




## Faculty Details proforma for DU Web-site

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<b>Title</b>	<b>Dr.</b>	<b>First Name</b>	Radhey Shyam	<b>Last Name</b>	Sharma	<b>Photograph</b>
<b>Designation</b>		Assistant Professor (Senior)				
<b>Address</b>		Department of Environmental Studies, Laboratory of Bioresources & Environmental Biotechnology, University of Delhi, Delhi-110 007				
<b>Phone No</b>		Office 91-11-2766-6237 (Tele/Fax); 91-11-2766-7725 (Extn. 1422)				
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<b>Email</b>		<a href="mailto:rads26@hotmail.com">rads26@hotmail.com</a> and <a href="mailto:rssharma@cemde.du.ac.in">rssharma@cemde.du.ac.in</a>				
<b>Web-Page</b>		Under construction				
<b>Educational Qualifications</b>						
<b>Degree</b>		<b>Institution</b>			<b>Year</b>	
Ph.D.		University of Delhi			1999	
M.Sc. Botany		University of Delhi			1993	
B.Sc. (H) Botany		University of Delhi			1991	
<b>Career Profile</b>						
Assistant Professor (Senior) (2004 – till date) Visiting Assistant Professor, Massachusetts Institute of Technology, Cambridge, USA (2011-2012) Assistant Professor (2003–2004); University of Delhi Research Scientist (2000 – 2003), University of Delhi						
<b>Administrative Assignments</b>						
<ul style="list-style-type: none"> <li>• Served as Coordinator, M.Phil. Course in Restoration Ecology at the University of Delhi</li> <li>• Served as a member of Annual Flower Show Committee of the University of Delhi (1999-2010)</li> </ul>						
<b>Areas of Interest / Specialization</b>						
Soil Microbial Ecology; Bio-/Phyto-Remediation; Plant-Microbe Associations; Bioresources and their Utilization						
<b>Subjects Taught</b>						
<b>Post-Graduate Teaching (M.Sc.)</b>						
<ul style="list-style-type: none"> <li>• Ecotoxicology and Environmental Health (Coordinator, 2007– till date)</li> <li>• Environmental Biotechnology (Coordinator, 2006-2007; 2010-2011)</li> <li>• Natural Resources: Their Conservation and Management (2007–2010)</li> <li>• Environmental Toxicology and Impact Assessment (2007–2010)</li> <li>• Biodiversity and Conservation (2006-2007)</li> <li>• Introduction to Environment (2006-2007; 2009-2011)</li> <li>• Ecology and Systematics (1999-2003)</li> <li>• Crop Genetics (1999-2003)</li> </ul>						
<b>Post-Graduate Teaching (M.Phil.)</b>						
<ul style="list-style-type: none"> <li>• Restoration Ecology</li> </ul>						
<b>Research Guidance</b>						
<ol style="list-style-type: none"> <li>1. Supervision of Doctoral Thesis awarded: <b>03</b></li> <li>2. Supervision of Doctoral Thesis, under progress : <b>03</b></li> <li>3. Supervision of awarded M.Phil dissertations : <b>01</b></li> </ol>						

Publications Profile			
<u>Books / Monographs</u>			
<u>Year of Publication</u>	<u>Title</u>	<u>Publisher</u>	<u>Co-Author</u>
2003	Valuing hydrological impacts of changing landuse – a case of Yamuna Floodplain Wetland Ecosystems, Delhi. In: Water Resources, Sustainable Livelihoods and Ecosystem Services.	Concept Publishing Company, New Delhi.	P. Kumar, A. Love, <b>R.S. Sharma</b> , C.R. Babu
2003	Ecological restoration of degraded ecosystems and wastelands. In: Innovative Environmental Biotechnologies: From Research to Application.	Department of Biotechnology, Ministry of Science & Technology, Government of India.	S. Subramanian, J. Rajiv, S. Kipgen, <b>R.S. Sharma</b> , A. Mohmmmed, A. Bhattacharyya, S. Sinharoy, B. Mittra, C.R. Babu
2002	Economic Valuation of Wetlands: Problems and Prospects. In: (Nair, K.R.G., Roonwal, G.S., and Gupt, Y.) Environmental and Sustainable Development. Indo-Canadian Perspectives.	Kaveri Books, New Delhi.	A. Love, S. Sharma, <b>R.S. Sharma</b> , C.R. Babu
1997	Protection of wild genetic resources of plants and microbes through wild life (Protection) Act 1972 - A view point, In: Handbook of Environment, Forest & Wildlife Protection Laws in India.	Natraj Publication, Dehra Dun.	A. Joshi, N. Sardesai, <b>R.S. Sharma</b> , A. Mohmmmed, C.R. Babu
<u>In Indexed/ Peer Reviewed Journals</u>			
<u>Year of Publication</u>	<u>Title</u>	<u>Journal</u>	<u>Co-Author</u>
2012	Induction of apoptosis by ribosome inactivating proteins: importance of N-glycosidase activity.	Applied Biochemistry and Biotechnology 166:1552-1561.	M.K. Das, <b>R.S. Sharma</b> , V. Mishra
2011	A cytotoxic type-2 ribosome inactivating protein (from leafless mistletoe) lacking sugar binding activity.	International Journal of Biological Macromolecules 49: 1096-1103	M.K. Das, <b>R.S. Sharma</b> , V. Mishra
2011	Functionally diverse rhizobacteria of <i>Saccharum munja</i> (a native wild grass) colonizing abandoned morrum mine in Aravalli hills (Delhi).	Plant and Soil 341:447-459.	M. Sharma, V. Mishra, N. Rau, <b>R.S. Sharma</b>
2011	Variations in outer-membrane characteristics of two stem-nodulating bacteria of <i>Sesbania rostrata</i> and its role in tolerance towards diverse stress	Current Microbiology 63:81-86	<b>R.S. Sharma</b> , V. Mishra, A. Mohmmmed, C.R. Babu
2011	A novel cationic peroxidase (VanPrx) from a hemi-parasitic plant ( <i>Viscum angulatum</i> ) of Western Ghats (India): Purification, characterization and kinetic properties.	Journal of Molecular Catalysis B: Enzymatic. 71: 63-70.	M.K. Das, <b>R.S. Sharma</b> , V. Mishra

2009	Evaluation of functional diversity in rhizobacterial taxa of a wild grass ( <i>Saccharum ravennae</i> ) colonizing abandoned fly ash dumps in Delhi urban ecosystem.	Soil Biology & Biochemistry, 41: 813–821.	N. Rau, V. Mishra, M. Sharma, M.K. Das, K., Ahaluwalia, <b>R.S. Sharma</b>
2008	Antifungal activity of some Himalayan medicinal plants and cultivated ornamental species.	Fitoterapia 79: 589–591.	<b>R.S. Sharma</b> , V. Mishra, R. Singh, N. Seth and C.R. Babu
2008	Phage specificity and lipopolysachharides of stem- and root-nodulating bacteria ( <i>Azorhizobium caulinodans</i> , <i>Sinorhizobium spp.</i> , and <i>Rhizobium spp.</i> ) of <i>Sesbania spp.</i>	Archives of Microbiology 189: 411-418	<b>R.S. Sharma</b> , V. Mishra, A. Mohammed, C.R. Babu
2008	Purification and characterization of a unique peroxidase from a wild plant from Western Ghats region (India).	FEBS Journal 275 (S1): 397.	M.K. Das, <b>R.S. Sharma</b> , M. Serdesai, S.R. Yadav and V. Mishra
2005	Diversity in promiscuous group of rhizobia from three <i>Sesbania</i> spp. colonizing ecologically distinct habitats of the semi-arid Delhi region.	Research in Microbiology 156 (1): 57-67.	<b>R.S. Sharma</b> , A. Mohammed, V. Mishra, C.R. Babu
2005	Crystal structure of Himalayan mistletoe ribosome inactivating protein reveals the presence of a inhibitor and a new functionally active sugar-binding site.	Journal of Biological Chemistry 280: 20712 – 20721.	V. Mishra, S. Bilgrami, <b>R.S. Sharma</b> , P. Kaur, S. Yadav, R. Krauspenhaar, Ch. Betzel, W. Voelter, C.R. Babu, T.P. Singh
2005	cDNA Cloning and characterization of a ribosome inactivating protein of a hemi-parasitic plant ( <i>Viscum album</i> L.) from North-Western Himalaya (India).	Plant Science 168 (3): 615-625.	V. Mishra, <b>R.S. Sharma</b> , M. Paramasivam, S. Bilgrami, S. Yadav, A. Srinivasan, C. Betzel, C.R. Babu, T.P. Singh.
2005	Unique sugar affinity of four novel isoforms of a ribosome inactivating protein from <i>Viscum album</i> (L.) inhabiting NW Himalaya.	FEBS Journal 272 (s1): 75.	<b>R.S. Sharma</b> , V. Mishra, S. Yadav, C.R. Babu, T.P. Singh
2005	Natural colour yielding potential of Himalayan plant species and identification of probable class of compounds.	Asian Journal of Chemistry 17(1): 149-154.	<b>R.S. Sharma</b> , V. Mishra, R. Singh, N. Seth, C.R. Babu
2005	Structure–function relationship of a ribosome inactivating protein from a Himalayan hemi-parasitic plant.	FEBS Journal 272 (s1): 54.	V. Mishra, <b>R.S. Sharma</b> , A.S. Ethayathulla, S. Bilgrami, M. Paramasivam, S. Yadav, C.R. Babu, T.P. Singh
2004	Purification and characterization of four isoforms of Himalayan mistletoe ribosome inactivating protein from <i>Viscum album</i> having unique sugar affinity.	Archives of Biochemistry and Biophysics 423(2): 288-301.	V. Mishra, <b>R.S. Sharma</b> , S. Yadav, C.R. Babu, T.P. Singh
2004	Crystal structure of a novel ribosome inactivating protein from a semi-parasitic plant inhabiting north-western Himalaya.	Acta Crystallography D60:2295-2304.	V. Mishra, A.S. Ethayathullah, <b>R.S. Sharma</b> , S. Yadav,

2002	Crystal structure of a ribosome inactivating viscumin from Indian <i>Viscum album</i> at 2.8 Å resolution.	Acta Crystallography A58 (Suppl), 488.	R. Krauspenhaar, C. Betzel, C.R. Babu, T.P. Singh A. Bhushan, V. Mishra, A.K. Verma, S. Yadav, <b>R.S. Sharma</b> , C.R. Babu, T.P. Singh <b>R.S. Sharma</b> , A. Mohmmmed, C.R. Babu
2002	Diversity among rhizobiophages from rhizospheres of legumes inhabiting three ecogeographical regions of India.	Soil Biology and Biochemistry 34(7): 965-974.	<b>R.S. Sharma</b> , A. Mohmmmed, C.R. Babu
2001	Molecular diversity of the plasmid genotypes among <i>Rhizobium</i> gene pools of sesbanias from different habitats of a semi-arid region (Delhi).	FEMS Microbiology Letters 205(2): 171-178.	A. Mohmmmed, <b>R.S. Sharma</b> , S. Ali, C.R. Babu
<u>Articles</u>			
2007	Potential of microbial diversity to enhance agricultural productivity.	Ecosystems: Vol. 1. IUCN Commission on Ecosystem Management	<b>R.S. Sharma</b>
2005	<i>Sesbanias</i> - a novel bioresource for restoration ecology and sustainable development.	Species 43:29.	<b>R.S. Sharma</b> , V. Mishra, A. Mohmmmed, C.R. Babu
2005	Unexplored ecological significance of <i>Saccharum munja</i> .	Species 43:39.	M. Sharma, N. Rau, V. Mishra, <b>R.S. Sharma</b>
2004	Mistletoe- a potentially new medicinal resource.	Species 41:10.	V. Mishra, <b>R.S. Sharma</b> , C.R. Babu
<u>Conference Presentations</u>			
<u>A. International Conferences</u>			
1. <b>R.S. Sharma</b> , S. Raiping, M.K. Das, V. Mishra, N. Rau, M. Sharma (2006). Phage induced functional diversity in rhizosphere bacteria and its significance in restoration ecology. <b>International Symposium on Biology, Ecology and Management of World's Worst Plant Invasive Species</b> . 10-14 December 2006.			
2. M.K. Das, <b>R.S. Sharma</b> , V. Mishra. Prospecting of stem-parasitic weeds for novel medicinally important compounds. In: <b>International Symposium on Biology, Ecology and Management of World's Worst Plant Invasive Species</b> . December 10-14 2006.			
3. M. Sharma, <b>R.S. Sharma</b> . Dhubgrass – an agricultural weed, as a source of novel rhizobacteria. In: <b>International Symposium on Biology, Ecology and Management of World's Worst Plant Invasive Species</b> . December 10-14 2006.			
4. <b>R.S. Sharma</b> , A. Mohmmmed, V. Mishra, C.R. Babu. Diversity in functionally important traits of promiscuous group of <i>Sesbania</i> -rhizobia and their colonization potential to ecologically diverse habitats of a semi-arid region of India. <b>XVII International Botanical Congress 2005</b> , July 17-23, 2005.			
5. V. Mishra, <b>R.S. Sharma</b> , T.P. Singh, C.R. Babu. Novel ribosome inactivating proteins (RIPs) from Himalayan <i>Viscum album</i> (L.)- potential biomolecules for bioprospecting. <b>XVII International Botanical Congress 2005</b> , July 17-23, 2005.			
6. M.K. Das, S. Raiping, V. Mishra, M. Sharma and <b>R.S. Sharma</b> . Significance of bacteriophage sensitivity in rhizosphere ecology of growth promoting bacteria of <i>Dichanthium annulatum</i> (Willem.). In: <b>Third International</b>			

**Conference on Plants and Environmental Pollution (ICPEP-3), 28 November – 2 December 2005.**

7. S. Raiping, **R.S. Sharma**, M. Sharma, V. Mishra. Soil-borne bacteriophages of rhizobacteria of *Dichanthium annulatum* (Willem.) inhabiting mined out area and their significance in inoculation technologies. In: **Third International Conference on Plants and Environmental Pollution (ICPEP-3)**, 28 November – 2 December 2005.
8. N. Rau, **R.S. Sharma**, V. Mishra. Variations in functional properties among rhizosphere bacteria of *Saccharum munja* (L.) inhabiting heavy metal contaminated fly ash dumps. In: **Third International Conference on Plants and Environmental Pollution (ICPEP-3)**, 28 November – 2 December 2005.
9. V. Mishra, **R.S. Sharma**, T.P. Singh, C.R. Babu. Diversity In Ribosome inactivating proteins from a Himalayan parasitic plant: *Viscum album* L. In: **ICOB-4 & ISNP-24, IUPAC International Conference on Biodiversity and Natural Products: Chemistry and Medical Applications**, 26-31 January 2004.
10. R. Singh, **R.S. Sharma**, V. Mishra, N. Seth, C.R. Babu. Chemical prospecting for medicinal compounds from a hemi-parasitic plant (*Dendrophthoe trigona*) inhabiting western ghats of India. In: **ICOB-4 & ISNP-24, IUPAC International Conference on Biodiversity and Natural Products: Chemistry and Medical Applications**, 26-31 January 2004.
11. S. Kshirsagar, **R.S. Sharma**, M. Sen (2003). New reports to the Flora of Delhi. In: **Thirteenth Annual Conference of Indian Association for Angiosperm Taxonomy and International Symposium on Plant Taxonomy: Advances and Relevance**. November 14-15, 2003.
12. V. Mishra, **R.S. Sharma**, S. Bilgrami, S. Yadav and T.P. Singh. Diversity in ribosome inactivating proteins (Rips): some molecular evidences. In: **International Symposium on Ecology of Biological Invasions**, December 4-6, 2003.
13. **R.S. Sharma**, A. Mohammed. Diversity among rhizobiophages and *Rhizobium* gene pools from rhizosphere of Sesbanias inhabiting ecologically distinct habitats. In: **International Symposium on Ecology of Biological Invasions**, December 4-6, 2003.
14. V. Mishra, S. Bilgrami, M. Paramasivam, S. Yadav, **R.S. Sharma**, C.R., Babu, T.P. Singh (2003). Crystal structure of a ribosome inactivating protein (Viscumin) from the Indian *Viscum album* reveals the presence of natural superinhibitor. "International Symposium on Modern Trends in Cellular and Molecular Biology" on March 6-7, 2003
15. V. Mishra, S. Bilgrami, M. Paramasivam, A.K. Varma., S. Yadav, **R.S. Sharma**, C.R. Babu, T.P. Singh. Crystal structure of a ribosome inactivating protein (viscumin) from Indian *Viscum album* at 2.8 Å resolution in **The First Indian Symposium of the Protein Society – Protein Structure and Function**, by International Protein Society at Indian Institute of Technology Bombay, Mumbai, October 18 - 20, 2002.
16. V. Mishra, A.K. Varma, S. Yadav, **R.S. Sharma**, C.R. Babu, T.P. Singh. Crystal structure of a Ribosome inactivating viscumin from Indian *Viscum album* at 2.8 Å resolution in **AsCA 01 IVth Meeting of Asian Crystallographic Association** at Indian Institute of Science Bangalore, India, November 18-21, 2001.

**B. National Conferences**

1. **R.S. Sharma** (2008). Prospecting of wild grasses and their rhizosphere microbial communities for remediation and biomass enhancement at the fly ash dumps. **Workshop on Taxonomy and Bioprospecting**, Ministry of Environment & Forests (Govt. of India) and University of Delhi, 28 Jan-06 Feb 2008.
2. **R.S. Sharma** (2006). Biodiversity and Environmental Pollution. 4-week Orientation Course on Environment for Teachers of Higher Education, 24.2.6- 24.03.06
3. **R.S. Sharma** (2005). Potential bioresources for ecological restoration of degraded lands and stressed habitats. Workshop on "Bioresources and Biotechnology in Sustainable Development" for College Teachers and University Lecturers, 23.01.06 – 6.02.06.
4. V. Mishra, A.S. Ethayathulla, S. Bilgrami, **R.S. Sharma**, S. Yadav, P. Kaur, C.R. Babu T.P. Singh. Crystal structure determination and structure-function relationship of a type II ribosome inactivating protein from a

Himalayan hemi-parasitic plant. **34<sup>th</sup> National Seminar on Crystallography, Indian Crystallographic Association and INSA National Committee for IUPAB & IUCr**, January 10-12 2005.

5. **R.S. Sharma**, A. Mohammed, V. Mishra, C.R. Babu. Strain differentiation in the promiscuous group of rhizobia from three *Sesbania spp.* colonizing ecologically distinct habitats of semi-arid Delhi region. In: **BioTech 2004: Challenges & Opportunities, 2<sup>nd</sup> National Conference Biotechnology Society of India, New Delhi**. October 13-15, 2004.
6. M. Sharma, V. Mishra, C.R. Babu, **R.S. Sharma**. Lithophytic grasses and associated microbes: ideal inputs for biological technologies for ecological restoration of degraded lands. In: **BioTech 2004: Challenges & Opportunities, 2<sup>nd</sup> National Conference Biotechnology Society of India, New Delhi** October 13-15, 2004.
7. C.R. Babu, S.R. Kipgen, S. Subramaniam, **R.S. Sharma**, A. Bhattacharya, D.M. Kothamasi, R. Janardhanan, Kumar (2003). Restoration technologies in sustainable development. In Indo-Canadian **"Workshop on Biotechnology for Environmental protection and Sustainable Development"** on February 5-6, 2003.
8. S. Subhashree, **R.S. Sharma**, J. Rajiv, C.R. Babu (2001). Taxonomic riddles needing molecular approaches. National Seminar on **New Challenges in Taxonomy in 21st Century for Utilization and Conservation of Plant Diversity**. February 20, 2001.
9. **R.S. Sharma** (2001). Basic Science Education: How Relevant in Today's Society. Indian Science Congress Association 2001 at IARI, New Delhi.
10. V. Mishra, S. Yadav, **R.S. Sharma**, C.R. Babu, T.P. Singh. Crystal structure of a ribosome inactivating viscum from Indian *Viscum album* in. **XXXI National Seminar on Crystallography**, BARC, Mumbai June 19-22, 2001.
11. **R.S. Sharma**, A. Mohammed. Rhizobiophages and *Rhizobium* inoculants. In National Symposium on Microbial Technologies for Environmental Management and Resource Recovery, 1995.
12. A. Mohammed, **R.S. Sharma**. Plasmid profile as selectable marker in the development of efficient *Rhizobium* inoculants. In National Symposium on Microbial Technologies for Environmental Management and Resource Recovery, 1995.
13. C.R. Babu, A. Mohammed, **R.S. Sharma**, et al. Consortium of rhizospheric bacterial inoculants as a biofertilizer mix for the management of natural ecosystems. In: Abstracts TCCD International Workshop on Application of Biotechnology in Biofertilizers and Biopesticides, IIT, New Delhi

#### Research Projects (Major Grants/Research Collaboration)

**Principal Investigator**, DBT sponsored R & D project "Rhizosphere Microbial Diversity of Lithophytic Grasses and their Potential in Ecological Restoration of Stressed and Degraded Habitats", 2005-2009

**Co-Principal Investigator**, NBDB, DBT sponsored R & D project "Evaluation of Viscaceae Members of Western Ghats Region for Prospecting of Ribosome Inactivating Proteins", 2006-2010.

Awards and Distinctions
<ul style="list-style-type: none"><li>* <b>DBT CREST Award in Environmental Biotechnology (2011-12)</b></li><li>* <b>Expert Member, IUCN Commission on Ecosystem Management, South Asian Region (2005–till date)</b></li><li>* <b>Expert Member, the Core Group on the United Nation Convention on Combating Desertification (UNCCD), Govt. of India (2005–08)</b></li></ul>
Association With Professional Bodies
<ul style="list-style-type: none"><li>1. <b>Society of Biological Chemists (SBC) (India), Life Member</b></li><li>2. <b>Bacteriophage Ecology Group (BEG) (Ohio), Life Member</b></li><li>3. <b>Life Member, Society of Biological Chemists (India)</b></li></ul>

Signature of Faculty Member