



**University Faculty Details Page on DU Web-site**

Title	Dr.	First Name	Rani	Last Name	Gupta	Photograph
Designation	Professor					
Department	Microbiology					
Address (Campus)	Department of Microbiology, University of Delhi, South Campus					
(Residence)	C-1/4A Yamuna Vihar, Delhi-110053					
Phone No (Campus)	+91-11-24157165					
(Residence) optional	-					
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Email	<a href="mailto:rani.gupta@south.du.ac.in">rani.gupta@south.du.ac.in</a>					
Web-Page	-					
<b>Education</b>						
Subject	Institution	Year	Details			
Ph.D. (Botany)	University of Delhi	1983	Microbial Ecology of <i>Corchorus olitorius</i> leaf litter in relation to soil fertility			
M.Phil	University of Delhi	1979	Microbial Ecology of the leaves of <i>Corchorus olitorius</i>			
M.Sc.	University of Delhi	1978	Microbial Taxonomy and Ecology			
B.Sc.	University of Delhi	1976	Botany, Zoology, Chemistry, Physics, English			
<b>Career Profile</b>						
Organisation / Institution	Designation	Duration	Role			
Department of Microbiology, University of Delhi South Campus, New Delhi.	Professor	1988-till date	Research & Teaching			
Various colleges of University of Delhi.	Assistant-Professor	1983- 88	Research & Teaching			
Department of Biochemical Engineering and Biotechnology, I.I.T., New Delhi.	Senior Associate	1997-1998	Research			

Research Interests / Specialization			
<p>Microbial enzymes of industrial applications: Developing process for cost effective fermentation and downstream processing.</p> <p>Cloning and expression of industrially useful enzymes.</p> <p>Searching natural microbial diversity for novel lipases and keratinases.</p> <p>Modulating enzyme activity and specificity by altering conformation using peptide or solvent engineering.</p> <p>Modification of existing enzyme assays to make them simpler and rapid.</p>			
Teaching Experience (Subjects/Courses Taught)			
Microbial Physiology and Metabolism, Biochemistry and Eukaryotes			
Honors & Awards			
National Associateship of DBT, Government of India (1997)			
Publications (LAST FIVE YEARS)			
<u>Books / Monographs</u>			
NIL			
<u>In Indexed/ Peer Reviewed Journals (Five years)</u>			
<u>Year of Publication</u>	<u>Title</u>	<u>Journal</u>	<u>Co-Author</u>
2016	Hyper production of $\gamma$ -glutamyl transpeptidase from <i>Bacillus licheniformis</i> ER15 in the presence of high salt concentration	Prep Biochem Biotechnol. Epub ahead of print	Shruti Bindal and <b>Rani Gupta</b>
2016	Thermo- and salt-tolerant chitosan cross-linked $\gamma$ -glutamyl transpeptidase from <i>Bacillus licheniformis</i> ER15	Int J Biol Macromol, 91:544-553	Shruti Bindal and <b>Rani Gupta</b>
2016	Selective disruption of disulphide bonds lowered activation energy and improved catalytic efficiency in TALipB from <i>Trichosporon asahii</i> MSR54: MD simulations revealed flexible lid and extended substrate binding area in the mutant	Biochem Biophys Res Commun, 472(1):223-30	Yogesh Singh, Namita Gupta, Ved Vrat, Manisha Goel and <b>Rani Gupta</b>
2016	Long period fiber grating based sensor for the detection of triacylglycerides	Biosens Bioelectron, 79: 693-700	Anjali Baliyan, Shivani Sital, Umesh Tiwari, <b>Rani Gupta</b> and Enakshi K Sharma,

<b>2015</b>	Cloning, Expression, and Biochemical Characterization of an Enantioselective Lipase, YLIP9, from <i>Yarrowia lipolytica</i> MSR80	Appl Biochem Biotechnol, doi 10.1007/s12010-015-1561-y	Poonam Syal and <b>Rani Gupta</b>
<b>2015</b>	Molecular and functional diversity of yeast and fungal lipases: Their role in biotechnology and cellular physiology	Prog Lipid Res, 57C:40-54	<b>Rani Gupta</b> , Arti Kumari, Poonam Syal and Yogesh Singh
<b>2015</b>	Functional characterization of a novel aspartic acid rich lipase, TALipC, from <i>Trichosporon asahii</i> MSR54: solvent-dependent enantio inversion during esterification of 1-phenylethano	Biotechnol Lett, 37(1):121-30	Arti Kumari and <b>Rani Gupta</b>
<b>2015</b>	Functional characterization of novel enantioselective lipase TALipA from <i>Trichosporon asahii</i> MSR54: sequence comparison revealed new signature sequence AXSXG among yeast lipases	Appl Biochem Biotechnol, 175(1):360-71	Arti Kumari and <b>Rani Gupta</b>
<b>2014</b>	L-Theanine synthesis using $\gamma$ -glutamyl transpeptidase from <i>Bacillus licheniformis</i> ER-15	J Agric Food Chem, 62(37): 9151–9159	Shruti Bindal and <b>Rani Gupta</b>
<b>2014</b>	Novel strategy of using methyl esters as slow release methanol source during lipase expression by mut+ <i>Pichia pastoris</i> X33	PLoS ONE, 9(8): e104272	Arti Kumari and <b>Rani Gupta</b>
<b>2013</b>	Biotechnological applications and prospective market of microbial keratinases	Appl Microbiol Biotechnol, 97(23): 9931-9940	<b>Rani Gupta</b> , Rinky Rajput, Richa Sharma and Namita Gupta
<b>2013</b>	Expression of <i>Bacillus pumilus</i> keratinase rK <sub>27</sub> in <i>Bacillus subtilis</i> : enzyme application on developing renewable flocculants from bone meal	Ann Microbiol, 64(3): 1257-1266	Rinky Rajput and <b>Rani Gupta</b>
<b>2013</b>	Thermostable keratinase from <i>Bacillus pumilus</i> KS12: Production, chitin crosslinking and degradation of Sup35NM aggregates	Bioresour Technol, 133: 118-126	Rinky Rajput and <b>Rani Gupta</b>
<b>2013</b>	Heterologous expression, purification and characterization of thermostable lip11 from <i>Yarrowia lipolytica</i> in <i>Pichia pastoris</i> X33	J Prot Proteomics, 4(1): 5-10	Arti Kumari and <b>Rani Gupta</b>
<b>2013</b>	A hydrolytic $\gamma$ -glutamyl transpeptidase from thermo-acidophilic archaeon <i>Picrophilus torridus</i> : binding pocket mutagenesis and transpeptidation	Extremophiles, 17(1): 29-41	Rinky Rajput, Ved Vrat Verma, Vishal Chaudhary and <b>Rani Gupta</b>

<b>2013</b>	Revisiting microbial keratinases: Next generation proteases for sustainable biotechnology	Crit Rev Biotechnol, 33(2): 216-228	<b>Rani Gupta</b> , Richa Sharma and Qasim Beg
<b>2013</b>	Functional characterization of an extracellular keratinolytic protease, Ker AP from <i>Pseudomonas aeruginosa</i> KS-1: A putative aminopeptidase with PA domain	J Mol Catal, 91: 8-16	Richa Sharma, Ved Vrat Verma and <b>Rani Gupta</b>
<b>2012</b>	Coupled action of $\gamma$ -glutamyl transpeptidase-glutathione and keratinase effectively degrades feather keratin and surrogate prion protein, Sup 35NM	Bioresour Technol, 120:314-7	Richa Sharma and <b>Rani Gupta</b>
<b>2012</b>	Swapping of pro-sequences between keratinases of <i>Bacillus licheniformis</i> and <i>Bacillus pumilus</i> : Altered substrate specificity and thermostability	Enzyme Microb Technol, 51: 131-138	Rinky Rajput, Ekta Tiwary, Richa Sharma and <b>Rani Gupta</b>
<b>2012</b>	Comparative biochemical characterization and in-silico analysis of novel lipases Lip11 and Lip12 with Lip2 from <i>Yarrowia lipolytica</i>	World J Microbiol Biotechnol, 28(11):3103-1	Arti Kumari, Ved Vrat Verma and <b>Rani Gupta</b>
<b>2012</b>	Enhanced production of recombinant thermostable keratinase of <i>Bacillus pumilus</i> KS12 : Degradation of Sup35 NM	Res J Microbiol, 6: 839-850	Rinky Rajput and <b>Rani Gupta</b>
<b>2012</b>	Extracellular expression and characterization of thermostable lipases, LIP8, LIP14 and LIP18, from <i>Yarrowia lipolytica</i>	Biotechnol Lett, 34(9):1733-9	Arti Kumari and <b>Rani Gupta</b>
<b>2012</b>	Purification and Biochemical Characterization of a Novel Magnesium Dependent Lipase from <i>Trichosporon asahii</i> MSR 54 and its Application in Biodiesel Production	Asian J Biotechnol, 4: 70-82	Arti Kumari and <b>Rani Gupta</b>
<b>2011</b>	$\gamma$ -Glutamyl transpeptidase from <i>Bacillus pumilus</i> KS 12: Decoupling autoprocessing from catalysis and molecular characterization of N-terminal region. Enzyme Microbial Technology	Enzyme Microb Technol, 50: 159-64	N. Apurva Ratan Murty, Ekta Tiwary, Richa Sharma, Neha Nair and <b>Rani Gupta</b>
<b>2011</b>	Molecular Characterization of N-Terminal Pro-sequence of Keratinase Ker P from <i>Pseudomonas aeruginosa</i> : Identification of Region with Chaperone Activity	Appl Biochem Biotechnol, 165(3-4):892-901	Richa Sharma, N. Apurva Ratan Murty and <b>Rani Gupta</b>

<b>2011</b>	Cloning and characterization of a thermostable detergent-compatible recombinant keratinase from <i>Bacillus pumilus</i> KS12	Biotechnol Appl Biochem, 58 (2): 109-118	Rinky Rajput, Richa Sharma and <b>Rani Gupta</b>
<b><u>Conference Presentations:</u></b>			
<ol style="list-style-type: none"> <li>1. OMICS International 7th Indo-Global Summit and Expo on Food &amp; Beverages, New Delhi, October 2015</li> <li>2. Bioworld 2014: Protein Structure and Function, IIT Delhi, 12-14<sup>th</sup> December 2014</li> <li>3. National Conference on Application of the derivatives of chitin and chitosan, Gandhigram, Tamil Nadu, August 22<sup>nd</sup>-23<sup>rd</sup>, 2014</li> <li>4. Association of Microbiologists of India, Rohtak, November 17-20, 2013</li> <li>5. Biotrans, Manchester (U.K.), 21<sup>st</sup>-24<sup>th</sup> July 2013</li> <li>6. 4<sup>th</sup> Congress of European Microbiologists (FEMS 2011) held at Geneva, Switzerland 2011</li> <li>7. International conference on Microorganisms in environmental management and Biotechnology held at Bhopal, 2011</li> </ol>			
Total Publication Profile <b>optional</b>			
<b>105</b>			
<u>In Indexed/ Peer Reviewed Journals</u>			
<b>95</b>			
<u>Articles</u>			
<b>7</b>			
<u>Public Service / University Service / Consulting Activity</u>			
External expert for Institutional Biosafety Committee (IBSC) at IIT, Delhi Member Governing Committee of University colleges Chairperson of Governing Committee, Geetanjali Hostel, UDSC Member of Interim Governing Council, WUS Health Centre, Delhi University			
<u>Professional Societies Memberships</u>			
Association of Microbiologists of India, AMI (Life Member) The Society of Microbiologists of Delhi (Life member)			
<u>Ongoing Projects (Major Grants / Collaborations)</u>			
Genome-wide survey of lipase from <i>Yarrowia lipolytica</i> : cloning, expression, biochemical characterization and applications. <b>DBT</b>			