. Monitoring and control of environmental pollution due to effluent from tanneries located in Dindigul  
G.Karthikeyan, S. Meenakshi and B.V.Appo Rao  
Journal of Industrial Pollution Control, 6 (1990) 1-10.
1. Nalgonda technique of defluoridation of water  
G.Karthikeyan, S. Meenakshi and B.V.Appa Rao  
Indian Journal of Environmental Protection, 10 (1990) 292-298.

## 10. Recognition (International/National)

- ❖ Awarded : *Most cited article in 2008-2009*, Journal of Colloid and Interface Science for the paper entitled “Enhanced fluoride sorption using La(III) incorporated carboxylated chitosan beads N. Viswanathan and S. Meenakshi Journal of Colloid and Interface Science, 322 (2008) 375-383” by *Physical and Theoretical Chemistry, Elsevier, Amsterdam, The Netherlands*.

## 11. Invited lecture derived

1. Applications of chitin/ chitosan derivatives for water treatment

**S.Meenakshi**

Invited lecture delivered in Ist Indian Chitin and Chitosan Symposium (1<sup>st</sup>-ICCS-2010) organized by Indian Chitin and Chitosan Society (ICCS) & Marine Marshall Products, Erode at Coimbatore, India.

## 12. Number of conference/symposium attended / paper presented: 28

## 13. Conferences Organized

S. No	Title of the conference	Year	Duration	Number of participants
1	International Conference on “The Challenges and Strategies for the Sustainability of Safe Drinking Water” (Convener)	25-27, October 2006	3 days	100
2	National seminar on water quality surveillance and sustainable issues held at Gandhigram Rural Institute during 10-13 <sup>th</sup> December 1997 (Co-convener)	10-13, December 1997	3 days	100

## 14 . Serving as a Reviewer for

- ✍ American Chemical Society Journals
- ✍ Elsevier Journals
- ✍ Springer Journals
- ✍ Taylor and Francis Journals
- ✍ Wiley Inter-science Journals
- ✍ National Journals

## **15. Membership in Scientific Bodies/Association**

- ❖ Member, Executive board member in Indian Chitin and Chitosan Society, India from 2010
- ❖ Life time member in Indian Journal of Environmental Protection

## **16. Membership in various bodies of GRI**

- ❖ Member, Senate, Gandhigram Rural Institute, Gandhigarm
- ❖ Member, Discipline committee, Gandhigram Rural Institute, Gandhigarm
- ❖ Member, Committee related to Harassment of Women, Gandhigram Rural Institute, Gandhigarm
- ❖ Member, Security Management committee, Gandhigram Rural Institute, Gandhigarm

## **17. Foreign Countries Visited**

- ❖ Served as resource person in chemistry for conducting a teacher training programme for the benefit of Indian origin Tamil plantation teachers in Hatton, Srilanka during 21.08.2007 to 31.08.2007, organized by Govt. of India.

## **18. Administrative Experience**

- ❖ Serving as Lady Warden from 15.09.2009 to till date.

Updated August 2011