

Curriculum vitae:

**Dr. S. MURALEEDHARAN NAIR**

1.	Full name	S. MURALEEDHARAN NAIR	
2.	Nationality	Indian	
3.	Designation and Address for communication	<p>Professor</p> <p>Department of Chemical Oceanography</p> <p>School of Marine Sciences</p> <p>Cochin University of Science &amp; Technology (CUSAT)</p> <p>Kochi – 682 016</p> <p>Email: <a href="mailto:muralis@cusat.ac.in">muralis@cusat.ac.in</a> ; <a href="mailto:unimurali@yahoo.com">unimurali@yahoo.com</a></p> <p>Phone : 91 484 2863402 ; 91 484 2345357</p>	
4.	Educational Qualification	M.Sc. Chemistry	Calicut University
		Ph. D. (CSIR-NET fellowship)	Cochin University of Science and Technology
5.	Professional Experience	Professor, CUSAT	2009 onwards
		Associate Professor, CUSAT	2006 - 2009
		Reader, CUSAT	2001 - 2006
		Senior Lecturer, CUSAT	1997 - 2001
		Lecturer, CUSAT (Commonwealth Academic Fellow, UK)	1992-1997 (1996 – 1997)
		Quality Control Officer (Spices), Tata Tea ltd, Kochi	1990-1992
6.	Academic visits (abroad)	Quebec, Canada (1988) - International symposium on “Fate and effect of toxic chemicals in large rivers and their estuaries”	
		Southampton Oceanographic Centre, UK (1996-1997) - As a commonwealth academic staff fellow for one year.	
		Moscow, Russia (1997) - International Congress on Analytical Chemistry	
		Sultan Qaboos University. Oman (1998) – Chemistry Department	

7.	Research Guidance  PDF	Ph. D.	Awarded : 10 + 2 (under adjudication) On-going : 7 <i>(Annexure - 1)</i>
		M. Phil.	Awarded : 36 On-going : 4
		PDF	Completed : 1
			On-going : 2
8.	Fields of research interest	<ul style="list-style-type: none"> <li>• Chemical oceanography</li> <li>• Marine natural products</li> <li>• Pollution and toxicological studies</li> <li>• Chemical studies in mudbanks</li> <li>• Phytochemistry</li> </ul> <i>(Annexure - 2)</i>	
9.	Reviewer	National / International Journals <i>(Annexure - 3)</i>	
10.	Membership in academic bodies	<ul style="list-style-type: none"> <li>• Member, Board of Studies in Chemical Oceanography, CUSAT</li> <li>• Member, Board of Studies in Oceanography, CUSAT</li> <li>• Member, Academic Council, CUSAT</li> <li>• Member, Academic Committee of Inter University Center for the Development of Marine Biotechnology (IUCDMB), CUSAT.</li> </ul>	
11.	Number of research publications	Books : 1 Journals : 71 Seminar/symposia : 41 <i>(Annexure - 4)</i>	

*Annexure 1*

**a. Ph.D. awarded/under adjudication**

No	Name	Title	Awarding date
1.	P. Unnikrishnan	Phase transitions of trace metals in the aquatic environment of Kuttanad, Kerala	September 2001
2.	V. Babu	Dynamics of pesticides in the backwaters of Kuttanad	March 2002
3.	N.S. Kalesh	Phycochemical distinctiveness of selected marine macrophytes of Kerala coast	December 2004
4.	C.M. Laluraj	Geochemistry of non-transition, transition and rare earth elements in the surficial sediments of the continental shelf of Kerala and an annex to Cochin estuarine system	October 2009
5.	P. Padma	Nutrient mobility in Chalakudy River typified with riparian buffer zone and its adjoining estuary: spatio temporal manifestation.	July 2009
6.	S. Suryakumari	Seasonal ramification in the biochemical composition of organic matter in Chalakudy River-estuary.	December 2010
7.	P. Shaiju	Ecological interpretation of trace metal contents and contaminant source characterization of sediments of Cochin backwaters	May 2014
8.	Prashob Peter K.J.	Modulation of hydrophobic partitioning affinity of humic acid from mudbank sediments and its potential applications	November 2014
9.	Abhilash P. Kailas	Characterization and quantification of major biochemical components and secondary metabolites of some green and red seaweeds from the Kerala coast	June 2016
10.	Yamuna S. Nair	Spectral investigations and crystal structures of some transition metal complexes of aroylhydrazones	July 2016
11.	K.S. Sanilkumar	Characterization, sources and potential risk assessment of aliphatic hydrocarbons and polycyclic aromatic hydrocarbons in surface sediments of Chitrapuzha river on south west coast of India”	Under adjudication
12.	V. Anuradha	Chemical investigations of the marine sponge <i>Axinella carteri</i> from Lakshadweep Archipelago	Under adjudication

**a. Ph.D. – on going**

No	Name	Topic
1.	Saritha S.	Chemical characterization of biopolymers from marine environment
2.	Leena P.P.	Study of marine organic compounds
3.	Ragi A.S.	Chemistry of aquatic natural products
4.	Movithah M.	Chemical studies on marine remineralization
5.	Sudheesh V. (as a co-guide)	Biogeochemical studies in estuarine and coastal waters of Kochi, southwest coast of India.
6.	Manu Mohan	Chemical speciation studies of trace metals in ionic and nonionic media.
7.	Shameem K	Molecular modeling and docking studies using marine natural products

## *Annexure 2*

### **PROFILE OF RESEARCH CONCERNS / INTERESTS**

- ▶ Distribution and dynamics of trace metals, nutrients and biogeoorganics in marine and estuarine environment
  - Spatial and temporal variations
  - Speciation and fractionation studies
  - Phase exchange studies
  
- ▶ Chemical features of mud banks – a unique seasonal phenomena occurring along the west coast of India during south-west monsoon season
  - Chemo nutrient cycling
  - Sediment water interactions and fractionation studies of nutrients
  - Geochemical variability
  - Characterization of marine humic materials
  
- ▶ Marine and estuarine pollution studies - trace metals/ pesticides
  - Chemotoxicity studies - LC<sub>50</sub> tests
  - Biochemical responses of sedentary organisms (e.g. clams)
  - Estuarine dynamics and fluxes of trace metals and pesticides (persistent and non-persistent)

- ▶ Phycochemistry
  - Species/regional/seasonal variability of biochemical constituents (e.g. polysaccharides, amino acids, vitamins, polyphenolic compounds, fatty acids etc ) in marine algae
  - Isolation and characterization of secondary metabolites from marine sources
  
- ▶ Biogeochemical facsimile of coral islands of Lakshadweep archipelago
  - Trace metal/nutrients/biochemical studies
  - Studies of bioactive compounds
  - Coral silicate/carbonate mineralogical studies
  
- ▶ Bioactive compounds/biomaterials from the marine environment
  - Co-faculty member in the newly established inter-university centre for marine biotechnology
  - supramolecular /nano-material studies of marine materials
  - isolation, characterization and structural elucidation of marine bioactive compounds / marine pheromones and cues

### *Annexure 3*

- Mini-Reviews in Organic Chemistry
- Plasmonics
- The Journal of Environmental Science and Health, Part A
- Nano Biomedicine and Engineering
- Chinese Journal of Oceanology and Limnology
- Environmental Monitoring and Assessment
- Journal of Ecosystems
- Journal of Nanoparticle Research (NANO)
- Sky Journal of Journal of Soil Sciences and Environmental Management (SJSSEM)
- Journal of Environmental Chemistry and Ecotoxicology
- Advances in Oceanography and Limnology
- Journal of Geography and Regional Planning
- International Journal of Environmental Research
- African Journal of Biotechnology
- Journal of Oceanography and Marine Science

## *Annexure 4*

### **LIST OF PUBLICATIONS**

#### **BOOK**

Geochemical stability of marine sediments along the southwest coast of India: Prior and after Great Tsunami 2004. **Laluraj C.M., Nair S.M & Balachandran K.K.** (Editors). VDM Verlag Dr. Muller GmbH & Co. KG Publications. Germany. 2011.

#### **JOURNALS**

1. **Manju Mary Joseph, K. R. Renjith, Gaby John, S. M. Nair and N.C.kumar. 2016.** Biodiesel prospective of five diatom strains using growth parameters and fatty acid profiles. **Biofuels.** <http://dx.doi.org/10.1080/17597269.2016.1204585>.
2. **Abhilash P. Kailas and Nair S. M. 2016.** HPLC profiling of antimicrobial and antioxidant phyco sugars isolated from the South West coast of India. **Carbohydrate Polymers.**151: 584–592.
3. **Rejomon George, Martin G.D., Nair S.M., Shaji P. Thomas and Sini Jacob. 2016.** Geochemical assessment of trace metal pollution in sediments of the Cochin backwaters. **Environmental Forensics.** 17 (2): 156–171.
4. **Sanil Kumar K.S., Nair S. M., Salas P.M., Prashob Peter K.J. and Ratheesh Kumar C.S. 2016.** Aliphatic and polycyclic aromatic hydrocarbon contamination in surface sediment of the Chitrapuzha River, South West India. **Chemistry and Ecology.** 32(2): 117-135.
5. **Ragi A. S., Leena P. P. and Nair S. M. 2016.** Study of lipids and amino acid composition of marine gastropod, *Tibia curta* collected from the southwest coast of india. **World Journal of Pharmacy and Pharmaceutical Sciences.** 5(3): 1058-1076.
6. **Abhilash P. Kailas and Nair S. M. 2015.** Saponins and the in vitro bioactivities of different solvent extracts of some tropical green and red seaweeds. **Journal of Coastal Life Medicine.** 3(12): 931-943.
7. **Abhilash P. Kailas and Nair S. M. 2015.** Comparison of nutrient compositions and calorific values of eight tropical seaweeds. **Phykos.** 45 (1): 62-74.
8. **Sanil Kumar K.S. and Nair S.M. 2015.** Predominance and sources of alkane and fatty acid biomarkers in the surface sediments of Chitrapuzha River (South India). **Bulletin of Environmental Contamination and Toxicology.** 94(3): 496–502.
9. **Byju K., Anuradha V., Emilda Rosmine, Hari Sankar H.S., Anu Gopinath, Prashob Peter K.J., Gireesh Kumar T.R., Vasundhara G., Kumar N.C. and Nair S.M. 2015.** DPPH scavenging property of active principles from soft coral *Sarcophyton flexuosum* tixier-durivault. **Pharmaceutical Chemistry Journal.** 49: 178-182.

10. Anuradha V., Byju K., Kala Jacob, Anu Gopinath, Prashob Peter K.V., Gireesh Kumar, Vasundhara G. Emilda Rosmine, Harishankar H.S., Kumar N.C. and Nair S.M. 2015. Evaluation of biochemical and nutritional potential of seaweeds from Lakshadweep archipelago. **Journal of Aquatic Food Product Technology**. DOI: 24(7): 639-647.
11. Suryakumari S., Saritha, S., Padma P., Sheela V.S., Anu Gopinath, Jayalakshmy K.V., Kumar N.C. and Nair S. M. 2015. Chemometric assessment of water quality of a river using a major biochemical constituent. **Journal of River Basin Management**. 13(2): 229-241.
12. Prashob Peter K. J., Manu N., Jacob Chacko and Nair S. M. 2014. Synthesis of silver nanoparticles and of self assembled supramolecules from marine humic acid. **Journal of Experimental Nanoscience**. 9(7): 719-727.
13. Yamuna Nair, Sithambaresan M., Nair S.M. and Prathapachandra Kurup M. R. 2014. N -[(E )-(3-Fluoropyridin-2-yl)methylidene]pyridine-3-carbohydrazide dihydrate. **Acta Crystallographica Section E**. E70, o483–o484.
14. Padma P., Sheela V.S., Suryakumari S., Jayalakshmy K.V., Nair S. M. and Kumar N.C. 2014. Assessment of water quality of a river-dominated estuary with hydrochemical parameters: A statistical approach. **Water Quality, Exposure and Health**. 5: 197–214
15. Prashob Peter K. J. and Nair S. M. 2014. Genesis of structural features of humic acids from the sediments of a high productive coastal zone. **Geochemical Journal**. 48: 247-258.
16. Byju K., Anuradha V., Vasundhara G., Nair S.M. and Kumar N.C. 2014. *In Vitro* and *In Silico* Studies on the Anticancer and Apoptosis-Inducing Activities of the Sterols Identified from the Soft Coral, *Subergorgia reticulata*. **Pharmacognosy Magazine**. 10: S65-71.
17. Anuradha V., Vineetha P.V., Amrutha Manoj, Stephy P.S., Byju K., Shameem K., Vasundhara G., Kumar N.C. and Nair S.M. 2013. Sterol composition of the Indian green lipped mussel *Perna viridis*. **Mapana Journal of Science**. 12(2): 41-48.
18. Byju K., Vasundhara G., Anuradha V., Nair S. M. and N C Kumar. 2013. Presence of Phytol, a Precursor of Vitamin E in *Chaetomorpha antinnin*. **Mapana Journal of Science**. 12(2): 57-65.
19. Rejomon George, Martin G.D., Nair S.M. and Kumar N.C. 2013. Biomonitoring of trace metal pollution using the bivalve molluscs, *Villorita cyprinoides*, from the Cochin backwaters. **Environmental Monitoring and Assessment**. 185:10317–10331.
20. Saritha S., Nair S.M. and Kumar N.C. 2013. nano-ordered cellulose containing  $\alpha$  crystalline domains derived from the algae *Chaetomorpha antennina*. **BioNanoScience**. 3:423–427. .
21. Rejomon George, Muraleedharan K.R., Martin G.D., Sabu P, Vijay John Gerson, Dineshkumar P.K., Nair S.M., Kumar N.C. and Nair K.K.C. 2013. Nutrient biogeochemistry of the eastern Arabian Sea during the southwest monsoon retreat. **Environmental Earth Sciences**. 68:703–718
22. Nair, S.M., Balchand A.N., Prashob Peter K.V. and Shaiju P. 2013. Mobilization of trace metals in a tropical turbid estuary influenced by a monsoon season. **Environmental Earth Sciences**. 70:807–819.
23. Nair, S.M., Balchand A.N., Prashob Peter K.V. and Anu Gopinath. 2013. Phenomenal changes in the forms of nitrogen: results from a coastal zone of south west India. **Chemical Speciation and Bioavailability**. 25: 89-96.

24. Anuradha V., Byju K., Emilda Rosmine, Anu Gopinath, Nair S.M., Kumar N.C. Prashob Peter K.V., Gireesh Kumar, Vasundhara G. 2013. In silico biological activity of steroids from the marine sponge *Axinella carteri*. **Medicinal Chemistry Research**. 22:1142–1146.
25. Byju K., Anuradha V., Emilda Rosmine, Nair S.M. and Kumar N.C. 2013. Chemical characterization of the lipophilic extract of *Hydrilla verticillata*: a widely spread aquatic weed. **Journal of Plant Biochemistry and Biotechnology**. 22:304–311.
26. Martin G.D., Rejomon George, Shaiju P., Muraleedharan K. R., Nair S.M. and Kumar N.C. 2012. Toxic metals enrichment in the surficial sediments of a eutrophic Tropical Estuary (Cochin Backwaters, Southwest Coast of India). **The Scientific World Journal**. Article ID 972839, 17 pages. Doi:10.1100/2012/972839.
27. Rejomon George, Martin G.D., Nair S.M. and Kumar N.C. 2012. Biomonitoring of trace metal pollution using fishes from the Cochin backwaters. **Environmental Forensics**, 13:272–283, 2012.
28. Anuradha V., Nair S.M. and Kumar N.C. 2011. Humic acids from the sediments of three ecologically different estuarine systems- a comparison, **International Journal of Environmental Sciences**, 2: 174-184.
29. Rejomon G., Shih-Chieh Hsu, Nair S.M., Martin G.D. and Nair K.K.C. 2011. Trace metal dynamics in marine shrimps from the southwest coast of India. **Environmental Forensics**. 12: 162–172.
30. Anu Gopinath, Nair S.M., Kumar N.C. and Jayalakshmi K.V. 2011. Statistical significance of bio-monitoring of marine algae for trace metal levels in a coral environment. **Environmental Forensics**. 12: 98–105.
31. Babu V., Unnikrishnan P., Anu Gopinath and Nair S.M. 2011. Distribution of organophosphorus pesticides in the bed sediments of a backwater system located in an agricultural watershed: influence of seasonal intrusion of seawater. **Archives of Environmental Contamination and Toxicology**. 60: 597-609.
32. Padma P. and Nair S.M. 2010. Assessing the P fractionation in a tropical river-estuarine system of South India. **Chemistry and Ecology**. 26: 453-466.
33. Anu Gopinath., Nair S.M., Kumar N.C., Jayalakshmi K.V. and Padmalal D. 2010. A baseline study of trace metals in a coral reef sedimentary environment, Lakshadweep Archipelago. **Environmental Earth Sciences**. 59: 1245–1266
34. Anu Gopinath and Nair S.M. 2008. Allometric variability of heavy metals in corals of Lakshadweep islands. **Toxicological and Environmental Chemistry**. 90: 1135-1144.
35. Anu Gopinath, Kumar N.C., Padmalal D. and Nair S.M. 2008. Distributional characterizes in fractionation of phosphorus in a coral reef sedimentary environment. **Chemical Speciation and Bioavailability**. 20:149-159.
36. Anu Gopinath., Kumar N.C., Jayalakshmi K.V. and Nair S.M. 2007. Monitoring of heavy metal partitioning in reef corals of Lakshadweep Archipelago, Indian Ocean. **Environmental Monitoring and Assessment**. 128; 195-208.
37. Unnikrishnan P., Babu V., Anu Gopinath and Nair S.M. 2006. The impact of salinity barrier on the partitioning of heavy metals in a tropical backwater. **Chemical Speciation and Bioavailability**. 18; 153-162.
38. Unnikrishnan P., Babu V., Kumar N.C., Nair S.M. and Anu Gopinath 2006. A flow reactor facsimile to the trace metal partitioning in a tropical backwater system. **Environmental Forensics**. 7: 189-196.



39. **Lalu Raj and Nair S.M. 2006.** Geochemical index of trace metals in the surficial sediments from the western continental shelf of India, Arabian Sea. **Environmental Geochemistry and Health.** 28: 509-518.
40. **Kalesh N.S. and Nair S.M. 2006.** Spatial and temporal variability of copper, zinc and cobalt in marine macroalgae from the southwest coast of India. **Bulletin of Environmental Contamination and Toxicology.** 76:293-300.
41. **Anu Gopinath, Sindhu R. and Nair S.M. 2006.** Variability of dissolved reactive phosphate and apparent oxygen utilization along the west coast of India. **Chemistry and Ecology.** 22: 113-123.
42. **Kalesh N.S. and Nair S.M. 2005.** The accumulation levels of heavy metals (Ni, Cr, Sr & Ag) in marine algae from southwest coast of India. **Toxicological and Environmental Chemistry.** 76: 293-300.
43. **Anu Gopinath, Kumar N.C., Jayalakshmi K.V., Padmalal D. and Nair S.M. 2005.** A predictive regression model for the geochemical variability of iron and manganese in a coral reef ecosystem. **Environmental Forensics.** 6:301-310.
44. **Babu V., Unnikrishnan P, Anu Gopinath and Nair S.M.. 2004.** Synergetic effects of saline water intrusion into the backwaters of Kuttanad across the Thannermukkam salinity barrier. **Indian Journal of Environmental Protection.** 12: 931-941.
45. **Anu Gopinath, Kumar N.C. and Nair S.M. 2004.** An introductory study on the biogeochemical features of the coral sediments of the Minicoy Island, Lakshadweep. **Indian Journal of Environmental Protection.** 24: 113-120.
46. **Anu Gopinath, Kumar N.C., Padmalal D. and Nair S.M. 2004.** Speciation of nitrogen in the coral reef sedimentary environment of Lakshadweep archipelago, Indian Ocean. **Chemistry and Ecology.** 20: 267-278.
47. **Unnikrishnan P. and Nair S.M. 2004.** Partitioning of trace metals between dissolved and particulate phases in a tropical backwater system of Kerala, India. **International Journal of Environmental Studies.** 61: 659-676.
48. **Kalesh N.S. and Nair S.M. 2004.** Iron and Manganese levels in marine macroalgae from Kerala, southwest coast of India. **Seaweed Research Utilization.** 26: 99-116.
49. **Anu Gopinath, Neema Joseph, Sujatha C.H. and Nair S.M. 2002.** Forms of nitrogen ( $\text{NO}_3^-$ -N;  $\text{NO}_2^-$ -N and  $\text{NH}_2\text{CONH}_2$ -N) and their relations to A.O.U. in the Indian coastal waters of Arabian sea. **Chemistry and Ecology.** 18:233-244 .
50. **Lalu Raj, Sujatha C.H., Nair S.M., Kumar N.C. and Chacko J. 2002.** Base-line studies on the chemical constituents of Kayamkulam estuary near to the newly commissioned NTPC power station. **Indian Journal of Environmental Protection.** 22:721-731.
51. **Sujatha C.H., Rethi M. and Nair S.M. 2001.** Hydride forming toxic metals (Hg, As, Sb, and Se) in the surficial sediments of a tropical estuary. **International Journal of Environmental Studies.** 58: 159-172.
52. **Kalesh N.S., Sujatha C.H. and Nair S.M. 2001.** Dissolved folin phenol active substances (Tannin and Lignin) in the seawater along the west coast of India. **Journal of Oceanography.** 57: 29-36.
53. **Sujatha C.H., Nair S.M. and Jacob Chacko. 1996.** Tributyltin oxide induced physiological and biochemical changes in a tropical estuarine clam. **Bulletin of Environmental Contamination and Toxicology.** 56: 303-310.
54. **Sujatha C.H., Nair S.M. and Jacob Chacko. 1995.** Pesticide induced physiological changes in an estuarine clam. **Oebalia.** XXI: 181-186.

55. **Jayasree P. and Nair S.M. 1995.** Spatial diversity of trace metals in recent sediments of Cochin estuary (India). **Toxicological and Environmental Chemistry.** 51: 243-254.
56. **Sujatha C.H., Nair S.M. and Jacob Chacko. 1999.** Determination and distribution of endosulfan and malathion in an India estuary. **Water Research.** 33: 109-114.
57. **Sujatha C.H., Nair S.M. and Jacob Chacko. 1995.** Tissue lipid level of the clam, *Villorita cyprinoids* var *cochinensis*, exposed to endosulfan, malathion and methyl parathion. **Environmental Toxicology and Water Quality.** 10: 231-235.
58. **Nair S.M., Harishkumar K.P. and Balchand A.N. 1994.** The distribution and abundance of urea in tropical estuarine waters in relation to hydrochemical parameters. **Toxicological and Environmental Chemistry.** 44:137-145.
59. **Sujatha C.H., Nair S.M., Kumar N.C. and Jacob Chacko. 1994.** Distribution of dichlorodiphenyltrichloroethane and its metabolites in an Indian waterway. **Environmental Toxicology and Water Quality.** 9:155-160.
60. **Sujatha C.H., Nair S.M. and Jacob Chacko. 1994.** Sorption of Malathion and Methyl parathion by tropical aquatic sediments: Influence of pH. **Toxicological and Environmental Chemistry.** 41:47-55.
61. **Sujatha C.H., Nair S.M. and Jacob Chacko. 1994.** Sorption of Malathion and Methyl parathion by tropical aquatic sediments: Influence of salinity. **Toxicological and Environmental Chemistry.** 43:175-181.
62. **Balchand A.N. and Nair S.M. 1994.** Fractionation of phosphorus in the sediments of a tropical estuary. **Environmental Geology.** 23: 284-294.
63. **Nair, S.M. and Balchand A.N. 1993.** Nearshore abundance of dissolved and sedimented forms of phosphorus. **Hydrobiologia.** 252:71-81.
64. **Nair S.M. and Balchand A.N. 1993.** Phosphate phosphorus (ad-) sorption characteristics of sediments from very high productive coastal zone. **Toxicological and Environmental Chemistry.** 39: 81-95.
65. **Sujatha C.H., Nair S.M., Kumar N.C. and Jacob Chacko 1993.** Distribution of organochlorine pesticides in a tropical waterway: HCH isomers. **Toxicological and Environmental Chemistry.** 39: 103-111.
66. **Nair S.M. and Balchand A.N. 1992.** Hydrochemical constituents in the Alleppey mudbank area, southwest coast of India. **Indian Journal of Marine Science.** 21: 183-187.
67. **Nair S.M., Balchand A.N. and Nambisan P.N.K. 1993.** Phosphate fractionation in mudbank sediments from southwest coast of India. **Hydrobiologia.** 252: 61-69.
68. **Balchand A.N., Nair S.M. and Nambisan P.N.K. 1990.** A survey of the protein content in estuarine waters. **Toxicological and Environmental Chemistry.** 27:285-296.
69. **Nair S.M., Balchand A.N. and Nambisan P.N.K. 1990.** Metal concentrations in recently deposited sediments of Cochin backwaters. India. **Science of the Total Environment.** 97/98: 507-524.
70. **Nair S.M., Balchand A.N. and Nambisan P.N.K. 1989.** On the determination and distribution of hydroxylated aromatic compounds in estuarine waters. **Toxicological and Environmental Chemistry.** 22: 203-213.
71. **Sathyanathan B., Nair S.M., Jacob Chacko and Nambisan P.N.K. 1987.** Sublethal effects of copper and mercury on some bio-chemical constituents of the estuarine clam *Villorita cyprinoids* var *cochinensis*. **Bulletin of Environmental Contamination and Toxicology.** 40:510-517.

## SEMINAR / SYMPOSIUM

72. Saritha S., Prashob Peter K.J. and Nair S.M. 2013. Fatty acid characterization in microalgae and its demonstration as food chain component in aquaculture. National Seminar on Aquatic Chemistry (Aquasem '13). Cochin, India. P29.
73. Byju K, Emilda Rosmine, Ratheesh Kumar C.Sc, Renjith K.R., Gireesh Kumar T.R., Shiju P., Vasundhara G., Nair S.M. and Kumar N.C. 2013. Evaluation of water quality parameters of Sasthamkotta lake. National Seminar on Aquatic Chemistry (Aquasem '13). Cochin, India. P14.
74. Padma P., Nair S. M., Sheela V.S. and Kumar N.C. 2013. Status of nutrients in the estuarine waters of Kayamkulam subjected to effluent discharge from NTPC. National Seminar on Aquatic Chemistry (Aquasem '13). Cochin, India. p11.
75. Leena P.P., Ragi A.S., Gireeshkumar T.R. and Nair S.M. 2013. Identification of lipid composition in the organic shell matrix of mangrove snail, *Telescopium telescopium*. National Seminar on Aquatic Chemistry (Aquasem '13). Cochin, India. p37.
76. Anuradha V., Vasundhara G., Kumar N.C. and Nair S.M. 2013. Potability of water in the upper reaches of river Periyar.- a brief assessment. National Seminar on Aquatic Chemistry (Aquasem '13). Cochin, India. 15.
77. Ragi A.S., Leena P.P., Gireeshkumar T.R. and Nair S.M. 2013. Qualitative analysis of the major lipid compounds from the tissue of aquatic gastropod *Telescopium telescopium*. National Seminar on Aquatic Chemistry (Aquasem '13). Cochin, India. p30.
78. Byju K, Anuradha V, Emilda Rosmine, Kala K Jacob, Harisankar H.S., Anu Gopinath, Kumar N.C. and Nair S.M. 2012. Anticancer activity of sterols identified from *Subergorgia reticulata* – an In-silico approach. International Conference on advances in biological sciences. March 15-17, Organized by: Department of Biotechnology and Microbiology Inter University Centre for Biosciences, Kannur University. MBO 14.
79. Hari Sankar H.S., Nebula Murukesh, Babu Philip, Kumar N.C., Nair S.M. and Saramma A.V. 2011. Inhibition of Intestinal Amylase of *Oreochromis mossambicus* by 'Sonneratia caseolaris' Seed- A Kinetic Study ., National conference on bioactive compounds from the marine resources February 10-11, Organized by: Department of Marine Science, Bharathidasan University. 71
80. Anuradha V, Byju K, Emilda Rosmine, Anu Gopinath, Nair, S.M and Kumar N.C., Vasundhara G., Prashobpeter K.J., Gireeshkumar T.R. 2011. Possibility of Polyenyl Pyrrole derivatives in the marine sponge *Axinella Carteri*. National symposium on EMERGING TRENDS IN BIOTECHNOLOGY September 1-2. Organized by: Department of Biotechnology, Cochin university of science and technology
81. Byju K, Anuradha V, Emilda Rosmine, Anu Gopinath, Nair S.M., Kumar N.C., Vasundhara G. , Prashobpeter K.J., Gireeshkumar T.R. 2011. Identification of Amphetamine in the soft coral *Sarcophyton flexuosm* tixer. National symposium on EMERGING TRENDS IN BIOTECHNOLOGY September 1-2, Organized by: Department of Biotechnology, Cochin university of science and technology.
82. Anuradha V, Byju K, Emilda Rosmine, Anu Gopinath, Nair, S.M and Kumar N.C., Prashobpeter K.J., Gireeshkumar T.R. and Vasundhara G. 2011. Presence of specific steroids from the lipophilic fraction of the marine sponge *Axinella carteri*. UGC Sponsored National Seminar in MODERN STREAMS OF

- BIOCHEMISTRY, 20th and 22nd September, Organized by Postgraduate Department of Chemistry and Research Center, St. Albert's College, Ernakulam.
83. **Proshob Peter K.J. And Nair, S.M. 2011.** Sensing and sequestration of sulphate anion radical in aqua's solution using humic acid protected spherical silver nano particle. NANOPOROUS MATERIALS – IV. Banff, Canada. (Accepted).
  84. **Byju K, Anuradha V, Emilda Rosmine, Anu Gopinath, Nair S.M., Kumar N.C., Prashobpeter K.J., Gireeshkumar T.R. and Vasundhara G. 2011.** Identification of bioactive chemical constituents from the soft coral *Sarcophyton flexuosum* tixer. UGC Sponsored National Seminar in MODERN STREAMS OF BIOCHEMISTRY, 20th and 22nd September 2011, Organized by Postgraduate Department of Chemistry and Research Center, St. Albert's College, Ernakulam.
  85. **Proshob Peter K.J. And Nair, S.M. 2011.** One step “green” synthesis and stabilization of spherical silver nanoparticles for sulfate remediation using humic acid extracted from marine sediments. UGC sponsored national seminar on Challenges in nanoscience and technology CNT-2011. Cochin. India.
  86. **Anu Radha, V, Tesmin Jose, Baiju, P, Anu Gopinath, Nair, S.M and N.C. Kumar. 2010.** Isolation and characterization of novel chemical compounds from marine sponges collected from Lakshadweep archipelago. Symposium on Indian Ocean Marine Living Resources. 119p.
  87. **Movitha M., Abhilash P.K., Prashob Peter K.J., Anu Gopinath, Gopinathan C.K., Nair S.M. 2010.** Identification and biochemical characterisation of seaweeds along the southwest coast of India during monsoon. **1<sup>st</sup> Kerala Women Science Congress.** Cochin, India. ES-26/158-159.
  88. **Anu Gopinath, Anu Radha V, and Nair, S.M. 2010.** Trace metal levels in he growth bands of corals collected from Kavarathi and Kiltan islands of Lakshadweep archipelago. **International Congress on Analytical Science.** Cochin, India. ICP-92/142.
  89. **Padma P. and Nair S.M. 2009.** Nitrogen and phosphorus in dissolved form in Chalakudy river-esturine system. **National Seminar on Aquatic Chemistry (Aquasem '09).** Cochin, India. RLW 4/38.
  90. **Shaiju P. and Nair S.M. 2009.** The hydrography of six rivers flowing to a tropical estuary. **National Seminar on Aquatic Chemistry(Aquasem '09).** Cochin, India. RLW 8/42.
  91. **Laluraj C.M., Girish Gopinath, Reji Srinivas, Santhosh Kumar R., S.M. Nair and Chandramohanakumar, N. 2009.** Groundwater Chemistry of Phreatic Aquifers of Central Kerala, India. **National Seminar on Aquatic Chemistry (Aquasem '09).** Cochin, India. WRM13/13.
  92. **Babu, V, Anuradha V, and Nair S.M.. 2008.** Seasonal and temporal variations of cyclodiene pesticides in the sediments of Kuttanad backwaters. **Proc. 20<sup>th</sup> Kerala Sci. Cong.,** India. 07-13/ 543-545.
  93. **Nair S.M. 2007.** The Accumulation Levels of Potentially Toxic Heavy Metals Pb and Cd in Marine Algae from Southwest Coast of India. **15<sup>th</sup> International Conference on Environmental Bioindicator,** Hong Kong. No. 66.
  94. **Shaiju P, Nair S.M. and Babu, V. 2007.** Assessment of DDT and its metabolites in the sediments of Kuttanad – a tropical backwater paddy field ecosystem. **Proc. 19<sup>th</sup> Kerala Sci. Cong.,** India. 08-11.
  95. **Shaiju P, Nair S.M. and Kumar N.C. 2007.** A study on safety of drinking water in the fort cochin area. **Proc. 19<sup>th</sup> Kerala Sci. Cong.,** India. 08-50.

96. Nair S.M., Babu V. and Anu Gopinath. 2005. Spatial and temporal variability of DDT and its metabolites in the sediments of a backwater –paddy growing area of Kerala, India. **Dioxin 2005. 25<sup>th</sup> International Symposium on Halogenated Environmental Organic Pollutants and POPs.** Toronto, Canada.
97. Anu Gopinath, Babu, V and Nair, S.M. 2005. Distributional characteristics of cyclodiene pesticides in a tropical backwater environment. **Dioxin 2005. 25<sup>th</sup> International Symposium on Halogenated Environmental Organic Pollutants and POPs.** Toronto, Canada.
98. Anu Gopinath, Nair S.M. and Kumar, N.C. 2005. A Synoptic facsimile of Trace metals in the Coral reef ecosystem Of Lakshadweep Archipelago. **Proce. Kerala Environmental Congress.**
99. Padma P. , Anie T. Uthup and Nair S.M. 1996. Dissolved and sedimented forms of nutrients in the estuarine waters around the NTPC site, Kayamkulam. **Proc. VIII<sup>th</sup> Kerala Sci. Cong.,** India. 93-94.
100. Balchand A.N., Nair S.M. and Harishkumar K.P. 1994. Water quality studies in Muvattupuzha river during 1983-1988 in relation to effluent discharges from a pulp paper mill. **Proc. VI<sup>th</sup> Kerala Sci. Cong.,** India. 95.
101. Nair S.M., Balchand A.N. and Harishkumar, K.P. 1994. Seasonal variability of nutrients and chlorophyll in a tropical river estuary system with reference to pulp paper mill discharge. **Proc. VI<sup>th</sup> Kerala Sci. Cong.,** India. 96.
102. Nair S.M. 1994. Dissolved and particulate mercury species in the Cochin estuary, India. **SINTEF Environ. Modelling Seminar.** Trondheim, Norway.(Accepted)
103. Nair S.M. and Balchand A.N. 1993. Studies on the salinity and dissolved silicates in a zone of bio-rhythm (mudbanks) of Kerala. **Proc. Fifth Kerala Sci. Cong.,** India. 60-62.
104. Nair S.M. and Balchand A.N. 1993. Occurrence and distribution of selenium and vanadium in tropical waterway. **9<sup>th</sup> International Conference on Heavy Metals in the Environment,** Toronto, Canada.
105. Balchand A.N. and Nair S.M. 1993. Metal abundance in the vicinity of a zinc-smelter factory. **9<sup>th</sup> International Conference on Heavy Metals in the Environment,** Toronto, Canada.
106. Balchand A.N., Nair S.M. and Nambisan P.N.K. 1991. Phosphate fractionation in the estuarine zone of a tropical waterway. **XX General Assembly IUGG,** Vienna. 90.
107. Balchand A.N., Nair S.M. and Nambisan P.N.K. 1991. River inputs into ocean systems: Role of synoptically synergic modulation processes in estuaries. **XX General Assembly IUGG,** Vienna.93.
108. Nair S.M., Balchand A.N. and Nambisan P.N.K. 1988. Metal levels in recently deposited sediments of Cochin backwaters. **Proc. Symp. Fate and Effects of Toxic Chemicals in Large Rivers and their Estuaries,** Quebec. 68.
109. Nambisan P.N.K., Balchand A.N. and Nair S.M. 1988. Particulate related processes controlling trace metal distribution in tropical estuaries. **Proc. Symp. Fate and Effects of Toxic Chemicals in Large Rivers and their Estuaries,** Quebec. 69.
110. Nair S.M., Balchand A.N. and Nambisan P.N.K. 1987. Transport of sediment associated nutrients in a tropical fluvial system. **Proc. IUGG Symposia,** Vancouver. 896.
111. Balchand A.N., Nair S.M. and Nambisan P.N.K. 1987. Occurrence of unique seasonal phenomenon along southwest coast of India. --- theories and perspectives of mudbanks. **Proc. IUGG Symposia,** Vancouver. 1080.

- 112. Nambisan P.N.K., Balchand A.N. and Nair S.M. 1987.** Chemical oceanographic aspects of mudbanks- a unique coastal phenomenon along southwest coast of India. **Proc. IUGG Symposia**, Vancouver. 1091.
- 113. Anirudhan T.S., Balchand A.N., Nair S.M. and Nambisan P.N.K. 1987.** Distribution pattern of salinity and silicon and their inter-relationship in Cochin backwaters. **National Symposium on Estuarine Management, Trivandrum, Kerala.** 11.