

Résumé of Dr. Sudha Nair

Date of Birth: 19.12.1959

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Education:

Degree	Year	Specialization	University
Doctorate*	1990	Microbiology	Madras University
Master's	1982	M.Sc Botany	Madras University
Bachelor's	1980	B.Sc Botany	Madras University

* PhD work done at CLRI – Sequestration of heavy metals using microbial systems

Work Experience:

Research and development

Currently **Programme Director Ecotechnology and Principal investigator of the Microbial diversity assessment at the M.S. Swaminathan Research Foundation, Chennai, India.**

Microbial Diversity: Have been leading a team involved in adopting a polyphasic approach (both phenotypic and genotypic) to understand the diversity associated with the plant growth promoting bacteria in rhizosphere regions. The special focus has been on understanding the diversity the beneficial organisms in problem soils like saline, marshy and drought, to harness them effectively in increasing crop productivity and improving soil health by developing niche specific biofertilizer and biocontrol agents. As part of the extension activities of this component of work conducting general awareness programmes on the use of such strains in the promotion of sustainable agriculture practices, demonstrating them in the field and also in the process of demystifying the production of this at the rural area level to promote it as an entrepreneurial activity.

As the Prog Director coordinating activities with the help of a multi-disciplinary team in promoting sustainable livelihoods among the rural poor which includes participatory technology development/dissemination of them, social mobilization, developing good entrepreneurial activities among the SHGs and developing and innovative partnership programmes in the development sector to promote livelihoods.

Also guiding students for their Doctoral and Masters programs.

Science – Society Interface

Have been actively involved in attempting gender equity through Science and Technology from 1996 in various capacities. Been associated from 1997 with the establishment of the Golden Jubilee Biotech Park for Women in Chennai – the first of its kind in the world. Served as the *convenor* of the Park right from its conceptualization by Prof. M.S. Swaminathan. It is a unique partnership venture with the Department of Biotechnology, Govt. of India, the State Govt. through Tamil Nadu Industrial Development Corporation and the M.S. Swaminathan Research Foundation. It has a mission to provide opportunities for professionally qualified women to take to a career of remunerative self-employment through the organization of environment friendly biotechnological enterprises as a means to economic empowerment. Recently coordinated a study on the feasibility of setting up a Rice-biopark based on the concept of setting up a series of enterprises around the utilization of the rice and rice biomass. Currently working with the SHGs in promoting income generating activities and promotion of group enterprises and trying to provide linkages with the urban park to provide the power of scale and markets.

As a member of the Regional Advisory Group from 2000, actively involved with UNDP/UNESCO in promoting gender equity through Science and Technology in the Asia Pacific Region. Actively participated in all phases of a first of its kind study to map the assessment of resources, gaps and best practices in gender, science and technology in the Asia Pacific Region. ***Coordinated a 10-month study on eco-jobs in the new era of new economy.*** The work was presented at the World Summit for Sustainable Development in the form of three publications and a CD-ROM containing the database. Also, *coordinated a study on the feasibility of establishing Rice Bio Park (by means of value adding to the paddy and its entire bio-mass)* as part of the International year of Rice Celebrations 2004.

Research Projects handled:

- ✓ Application of Biotechnology in the Conservation of Endangered Plant sps. For Genetic Enhancement –1992 – 1997 (As a Senior Scientist from 1993 looked after the soil biological criteria component)
- ✓ Nuclear and Biotechnological Tools in Coastal System Research (as co-investigator for the soil biological remediation component)
- ✓ Program Support for Bioprospecting, Genetic Enhancement and Biomonitoring (the sub-component on biomonitoring) 1997 – 2002
- ✓ Field-testing and product development of plant growth promoting bacteria in the coastal agri-ecosystem (Nov 2002 - 2005)
- ✓ Characterization of Rhizosphere Plant Growth Promoting Bacteria- In Selected Mangroves And Mangrove Associated Plants (Jan 2003 – 2006)

- ✓ Low cost biofertilizer production units at the village level as employment opportunities for rural women (Jan 2003 – Jan 2007)
- ✓ Coordinated an endowment grant from the Ford Foundation essentially on Asset building and Community development (2001- 2006)
- ✓ Coordinating an endowment grant from the Tata Trust for sustainable livelihoods for the Resource Poor (2005 – until date)

Awards and honors:

- *2002 Young National Women Bioscientist Award for the year 2001. Ministry of Science and Technology, Government of India*
- Member of the Forum on Poverty Related core data for the Asia Pacific Region, UNDP, Asia Pacific Bureau (1995 - 1997).
- Member of the Resource Group of Women Scientists and technologists in the Asia Pacific Region, UNDP, Asia Pacific Bureau (1995 - 2000).
- Member of the Task force constituted by the DBT, India for the Biotechnology based programme for women and Rural Development (1998 - 2000).
- Member of the Board of Governors of Environmental Protection Training and Research Institute, Hyderabad, Andhra Pradesh, India (1999-2002)
- Member of the CGIAR Science Partnership Committee (2000- 2001)
- Convenor of the first ever Women's Biotechnology Park at Chennai, India (1997-2000)
- Member of the Governing Body and Scientific Advisory Committee, Women's Biotechnology Park at Chennai (2000 – till date)
- Member of the Regional Advisory Group for Gender Equity Promotion Group for the Asia Pacific Region of the UNDP (2000-till date)
- National Focal Point for Gender Science and Technology - UNESCO-UNDP (2000 - 2002)
- Member of the Task force constituted by the DBT, India for the Biotechnology based programme for Women and Rural Development (2002 – till date).
- Member of the Task force constituted by the DBT, India for the Assessment of Microbial Diversity (2002 – 2005)
- Board of Director, LEAD India - 2003 – 2006
- Member of the Task force constituted by the DST, New Delhi, Science and Technology for Women' (2005 – till date).
- Member of the Expert Committee for implementation of the recommendations of the Task Group on Revamping and Refocusing of National Agricultural Research - 2005
- Member of the Task force on the 'Scientific Advisory Committee on Resource-specific Network programme', DBT, New Delhi – 2005 - 2008
- Nominated as a Task Force member for 'Women in Science', set up by the PMO, through the Ministry for S&T, DST, New Delhi – 2006 - 2009
- Member of the Steering Committee on S&T for the formulation of the 11th five year plan for India, New Delhi - 2006
- Institutional Biosafety Committee, IIT, Chennai, DBT Nominee – 2005 - 2007
- Member of the Board of Studies, Botany, University of Madras – 2006 – 2009
- Member of the TWAS Task force for Women in Science – 2006 – 2009

- Member of the Board of Studies Pondicherry University - 2006

Publications and Books:

- Research : 33
- Book chapters : 2
- Seminars/Symposia : 28
- Popular articles : 14
- Books/Bulletins : 2

Select publications in the last five years:

Vibrio rhizosphaera sp. nov., a novel species with antimicrobial activity isolated from mangrove-associated wild rice (*Porteresia coarctata* Tateoka): N.RameshKumar and Sudha Nair Submitted to *Applied and Environmental Microbiology*

16S rRNA gene-Based Single-Strand Conformation Polymorphism (SSCP), Community Profiles to the Diversity of Different Mangrove Rhizosphere Soils; Srinivasan Bharathkumar, N. RameshKumar, Diby Paul and Sudha Nair; Submitted to *Microbial Ecology*

Morphological adaptation and loss of cell coordination during domestication in wild fluorescent *Bacillus sp.*, strain MSSRF1. Ramesh kumar. N, and Sudha Nair; In review *FEMS Microbiology Ecology*

Diby Paul, Dineshkumar N. and Sudha Nair. (2006) Proteomics of a Plant Growth Promoting Rhizobacteria, *Pseudomonas fluorescens* MSP-393 subjected to salt shock. *World Journal of Microbiology and Biotechnology*. 22(4) 369-374.

Bharathkumar Srinivasan, Rameshkumar N, Diby Paul, Sudha Nair (2006) Partial sequences of 16S rDNA of the unculturable bacteria from mangrove rhizosphere soil. NCBI (Acc. Nos. AY941162, DQ273663, DQ399262, DQ399261, DQ336196, DQ336197, DQ336198, DQ336199, DQ336200, DQ336201, DQ336202, DQ322700, DQ322699, DQ356474, DQ356475, DQ356476, DQ356477, DQ356478, DQ356479, DQ356480, DQ679480, DQ679481, DQ679482, DQ679483, DQ679484, DQ648603, DQ648604, DQ648605, DQ648606, DQ648607, DQ648608, DQ648609, DQ648610, DQ648611, DQ648612, DQ648613, DQ648614.)

Village Level Production and Use of Biopesticides and Biofertilizers, B. Selvamukilan, R. Rengalakshmi, P. Thamizoli, and Sudha Nair in Biological Approaches to Sustainable Soil Systems, eds Norman Upoff & et al, CRC, 2006

Diby Paul, Bharathkumar, S. and Sudha Nair (2005). Osmotolerance in biocontrol strain of *Pseudomonas pseudoalcaligenes* MSP-538: A study using osmolyte, protein and gene expression profiling. *Annals of Microbiology*. 55(4) 245-250

Swaminathania salitolerans gen. nov., sp. nov., a salt tolerant nitrogen fixing and phosphate solubilizing bacteria from wild rice (*Porteresia coarctata*) - Tateoka- P. Loganathan and Sudha Nair, IJSEM 54, 1185 – 1190, 2004

Crop specific endophyte colonization by a novel salt tolerant dual property isolate PA12 from wild rice - P. Loganathan and Sudha Nair, 2003 Vol 25, 6: 497-501 Biotechnology Letters

Biological suppression of rice diseases by *Pseudomonas* spp. under saline soil conditions. Sunita Rangarajan, Lilly M Saleena, Preeti Vasudevan and Sudha Nair Plant and Soil, 2003 Vol 251, 01: 73-82

“Environment, the new economy and new employment opportunities” Stockholm thirty years on Progress achieved and challenges ahead in international environmental co-operation, 17-18 June, 2002, Proceedings of the international conference Published by the Ministry of Sweden, pg. 157–159, Stockholm, Sweden

Knowledge systems and intellectual property rights in Rio, Johannesburg and beyond – Sudha Nair, Orient Longman, pg 239 –263, 2002

Diversity of *Pseudomonas* spp. isolated from rice rhizosphere populations grown along a salinity gradient - Sunita Rangarajan, Lilly. M. Saleena and Sudha Nair Microbial Ecology, 2002, 42: 280 –289

Diversity of *Azospirillum* strains isolated from rice plants in coastal agri-ecosystem - Lilly M Saleena, Sunita Rangarajan, and Sudha Nair Microbial Ecology 44: 271-277 (2001)

Genetic diversity and relationship between Bradyrhizobium strains isolated from blackgram and cowpea, Lily. M. Saleena, P. Loganathan, Sunita R. and Sudha Nair, Biology and Fertility of Soils 2001,34: 276-281

Diversity of Pseudomonads isolated from three different plant rhizospheres, Sunita. Rangarajan, Loganathan P, Lilly M. Saleena and Sudha Nair, Journal of Applied Microbiology, 2001, Vol 91 (4) 742-749

Assessment of Resources, Best Practices and Gaps in Gender Science and Technology in the Asia Pacific Region, Eds: Anni Dugdale, Sudha Nair & Amelia Ancog, 2001

Genetic diversity of Bradyrhizobium strains isolated from *Arachis hypogaea*, Lily. M. Saleena, P. Loganathan, Sunita R. and Sudha Nair, Canadian Journal of Microbiology, 47/2, 2001, 118-122

Presentations (in the last five years)

Diby Paul and Sudha Nair. Salt adaptation in the biocontrol bacterium, *Pseudomonas fluorescens* MSP-393: A study using proteomic and genomic tools. International workshop on Plant Microbe Interactions. University of Madras, Chennai. 7-9 Dec. 2005

Gender, Science and Technology, Beijing +10- Access to Technology and Skill Empowerment – Bridging the Missing Links, National Consultation on Ten Years After Beijing: Gender, Science & Technology, Nov 18-19, 2005, New Delhi

Dineshkumar, N., Diby Paul & Sudha Nair. Studies on Osmotolerance in *Pseudomonas fluorescens* MSP-393, a Plant Growth Promoting Rhizobacteria from Coastal Agri-ecosystem. National Symposium on Microbial Technology for Productive Agriculture. Tamilnadu Agriculture University, Coimbatore. Oct. 7-8, 2005

Sujanitha, Rameshkumar and Sudha Nair (2004) Characterization and Diversity of Phosphate Solubilizing Bacteria From the Mangrove Ecosystem. 13th Southern Regional Conference on Microbial Inoculants. Agricultural College, Bijapur, Dec. 3-5, 2004 - *Awarded Best Poster*

Bharathkumar, Diby Paul and Sudha Nair (2004) Genetic Diversity in Biocontrol – *Pseudomonas* Species in Coastal Agri-ecosystem of Southern India, Using RFLP and SSCP Techniques. 13th Southern Regional Conference on Microbial Inoculants. Agricultural College, Bijapur, Dec. 3-5, 2004.

Diby Paul, Bharathkumar and Sudha Nair (2004) Studies on the Osmo-Tolerance in Terms of Repressed / Over Expressed-Protein and Differential Display Gene Expression Profiling in Biocontrol Strains of *Pseudomonas* spp. 13th Southern Regional Conference on Microbial Inoculants. Agricultural College, Bijapur, Dec. 3-5, 2004. *Awarded Best Paper (2nd Prize Oral Session)*

“Engendering development – Science and Technology as a tool” at the “Gender perspective in research, extension and education” short course by ICAR at Kerala Agriculture University, 21st – 30th October, 2002, Kerala.

Eco-jobs and Eco-entrepreneurship: the way forward at the Ecology of Hope Initiative, 30th August 2002, WSSD, Johannesburg, South Africa

Paper presented on “Environment, the new economy and new employment opportunities” in the session on Building resilience: A necessity in view of global change at the Stockholm thirty years on Progress achieved and challenges ahead in international environmental co-operation, 17-18 June, 2002, Stockholm, Sweden

Paper presented on “Bio-entrepreneurship and women – bridging the missing links” at the Conference of Women Scientists and Technologists: Role in National Development – 8-9th March, 2002, Vigyan Bhawan, New Delhi

Science and Technology for Women’s Economic Empowerment at the APGEN partners Conference, 23 –25 May, 2002, Kuala Lumpur, Malaysia

Polyphasic approach to assess soil biological diversity - Sudha Nair, paper presented at the Indo - Swiss workshop on Molecular Probes and Microbial Ecology, Indian Institute of Technology, Chennai, 3rd Mar 2000

Multiple stress tolerant *Pseudomonas* sp. from agricultural soils, Sunita Rangarajan and Sudha Nair, paper presented at the National symposium on Microbes in bioremediation for eco-friendly environment in the new millennium, Chennai, 6-7th January 2000

Science and Society: The Pathway for Sustainable Equitable Development - Sudha Nair, paper presented at the Women in Science Session, 87th Indian Science Congress, Pune Jan 3-7, 2000

Participation in Workshops/Conferences (in the last five years)

Gender Advisory Board of the UN Commission on Science and Technology for Development – A special invitee, UNESCO, Dec 12-15th, 2006

‘Utilizing All of Our Talents: Women in Science’ Science and Technology in Society Forum Kyoto 10th – 12th Sep, Japan, 2006

Social Inequality what people can do about it? Temple University of Japan , Sep 8th 2006, Tokyo Japan, 2006

Review meeting on progress, prospects, achievements and challenges in Gender Equity through S&T in South East Asia and the Pacific, Organized by UNESCO, Jakartaat Cebu Islands, Philippines, 30th-31st May, 2006

Science and Technology Policy in Asia Pacific - Regional policy study on grassroots technology innovation and gender mainstreaming – Workshop at UNESCO, Jakarta, 26th and 27th Oct, 2004

Eco-agriculture Practioners – An International Meet held at Kenya, Sep 27th – Oct 2nd, 2004

STEPAN Coordination Board Meeting, New Delhi April 16-17th, 2003

Workshop on Gender, Science and Technology Training Manual for Asia Pacific, Jakarta 4-6 Feb 2003

Ecology of Hope: Uncommon Opportunities for Eco-jobs and Eco-Entrepreneurship, 2nd GEF Assembly, Beijing 16 – 18 2002, China

Eco-jobs and Eco-entrepreneurship: the way forward at the Ecology of Hope Initiative, 30th August 2002, WSSD, Johannesburg, South Africa

Research Partnership for Sustainable Development Meeting, 17 – 19th July, 2002, IIED, UK

Ecology of Hope: Uncommon Opportunities for Eco-jobs and Eco-entrepreneurship at a Seminar of Job-led growth 20th June, 2002, GEF, Washington

Stockholm thirty years on Progress achieved and challenges ahead in international environmental co-operation, 17-18 June, 2002, Stockholm, Sweden

APGEN Partners Conference, 23 –25 May, 2002, Kuala Lumpur, Malaysia

International Ecotecnie Chairs Workshop, 25 –27 March 2002, UNESCO, Paris,

Editorial Committee meeting of the Regional Advisory Group Meeting on Gender Equity through Science and Technology in the Asia Pacific Region, Bangkok, Thailand 2001

Second Regional Advisory Group Meeting on Gender Equity through Science and Technology in the Asia Pacific Region, Bangkok, Thailand 2001

Science Partnership Committee, Mid-term meeting of the CGIAR, May 4 –5, 2001, Paris.

Regional Workshop on Gender Equity through Science and Technology in the Asia Pacific Region. Jakarta/Yogyakarta, Indonesia April 4 – 8 2001

Science Partnership Committee, Centres Week of CGIAR, Oct 20 –27, 2000, Washington, USA

Science Partnership Committee, Mid-term meeting of the CGIAR, May 21 - 26, 2000, Dresden, Germany,

First Regional Advisory Group Meeting on Gender Equity through Science and Technology in the Asia Pacific Region, Manila, Philippines 5 – 7 sep 2000, 2000

Global Knowledge Conference, Kuala Lumpur March 21 – 26, 2000

Monitoring Impacts and Building Capacities. Rockefeller Foundation Water Poverty Meeting: Antigua 14 –17 Feb 2000.

Workshops Organized

Convenor of the Panel on Sustainable Livelihood (off-farm and on-farm employment) 93 Indian Science Congress at Acharya N.G. Ranga Agricultural University, Hyderabad from 3rd to 7th January, 2006

National Consultation on Ten Years After Beijing: Gender, Science & Technology, Nov 18-19, 2005, New Delhi

Inter-disciplinary Dialogue on Biotechnology and Organic Farming, Chennai, 7-10 March 2005

Workshop on Access and Benefit-Sharing Policy and Law, Asia Pacific Region, 22-24 September, 2004

Project Design Workshop for Green Enterprises, April 30 – 5 May, 2003, Chennai

Ecology of Hope Initiative, 30th August 2002, WSSD, Johannesburg, South Africa

Inter-disciplinary dialogue and new technologies: Reaching the unreached – Environment, the New Economy and New Employment, 28 – 31, Jan 2002.

Regional Conference of the APGEST, 21 –23 March 2001, MSSRF, Chennai

Intellectual Property Rights and Human well being – A workshop for the LEAD fellows, Aug 2 – 5, 2000, Chennai