


<b>NAME</b>	Rachana Singh	
<b>DESIGNATION</b>	Professor	
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<b>CONTACT NUMBER</b>	4392170	

<b>RESEARCH INTERESTS</b>	<ul style="list-style-type: none"> <li>• Development of chromatographic packing material for metal preconcentration from waste water</li> <li>• waste water treatment using microorganisms and nanocomposites.</li> <li>• Water quality assessment and its statistical evaluation</li> <li>• Bioremediation and Biosorption processes. Hydrogel synthesis. Microbial Immobilization.</li> </ul>
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**EDUCATIONAL QUALIFICATIONS: Ph.D**

Name of College / University	Degree	Year
Banaras Hindu University	M.Sc	1996
Banaras Hindu University	Ph.D	2000

**Title of Ph.D. thesis: : “New biosorbents for trace metal Preconcentration”**

**EXPERIENCE (in chronological order): Total 20 Years Research & Teaching**

Designation	Type of post held (teaching/ research)	Name of the Institute	Year (From – To)
Professor	Teaching and research	Amity Institute of Biotechnology	Feb2010-till date
Asst. Professor	Teaching and research	Amity Institute of Biotechnology	March 2008- Jan2010
Sr. Lecturer	Teaching and research	Amity Institute of Biotechnology	April 2006- Feb 2008
Lecturer	Teaching and research	Amity Institute of Biotechnology	Sept 2001- march 2006

<b>No. of Ph.D. students supervised</b>	Awarded-2, Submitted- 2, ongoing- 2		
<b>No. of Post-Doc</b>	-		
<b>No. of M.Tech. Students supervised:</b>	More than 50		
<b>No. of B.Tech. Students supervised:</b>	More than 100		
<p><b>PUBLICATIONS</b> (mention total no. here)</p> <p>30</p>	<ol style="list-style-type: none"> <li>1. <b>Rachana Singh</b>, B.Prasad “Trace metal analysis: selective sample (copper II) enrichment on an AlgaSORB column”, Process Biochemistry , 35 (2000) 897-905.</li> <li>2. <b>Rachana Singh</b>, B. B. Prasad and Dhana Lakshmi “Biosorption separation of ‘Labile’ fractions of copper and lead from river sediments and evaluation by differential pulse anodic stripping voltammetry”, Int. J. Environment and pollution, Vol. 27(2006) 179-190.</li> <li>3. <b>Rachana Singh.</b>, Shilpa, S., Sahoo, S. “Biosorption of chromium (IV) from aqueous solutions by free and immobilized <i>Eichornia crassipes</i>”, International Journal of Environmental Sciences, ISSN 2249-2127, 1 (2011) 131- 140.</li> <li>4. <b>Rachana Singh.</b> Selective separation of Lead ions from waste water by Immobilized Chlorella based biosorbents”, International Journal of Chemical and Environmental Engineering, ISSN 2078-0737, 3 no.2 (2012)108-114.</li> <li>5. Divya Christopher, Simarpreet Kaur and <b>Rachana Singh</b> “Water Quality Status of River Yamuna in Delhi with Reference to Presence of Heavy Metals: A Review”, Int. J. Pharm. Med. &amp; Bio. Sc., ISSN 2278-5221, 1, no2(2012) 266-271.</li> <li>6. <b>Rachana Singh</b> and Surbhi Sinha “Bioremediation of Heavy Metals by Algae: A Review on Evaluation of low cost and high performance biosorbents, Indian J. Agric Biochem, ISSN:0970-6399. 26(1)(2013),1-9.</li> <li>7. Abhinav K Srivastava, Mayur Manglik and <b>Rachana Singh</b>, “Preliminary evaluation of wastewater effluents from food and beverage industries located in Delhi-NCR”, Next Generation Sciences: Vision 2020 &amp; Beyond” Conference proceedings, ISBN: 978-81-920945-4-0, page no-1-7, 2014.</li> <li>8. Surbhi Sinha, Subhasha Nigam and <b>Rachana</b></li> </ol>		

**Singh** “Potential of Nostoc Muscorum for the decolorization of textile dye RGB-RED, Int J Pharm Bio Sci , ISSN 0975-6299, 6(3): (B) (2015), 1092 – 1100.

9. Abhinav K Srivastava, Mayur Manglik and **Rachana Singh**, “Physiochemical and Biological Analysis of Wastewater Effluents from Dairy Industries located in Delhi-NCR”, International Journal on Environmental Sciences 6 (2) (2015)281-288, (ISSN No.: 0976-4534).
10. **Rachana Singh**, Mayur Manglik and Abhinav K Srivastava, “Physico-chemical and Statistical Assessment of Water Quality of River Yamuna in Mathura-Agra Region”, International Journal on Environmental Sciences 6 (2) (2015) 281-288 (ISSN No.: 0976-4534).
11. Surbhi Sinha, **Rachana Singh**, Akhilesh K. Chaurasia and Subhasha Nigam “Self-sustainable *Chlorella pyrenoidosa* strain NCIM 2738 based photobioreactor for removal of Direct Red-31 dye along with other industrial pollutants to improve the water-quality”, Journal of Hazardous Materials 306 (2016) 386–394.
12. Subhasha Nigam, Surbhi Sinha, Mayur Manglik and **Rachana Singh**, Treatment of Textile Dye Effluent by Algae: An Eco Friendly And Sustainable Approach to the Environmental Pollution. Int J Pharm Bio Sci ; 7(3): (B) (2016) 366 - 375.
13. **Rachana Singh** and Tithi Mehrotra, “Socio-economic impacts of water pollution in Yamuna River basin at Mathura, Uttar Pradesh”, International Journal of Engineering Science and Management, ISSN No. 2454-4140 (2016) vol(2),31-37.
14. Abhinav K Srivastava, Ashish Kumar Gupta, Tithi Mehrotra, Ronit Choudhury and **Rachana Singh**. Physicochemical, biochemical and statistical analysis of beverages industry effluent. Research Journal of Pharmacy and Technology. Vol: 9 No: 8. (2016).
15. Abhinav K Srivastava, Tithi Mehrotra and **Rachana Singh**. Characterization and immobilization of bacterial consortium for its application in degradation of dairy effluent. Journal of Pure and Applied Microbiology. Vol. 10(3) (2016)2199-2208.
16. Divya Bisht and **Rachana Singh**. Utilization of

Spent Fly Ash Generated by Treatment of Pulp & Paper Mill Effluent for Colour Removal, Journal of Civil Engineering and Environmental Technology, Volume 5, Issue 6, **2018**, pp. 410-413 .

17. Divya Bisht and **Rachana Singh**. Studies for Use of Coal Fly Ash and Rice Husk Ash for Colour Removal of Pulp and Paper Mill Effluent-, Journal of Basic and Applied Engineering Research, Volume 5, Issue 5, **2018**, pp. 400-404.
18. Surbhi Sinha, Subhasha Nigam, **Rachana Singh (2019)** Biosorption capacity of Cr (VI) on live and dead *S. rubescens*: Kinetic, equilibrium and phytotoxicity studies. Indian journal of agricultural biochemistry. 31(2): 137-144.
19. Kannikka Behl, Surbhi Sinha, Mahima Sharma, **Rachana Singh**, Monika Joshi, Amit Bhatnagar, Subhasha Nigam (**2019**) One Time Cultivation of *Chlorella pyrenoidosa* in aqueous dye solution supplemented with biochar for microalgal growth, dye decolourization and lipid production. Chemical Engineering Journal. 364: 552 -561.
20. Tithi Mehrotra, Abhinav Srivastava, R. Pragadeeshwara Rao, **Rachana Singh (2019)** A novel immobilized bacterial consortium bioaugmented in a bioreactor for sustainable wastewater treatment. Journal of pure and applied microbiology. 13(1): 371-383.
21. Naveen Kumar, Surbhi Sinha, Tithi Mehrotra, **Rachana Singh**, Simaran Tandon, Indu Shekhar Thakur (**2019**) “Biodecolorization of azo dye Acid Black 24 by *Bacillus pseudomycooides*: Process optimization using Box Behnken design model and toxicity assessment”, Bioresource Technology Reports.
22. Tithi Mehrotra, Shalini Nagabooshanam and **Rachana Singh, 2019**: Electrochemical Evaluation of *Bacillus* Species for Rapid Biosynthesis of Silver Nanoparticles: Application in Domestic Wastewater Treatment. In **2019 6th International Conference on Signal Processing and Integrated Networks (SPIN)**. pp. 456-460. IEEE.
23. Tithi Mehrotra, Mohammad Nawaid Zaman, Bhim Bali Prasad, Anuradha Shukla, Srijan Aggarwal and **Rachana Singh (2020)**. Rapid immobilization of viable *Bacillus pseudomycooides* in polyvinyl alcohol/ glutaraldehyde hydrogel for biological treatment of municipal wastewater. **Environmental Science and Pollution Research**:1-14. DOI:

	<p>10.1007/s11356-019-07296-z.</p> <p>24. Tithi Mehrotra, Anuradha Shukla and Rachana Singh (2019). In vitro toxicological evaluation of domestic effluent treated by formulated synthetic autochthonous bacterial consortium. <b>World Journal of Microbiology and Biotechnology</b>. 35(12):184. DOI: 10.1007/s11274-019-2756-0</p> <p><b><u>Books Chapter:</u></b></p> <ul style="list-style-type: none"> <li>• A review on the dairy industry wastewater characteristics, its impact on environment and treatment possibilities”, Emerging Issues in Ecology and Environmental Science (2019). pp.73-84. Springer, Cham.</li> <li>• Nanobioremediation technologies for potential application in Environmental Cleanup, Environmental biotechnology (Springer), 2019. Accepted</li> <li>• Ecofriendly and economically adopted nano bioremediation technologies for environmental pollution abatement (Springer), Accepted.</li> <li>• Role of Algae in heavy metal toxicity, Springer , In process</li> <li>• <i>Marine Pharmacognosy: An overview of Marine-derived Pharmaceuticals</i> in the book <i>Marine Niche: Applications in Pharmaceutical Sciences - Translational Research”</i> (Springer Nature) (2019), Under publication</li> <li>• <i>Applications and efficacy of exceptional bioactive compounds from microalgae</i> in the book "Bioprocess Engineering for Bioremediation: Valorization and Management Techniques" (Springer, Germany) (2019), Accepted.</li> <li>• <i>Environmental hazards and Biodegradation of Plastic Waste: Challenges and Future Prospects</i> in the book <i>Bioremediation for Environmental Sustainability: Vol. I: Toxicity, Mechanisms of Contaminants Degradation, Detoxification and Challenges</i> (ELSEVIER, MA, USA) (2019), Accepted.</li> </ul>
<p><b>PATENTS</b> (<i>total no.</i>)</p>	<ul style="list-style-type: none"> <li>• Naveen Kumar, Surbhi Sinha, Tithi Mehrotra, Aishwarya Mishra, <b>Rachana Singh</b> (2018) A composite comprising of encapsulated Bacillus pseudomycoides and iron oxide nanoparticles for the removal of toxic diazo dye Congo Red. (CRN NO- 3020).</li> <li>• Surbhi Sinha, Tithi Mehrotra, <b>Rachana Singh</b> (2018) Green synthesis of carbon nanodots using banana peel for the decolourization of azo dye Acid Black 24 from textile effluents. (CRN NO-2778)</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Rachana Singh</b>, Tithi Mehrotra, Abhinav Srivastava, Surbhi Sinha (2017) Potential of novel bacterial species <i>Citrobacter freundii</i> LCJ4 – 002 for the decolourization of textile dye Swiss Pink. (Application No- 201711013703) (3973/DEL/2014).</li> <li>• Subhasha Nigam, <b>Rachana Singh</b>, Surbhi Sinha, Savera Aggarwal, Shifu Aggarwal (2013) Effect of charcoal on the decolourization efficiency of RGB-Red dye by <i>Chlorella pyrenoidosa</i>. (3442/DEL/2013).</li> <li>• <b>Rachana Singh</b>. Development of a plant biomass based metal sorption column with modified silica gel and the application thereof. (Application no. 1258/DEL/2009).</li> </ul>
<p><b>RESEARCH PROJECTS</b> Completed: ( 1 ) Ongoing: ( 2 )</p>	<ul style="list-style-type: none"> <li>• Water quality assessment of River Yamuna in Agra-Mathura Region and its Process Investigation including remedies for pollution abatement”, funded by Council of Science and Technology, UP. (<b>Completed</b>)</li> <li>• “A synergistic and economical approach for the treatment of pulp and paper mill Effluent using microbes and fly ash nanoparticles to achieve minimum or zero waste discharge” funded by Ministry of Commerce and Industry. (<b>Ongoing</b>)</li> <li>• “Application of algal polysachharide magnetic nano-composites for removal of arsenic and genotoxic assessment of degraded metabolites” funded by DST. (<b>ongoing</b>)</li> </ul>
<p><b>AWARDS &amp; HONOURS/ DISTINCTIONS</b></p>	<ul style="list-style-type: none"> <li>• Environmentalist of the Year, 2018 awarded by National Environment Science Academy, Delhi</li> <li>• Dr. Upadhyayal V.Rao Memorial Award in Analytical &amp; Environmental chemistry section during Annual Convention of chemist1999 .</li> <li>• DBT travel grant for paper presentation in International Conference held in Kaula Lumpur, Malaysia, 2011.</li> <li>• B.H.U fellowship during Ph.D.</li> <li>• Water quality assessment of River Yamuna in Agra-Mathura Region and its Process Investigation including remedies for pollution abatement” funded by Council of Science and Technology, Uttar Pradesh; year 2013.</li> </ul>
<p><b>MEMBERSHIP</b> with Professional/ Academic bodies</p>	<ul style="list-style-type: none"> <li>• <i>Member: Indian society of Agricultural biochemist, Kanpur, INDIA.</i></li> <li>• <i>Member: Indian Chemical Society, Calcutta, INDIA.</i></li> <li>• <i>Member: National Environmental Science Academy, New Delhi, INDIA.</i></li> </ul>

