

Dr. Rachna Jain

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Contact No. – 9410699471, 8240652868

KNOWLEDGE PURVIEW

Microbiology	<ul style="list-style-type: none">• Isolation and Screening of microorganisms (Bacteria and Fungi)• Biochemical and Molecular Characterization of isolates• Staining Techniques (Gram, Endospore, Acid fast etc.)• Analysis of growth kinetics of microorganisms
Biochemistry	<ul style="list-style-type: none">• Isolation and purification of extra as well as intracellular enzymes from fungi (<i>Aspergillus</i>, <i>Penicillium</i> and <i>Fusarium</i> sp.)• Characterization profile of purified enzyme• Enzyme kinetics• Chromatographic Techniques (Sephadex G-100, Ion Exchange, Gel etc.)
Molecular Biology	<ul style="list-style-type: none">• Plasmid isolation from bacteria.• DNA isolation from fungi.• Gel electrophoresis (AGE and SDS PAGE).• PCR analysis.• DNA sequencing
Analytical Techniques	<ul style="list-style-type: none">• ELISA• HPLC• GC• HPTLC• FTIR

WORK EXPERIENCE

AUG 2016-TILL DATE: CSIR-NEERI Kolkata Zonal Center, Kolkata, West Bengal as Scientist.

AUG 2013- AUG 2014: Devsthali Vidyapeeth, Udham Singh Nagar, Uttarakhand as an Assistant Professor in Biotechnology.

Role-

Teaching various subjects to UG and PG classes. Conducting seminars at both UG and PG level.

JAN 2013- MAY 2013: Nitra Technical Campus, Ghaziabad as a visiting faculty for B.Tech

Students

Role-

Teaching subject “Introduction to Bioscience” to the Students of B.Tech (Textile Engineering) II sem.

Specialized subjects:

- **Biochemistry** at Both UG and PG level.
- **Genomics and Functional Genomics** at PG level
- **Molecular Biology** at UG level
- **Animal Biotechnology** at UG level
- **Genetic Engineering** at PG level

EDUCATION

- Ph.D (Biotechnology) from Banasthali University, Rajasthan in the year 2013. Thesis was entitled “**Microbial Degradation of Monocrotophos by Local Soil Fungal Strains**” under the supervision of Prof. Veena Garg, Department of Bioscience and Biotechnology.
- M.Sc (Biotechnology) from SBS Post Graduate Institute, Balawala, Dehradun, HNB Garhwal University, Srinagar in 2009 with 74.32%.
- B.Sc from MLN College Yamunanagar, Kurukshetra University, Kurukshetra in 2007 with 74.78%.
- 12th class from MDKV College, Najibabad, UP Board in 2004 with 75%.
- 10th class from MDKV College, Najibabad, UP Board in 2002 with 68%.

ACADEMIC PROJECTS

Major project-

- A Student Project entitled “*Optimization of culture conditions for monocrotophos degrading fungi isolated from local agricultural soil*”. Submitted to Rajasthan DST in the year 2010-11.

- **Isolation, Purification and Characterization of Lacasse isozymes from paper mill effluent grown fungal strains**, as M.Sc IV sem project work at S.B.S.PGI, Balawala, Dehradun.

Minor projects-

- **“Microbiological analysis of carbonated and non carbonated soft drinks”**, at COCA COLA PVT, LTD, Najibabad
- **“Immunopathological techniques”**, at IMMUNOPATHOLOGY LAB, Najibabad
- **“Production of ethanol from molasses”**, as a part of syllabi in Graduation.

LIST OF PROJECT TAKEN AT CSIR-NEERI

Sl.No	Title of the Project	Project Category	Sponsor	Role
1	Process and Performance Evaluation of Arsenic and Iron Removal Plant of AdEdge India Water Technologies Pvt. Ltd.	Consultancy	AdEdge	Participated as a Scientist
2	Treatment of Dumpsite Leachate by Indigenous Microfloa	Grant-in-Aid	DBT	PL

EXTRACURRICULAR ACTIVITIES AND INDUSTRIAL TRAINING

- 6 Weeks training at **Coca Cola Pvt. Ltd, Branch Najibabad.**
- 6 Weeks training at **Immuno Pathology Lab, Najibabad.**
- Supervised **three** graduate trainees for their dissertation work.
- 1week Training on **Gas Chromatography at IITR, Lucknow.**
- Supervised **seven** undergraduates for their internal project assessment.

ACHIEVEMENTS:

- Participated in “National symposium on Emerging trends in biomedical sciences” held at Dehradun on 27-28 February, 2009.
- Participated in UGC sponsored National conference on “Environmental Sustainability of textile Industry” held on 8-9 January 2010 at ICG, Jaipur.

- Paper presentation titled “**Biodegradation of Monocrotophos by Local soil fungal strains**” in the Symposium on “Biotechnology in India-Current status and Future scope” held on 30 March, 2010 at Jaipur.
- Poster Presentation entitled “**Optimization of culture conditions for the growth of fungi capable of degrading monocrotophos.**”
Awarded best Poster Award at UGC sponsored National Seminar on “Global environment issues and climate change” held on 9-10 November, 2010 at Chandigarh.
- Oral Presentation entitled “**Microbial Degradation of Monocrotophos by Local Soil Fungal Strains**” at Biosparks, March 2011, held at Department of Environmental Sciences, Jawahar Lal Nehru University, New Delhi.
- Participated in seminar on “Intellectual Property and Innovation Management in Knowledge Era” organized by NRDC at Banasthali University, Rajasthan on 28th January, 2012
- Participated in DBT sponsored National Workshop on “Applications of Bioinformatics with special Focus on Genomics” organized by Centre for Bioinformatics, Banasthali University, Rajasthan during 17-19th February, 2012.
- Oral Presentation entitled “**Molecular Characterization of Monocrotophos Degrading Soil Fungal Strain *Penicillium aculeatum.***”
Awarded Gold Medal at International Conference on Recent Trends in Climate Change Researches vis-à-vis Biodiversity held on 3-4 December, 2012 at Department of Animal Sciences, MJP Rohikhand University, Bareilly.
- Delivered an invited lecture on “**Comparative Analysis of Chemical, Fungal and Enzymatic Methods for Degradation of Monocrotophos**” in the National seminar on Environmental Issues and Challenges (NSEIC) sponsored by Council of Science and Technology, Government of Uttar Pradesh. Seminar was held on 9-10th November 2013 in collaborations with National Association of Geographers India (NAGI) and Indian Academy of Environmental Sciences (IAES) at Devta P.G college, Morna, Bijnore, UP.
- Participated as a delegate and presented a paper on “**Degradation of Monocrotophos in soil Microbial Vs Enzymatic method**” at National Workshop on Biomolecular Parasitology and Resource Sustainability Sponsored by CSIR, DRDO, DAE-BRNS, DBT, ICMR, Min Earth Sci. UGC and ACU. Workshop was held during 3-5 December 2013 at Department of Zoology, University of Allahabad, Allahabad.

- Participated as a delegate and presented a paper on “**Fungal degradation of monocrotophos in sandy loam soil of Newai, Rajasthan**” at 2nd National Conference and Exhibition on Advances in Biosciences and Health Education (ABHE 2014) Sponsored by UGC and DST, New Delhi. Conference was held on 3rd March 2014 at Department of Zoology, Bareilly College, Bareilly.

PUBLICATIONS:

- 1. Rachna Jain, Veena Garg*, Karn Pratap Singh, and Sheetal Gupta (2012)** Isolation and characterization of Monocrotophos Degrading Activity of Soil Fungal Isolate *Aspergillus niger* MCP1 (ITCC7782.10). International Journal of Environmental Sciences, 3(2): 1841-1851. **I.C Value- 4.69**
- 2. Rachna Jain*, Veena Garg and KP Singh (2012).** Two 18S rRNA gene sequences of two Fungal Strains submitted & accepted at National Centre for Biotechnology Information (NCBI) GenBank, USA, European Molecular Biology Laboratory (EMBL) & DNA Databank of Japan (DDBJ) under the **Accession numbers:** JQ660373 (*Aspergillus niger*) and JQ660374 (*Penicillium aculeatum*)
- 3. Rachna Jain, Veena Garg*, Koushalya Dangwal, Madhuri Kaushish Lily, (2013)** Comparative analysis of purification and characterization of two distinct extracellular monocrotophos hydrolases secreted by *Penicillium aculeatum* and *Fusarium pallidorozeum* isolated from agricultural fields. Bioscience, Biotechnology and Biochemistry, 77(5): 120907-1-5. **Impact factor- 1.3**
- 4. Rachna Jain* and Veena Garg, (2013)** Enzymatic Degradation of Monocrotophos by Extracellular Enzyme Secreted By Soil Fungal Isolates. Applied Biochemistry and Biotechnology, 171(6): 1473-1486. DOI 10.1007/s12010-013-0438-1. **Impact Factor- 1.894**
- 5. Rachna Jain, Veena Garg*, Koushalya Dangwal, Madhuri Kaushish Lily, (2013)** Purification and Characterization of Monocrotophos (MCP) Hydrolyzing Acid Phosphatase from *Aspergillus niger* ITCC 7782.10 Isolated from Local Agricultural Field. Turkish Journal of Biochemistry, 38 (4); 396–402. doi: 10.5505/tjb.2013.19870 **Impact Factor- 0.24**
- 6. Rachna Jain* Veena Garg and Deepak Yadav, (2013)** Comparative Evaluation of Monocrotophos Degrading Potential of *Aspergillus flavus*, *Fusarium pallidorozeum* and

Macrophomina sp. Biodegradation 25(3): 437-446. DOI 10.1007/s10532-013-9672-z.

Impact Factor- 2.2

7. **Rachna Jain* and Veena Garg, (2014)** Activities of Hydrolases and Oxidases as Influenced by the Application of Monocrotophos in Sandy Loam Soil of Rajasthan. Applied Biochemistry and Biotechnology 172 (7): 3570-3582. **Impact Factor- 1.894**
8. **Rachna Jain* and Veena Garg, (2014)** Comparative analysis of chemical, fungal and enzymatic degradation of monocrotophos. Scholarean Journal of Biotechnology, 1:101.
9. **Rachna Jain*, Veena Garg and Jyoti Saxena, (2015)** Effect of Monocrotophos Pesticide on Phosphate Solubilization by Fungal Species. Applied Biochemistry and Biotechnology 175(2): 813-24. **Impact Factor- 1.894**
10. **Rachna Jain* and Veena Garg, (2015)** Degradation of Monocrotophos in Soil, Microbial Vs Enzymatic method. Journal of Environmental and Occupational Science, 4(1):44-52.
11. **Rachna Jain* and Veena Garg, (2015)** Degradation of Monocrotophos in Sandy Loam Soil by *Aspergillus sp.* Iranica Journal of Energy and Environment, 6(1): 56-62.
12. **Rachna Jain* and Veena Garg, (2015)** Molecular Characterization of Monocrotophos Hydrolyzing Soil Fungal Strain *Penicillium aculeatum* ITCC 7980.10. Iranica Journal of Energy and Environment, 6(2): 111-118.
13. **Rachna Jain* and Veena Garg, (2015)** Microbial Degradation of Monocrotophos by Local Soil Fungal Strains. Lambert Academic Publishing. ISSN 978-3659-68679-5.
14. **Rachna Jain* and Veena Garg, (2015)** Comparative analysis of the efficiency of individual and mix microbial consortium for the degradation of neurotoxin pesticide, Monocrotophos. Source Journal of Bioremediation 1(1): 1-8.
15. **Rachna Jain* and Veena Garg,** Inhibition of Extracellular Alkaline Fungal Phosphatase by neurotoxin pesticide, Monocrotophos. Communicated in Applied Biochemistry and Microbiology.
16. **Rachna Jain* and Veena Garg,** Isolation, Purification and Characterization of Fungal Laccases Isolated from Ligninolytic fungal strain *Aspergillus niger* JQ660373. Communicated in Applied Biochemistry and Biotechnology.

PERSONEL DETAILS

Languages Known: Hindi, English and Punjabi

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(Dr. Rachna Jain)



(Scientist & Head)

CSIR-NEERI, Kolkata Zonal Center

Date: 20/09/2019