CURRICULUM VITAE

Dr. Pragati Agarwal

Senior Research Fellow
Rajmata Vijyaraje Scindia Krishi Vishva Vidyalaya
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CAREER OBJECTIVE

I am seeking a position in a reputed organization to utilize my skills & knowledge in research and academic field that will offer professional as well as personal growth while being resourceful, innovative & flexible.

EDUCATIOAL QUALIFICATIONS

Year	Degree	Institute/School	CGPA/ % age
2011-2017	Ph.D. Microbial Biotechnology	Indian Institute of Technology, Roorkee	Awarded
2009-2011	M.Sc. Bioinformatics	Banaras Hindu University, Varanasi	8.1/10
2006-2009	B.Sc. Biotechnology	Jiwaji University, Gwalior	76%
2005	Senior Secondary Examination (XII)	MP Board	81%
2003	Secondary Examination (X)	MP Board	87%

RESEARCH EXPERIENCE

1) **Position:** Senior Research Fellow under IDP-NAHEP at RVSKVV, Gwalior (Dec 2020-till date)

Project: Reinforcement of the brand value of university for designing market-ready graduates for entrepreneurship and employment generation funded by World Bank and Indian Council of Agricultural Research, New Delhi.

2) Position: Senior Research Fellow at **IIT Roorkee** (Jul 2013-Jul 2017)
Junior Research Fellow at **IIT Roorkee** (Jul 2011- Jul 2013)

Project: Production and Application of microbial tyrosinase

Tyrosinase (EC 1.14.18.1) is a type-3 copper protein and is a key protein primarily involved in the initial steps of melanin biosynthesis pathway. The aim of my project was to isolate and identify fungal species with potential extracellular tyrosinase producing ability. *Aspergillus niger* PA2 was observed to be a potential producer of tyrosinase. The strain was also evaluated for producing L-DOPA for pharmaceutical applications. Furthermore the enzyme tyrosinase was cloned into pET28b vector and its structural and active site parameters were analyzed *in silico*. Next, the partially purified tyrosinase from *Aspergillus niger* PA2 was immobilized onto several bio-polymer matrices to enhance its stability and L-DOPA producing ability. I have also got these findings published in journals of international repute, which attests to my work, biological insight and writing skills. Furthermore, I have also helped several postgraduate and undergraduate students in their projects during my doctoral work. I have expertise in the area of microbiology, immunology, molecular biology and basic bioinformatics.

3) Project trainee at **Banaras Hindu University, Varanasi (Sept 2010-Apr 2011)**

Project: *In silico* study of crosstalk between salicylic acid and jasmonate pathway in higher plants (model – *Oryza sativa*).

4) Project trainee at **Indian Agriculture Research Institute (IARI), Delhi** (May 2010-Jul 2010)

Project: Structural modeling of *Oryza sativa* proteins based on homology**.**

ACADEMIC EXPERIENCE

Position: Assistant Professor;

Duration: July 2017 to June 2018

Subjects taught: Immunology, Molecular Biology, Microbiology, Basic bioinformatics to UG and PG students

In Department of Biotechnology, JCD Memorial Vidyapeeth, Sirsa, Haryana

AWARDS AND ACHIEVEMENTS

- Second prize at International conference on "Current Approaches in Agricultural, Animal Husbandry and Allied Sciences for Successful Entrepreneurship" for oral presentation
- Qualified **CSIR-UGC NET** 2010-11, held on 19th December 2010, in first attempt. Rank – **UGC JRF 274**, Roll no. 357521.
- Qualified **GATE** 2011, held on 13th February 2011, in first attempt. Score 323, Roll no. BT 8073117.
- Qualified **NCBS (TIFR)** pre entrance held for PhD.
- Got **second prize** for presenting a poster titled 'Crosstalk between salicylate and jasmonate pathways in *Oryza sativa* – an *in silico* study' in "Emerging Trends in Plant Sciences" held in department of Botany, **Banaras Hindu University, Varanasi**.

RESEARCH PUBLICATIONS

1. **Agarwal P**. and Singh R. P. Dopamine Precursor synthesis by *Aspergillus niger* Tyrosinase immobilized onto CMC-sodium alginate Bio-hybrid Membrane. (Communicated)

2. Joshi E., **Agarwal P.**, Sasode D. S., Khambalkar P., Bordoloi P., Ginger D. and Joshi N. (2022). Aquaponics: An innovative sustainable food production farming system. In: Recent advances in Agricultural Science & Technology for sustainable India, p 72-78.

3. Singh J., Jain D., **Agarwal P.**, Singh R.P. (2020). Auxin and cytokinin synergism augmenting biomass and lipid production in microalgae *Desmodesmus* sp. JS07. Process Biochemistry. 95: 223-234.

4. **Agarwal P**., Singh M., Singh J., Singh R.P. (2019). Microbial Tyrosinases: A Novel Enzyme, Structural Features and Applications. In: Applied Microbiology and Bioengineering, Elsevier, USA, p 3-19.

5. Dubey S., Sharma R. K., **Agarwal P**., Singh J., Sinha N., Singh R.P. (2017). From rotten grapes to industrial exploitation: *Komagataeibacter europaeus* SGP37, a micro-factory for

macroscale production of bacterial nanocellulose. International Journal of Biological Macromolecules. 96: 52–60.

6. **Agarwal P**., Pareek N., Dubey S., Singh J., Singh R. P. (2016). *Aspergillus niger* PA2: A Novel Strain for Extracellular Biotransformation of L-Tyrosine into L-DOPA. Amino Acids. 48 (5): 1253-1262.

7. **Agarwal P**., Singh J., Singh R.P. (2016). Molecular cloning and characteristic features of a Novel Extracellular Tyrosinase from *Aspergillus niger* PA2. Applied Biochemistry and Biotechnology. 182(1): 1-15.

8. **Agarwal P**., Dubey S., Singh M., Singh R.P. (2016). *Aspergillus niger* PA2 Tyrosinase covalently immobilized on a novel eco-friendly Bio-composite of chitosan-gelatin and its evaluation for L-DOPA Production. Frontiers in Microbiology. 7: 2088.

9. Saroj S., Dubey S., **Agarwal P.**, Prasad R., Singh R. P. (2015). Evaluation of the efficacy of a fungal consortium for degradation of azo dyes and simulated textile dye effluents. Sustainable Water Resources Management. 1(3): 233-243.

10. Pareek N., Vivekanand V., **Agarwal P.**, Saroj S. and Singh R. P. (2013). Bioconversion to chitosan: A two stage process employing chitin deacetylase from *Penicillium oxalicum* SAEM-51. Carbohydrate Polymers. 96: 417– 425.

11. **Agarwal P.**, Saroj S., Dubey S. and Singh R. P. (2013). L-Tyrosinase- A Multifunctional Enzyme: Structural and Molecular Features. In: Gene and Protein Engineering, Studium Press, LLC Houston, USA, ISBN: 9781626990203.

12. Dubey S., Saroj S., **Agarwal P.** and Singh R. P. (2013). Bacterial Cellulose: An Innovative Nano bio-polymer for Drug Delivery. In: Nanobiomedicine, Texas: Studium Press, LLC Houston, USA, ISBN: 9781626990203.

13. Saroj S., **Agarwal P.**, Dubey S. and Singh R. P. (2012). Manganese Peroxidases: molecular diversity, heterologous expression and applications. In: Advances in enzyme biotechnology, Springer publications, p 67-87.

14. Singh I., **Agarwal P.** and Shah K. (2012). In search of function for hypothetical proteins encoded by genes of SA-JA pathways in *Oryza sativa* by *in silico* comparison and structural modeling. Bioinformation. 8: 1-5.

PAPERS PRESENTED IN CONFERENCES

1. **Agarwal P.**, Singh R. P., Yadav S. S. (2021). L-Tyrosinase from *Aspergillus niger* and its evaluation for bioremediation of phenols, *Current Approaches in Agricultural, Animal Husbandry and Allied Sciences for Successful Entrepreneurship,* Agro Environmental Development Society (AEDS), Rampur, India.

2. **Agarwal P.**, Singh A., Yadav S. S. (2021). ICT based e-resources in capacity building of faculty in India post Covid-19 era, *ICT Based e-Resources for Smart Agriculture – A Journey towards Atmanirbhar Bharat Post COVID-19 Pandemic Situation,* UAS, Raichur, India.

3. **Agarwal P.**, Jain A. (2018). Biodiesel: An Alternative to Conventional Fuel, *A 360º Exploration of new Paradigms & innovations in research*, JCD Vidyapeeth, Sirsa, India.

4. **Agarwal P**., Dubey S., Amra P., Singh R. P. (2014). Gefitinib loaded Chitosan Nanoparticles for Potential Application in Lung Cancer: Preparation and Characterization, *International Conference on Recent Advances in Nanoscience and Nanotechnology,* JNU, Delhi, India.

5. **Agarwal P**., Saroj S., Dubey S., Singh R. P. (2014). Production of Microbial L-Tyorsinase: An Enzyme with Potential Therapeutic Applications, *International Conference on Emerging Trends in Biotechnology,* JNU, Delhi, India.

6. **Agarwal P.,** Dubey S., Singh R. P. (2014). L-Tyrosinase from *Aspergillus niger* PA2 and evaluation of its role for bioremediation of phenols, *Recent Trends in Biomedical and Translational Research*, IIT Roorkee, Roorkee, India.

7. Dubey S., Saroj S., **Agarwal** P., Singh R. P. (2014). Bacterial Cellulose: an innovative nano-biopolymer for tissue engineering and drug delivery, *International Conference on Emerging Trends in Biotechnology*, JNU, Delhi, India.

8. Bhargava A., Dubey S., **Agarwal** P., Singh R. P. (2014). Alteration of an aspartate enhances thermostability of L-asparaginase: a novel anti leukemic agent. *Recent Trends in Biomedical and Translational Research*, IIT Roorkee, Roorkee, India.

9. Bhargava A., Dubey S., **Agarwal P.**, Singh R.P. (2014). Engineering thermostability of L-asparaginase by Site directed mutagenesis, *International Conference on Emerging Trends in Biotechnology*, JNU, Delhi, India.

10. Saroj S., Dubey S., **Agarwal P.**, Singh R. P. (2013). Molecular response regulating azo dye AR183 degradation by *Penicillium oxalicum* SAR-3, Asian Congress on Biotechnology, JNU, Delhi, India.

11. Agarwal R., Saroj S., **Agarwal P**. and Singh R. P. (2012). Chitosan Nanoparticles and Evaluation of its Role in the Delivery of an Anti-Cancer Drug Letrozole, *International Conference on Industrial Biotechnology ICIB;* Patiala, India.

12. **Agarwal P**. (2011). Structural analysis of *Oryza sativa* proteins, Hi Tech Horticulture, National Academy of Agricultural Sciences (NAAS), New Delhi, India.

13. **Agarwal P.**, Singh N., Singh I., Shah K. (2011). Crosstalk between salicylate and jasmonate pathways in *Oryza sativa* – an *in silico* study, Emerging Trends in Plant Sciences, Banaras Hindu University, Varanasi, India.

KEY SKILLS

I have expertise in the area of microbiology, molecular biology, enzymology and basic bioinformatics. I have also got my findings published in journals of international repute, which

attests to my work, biological insight and writing skills. Also I have got several nucleotide sequences published at NCBI, Maryland, U.S. I have proficiency in writing, submitting, proofreading of scientific literature.

Also I am very proficient in working on computer applications, MS Office (spreadsheets), data analysis, preparing graphs. I have experience in organizing online events and preparing reports etc.

RESEARCH AND ACADEMIC INTERESTS

1. Microbiology
2. Immunology
3. Molecular biology
4. Bioinformatics
5. Enzymology
6. Nano-biotechnology
7. Bio-analysis and instrumentation

Sequences submitted in NCBI (Maryland, U.S.):

1. KJ701547 : *Neosartorya quadricincta* PA1 18S rRNA, ITS1, 5.8S rRNA, ITS2 and 28S rRNA, partial sequence
2. KJ701548 : *Aspergillus niger* PA2 18S rRNA, ITS1, 5.8S rRNA, ITS2 and 28S rRNA, partial sequence
3. KJ701549 : *Fusarium proliferatum* PA3 18S rRNA, ITS1, 5.8S rRNA, ITS2 and 28S rRNA, partial sequence
4. KJ701550 : *Aspergillus fumigatus* PA4 18S rRNA, ITS1, 5.8S rRNA, ITS2 and 28S rRNA, partial sequence
5. KU253269 : *Aspergillus niger* PA2 tyrosinase mRNA, partial cds

WORKSHOPS

- Attended workshop on 'DRUG DESIGNING' at **Cognizance IIT Roorkee** (March 2011).
- Attended workshop on 'PYTHON PROGRAMMING' conducted by **IIT Bombay** group in **MMV**, **Banaras Hindu University, Varanasi** (April 2010).
- Attended seminar-cum-workshop on **Bio-nanotechnology** at department of nanotechnology, **IIT Roorkee.**

PERSONAL INFORMATION

Date of birth	:	24.05.87
Father's Name	:	Mr. Pradeep Agarwal
Citizenship	:	Indian
Marital status	:	Married
Language Proficiency	:	Hindi and English
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Contact details of referee

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   Department of Biosciences and Bioengineering
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3. Dr. Shashi S. Yadav
   Scientist, Department of Soil science
   College of Agriculture,
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DECLARATION

I hereby declared that the above information given by me is true to the best of my knowledge if any of them were found incorrect I would be responsible for that.

Date: 07.03.2022 Sincerely

Place: Gwalior (**Dr. Pragati-Agarwal**)