

CURRICULUM VITAE

Dr. Sarita Devi (M. Sc., Ph. D, PDF) Scientist
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Work Experience:

- ✓ worked as an Examiner of Patents and Designs in the office of the Controller General of Patents, Designs and Trademarks, Government of India, (Delhi) from July 15, 2016 to December 19, 2019.
- ✓ Worked as an Accountant in the office of Comptroller and Auditor General of India (Chandigarh) from Dec 07, 2015 to July 13, 2016.

Educational Qualifications

- ✓ Awarded Post Doctoral Fellowship by UGC in H. P. University, Shimla, India
- ✓ Ph. D. Biotechnology from Himachal Pradesh University, Himachal Pradesh, India, 2012
- ✓ M. Sc. Human Genomics (60.5%) from National Centre for Human Genome and Studies Research, Panjab University, Chandigarh, India, 2005
- ✓ B.Sc. (60%) from Himachal Pradesh University, Himachal Pradesh, India, 2003
- ✓ 10+2 (63.5%) from Himachal Pradesh Board of School Education, Dharamshala, Himachal Pradesh, India, 2000
- ✓ Matriculation (72.1%) from Himachal Pradesh Board of School Education, Dharamshala, Himachal Pradesh, India, 1997
- ✓ Certificate Course in German (82.3%) from Himachal Pradesh University, Himachal Pradesh, India, 2008
- ✓ Qualified UGC (NET) December, 2005 for the award of Lecturership (LS), 2005
- ✓ Qualified UGC (JRF) December, 2006 for the award of Junior Research Fellowship (JRF), 2006

Research Experience Ph.D. Thesis Title

“L-asparaginase from *Erwinia carotovora*: Production and Characterization” Abstract of Ph.D. Thesis

L-asparaginase is a chemotherapeutic enzyme that catalyzes the conversion of L-asparagine to L-aspartate and ammonia. The important application of the L-asparaginase enzyme is in the treatment of acute lymphoblastic leukemia, Hodgkin disease, acute myelocytic leukemia, chronic lymphocytic leukemia, lymphosarcoma treatment, reticulosarcoma and melanosarcoma. L-asparaginase is widely distributed among prokaryotes and eukaryotes and since the large amount of this enzyme drug has been needed for pharmacological and clinical

tests, microbial sources are found to be best for the bulk production of L-asparaginase. This research work entitled “**L-asparaginase from *Erwinia carotovora*: Production and Characterization**” explore the potential of *E. carotovora* MTCC 1428 for the production of Lasparaginase enzyme. This study was carried out with a Gram-negative bacterial strain *Erwinia carotovora* MTCC 1428 producing intracellular L-asparaginase to find out the possibilities offered by this microorganism in the development of a pharmaceutical preparation. The parameters to maximize the production of L-asparaginase by the *E. carotovora* MTCC 1428 cells were optimized, resting cells were disintegrated and the released enzyme has been purified and used for the killing of Hep-2C cell line. Sonication of the resting cells was carried out to release the intracellular L-asparaginase and cell free extract was subjected to acid precipitation. Sulphopropyl Sephadex was used for further purification of enzyme. The 24% yield of the Lasparaginase was obtained after single step purification. The electrophoresis results suggest that the L-asparaginase of *E. carotovora* MTCC 1428 exists in the form of dimer of dimers. Moreover, the purified L-asparaginase from *E. carotovora* MTCC 1428 was devoid of glutaminase activity. The L-asparaginase purified from *E. carotovora* MTCC 1428 showed better *in vitro* toxicity on Hep-2C cell lines (84% survival) in comparison to commercial Lasparaginase preparation (90% survival) obtained from *E. coli*.

Post-doctoral Research

Post-doctoral fellow in Department of Biotechnology, HPU, Shimla (Nov, 2013- Dec, 2015) on the project “**Comparative evaluation of L-asparaginase as anticancer drug**”

Projects

Worked as Junior Research Fellow in DST sponsored project entitled “**Development of Multienzyme Bioreactor for the synthesis of Dopamine**” under the supervision of **Dr. Wamik Azmi**, Department of Biotechnology, Himachal Pradesh University, Shimla-171005 (Oct 10, 2006 to July 31, 2007).

Project undertaken in M.Sc.

“**Effect of a Steroidal Analog (TRB-TTK) on mouse peritoneal macrophage cell survival: A toxicity analysis**” under the supervision of Prof. Tapas Mukhopadhyay, Director, National Centre for Human Genome Studies and Research, Panjab University, Chandigarh.

Two months clinical rounds at **PGIMER (Post Graduate Institute of Medical Education and Research)**, Chandigarh in 2005.

Bioinformatics

Three months project on “***In silico* analysis of nucleotide and protein sequence of nitrile hydratase**” under the supervision of Prof. T. C. Bhalla, Coordinator, Centre for Bioinformatics, Department of Biotechnology, Himachal Pradesh University, Shimla (April-June, 2012)

Scholarships/Fellowship Received

- ✓ Junior Research Fellow (DST) 2006-2007
- ✓ Junior Research Fellow (UGC), from 2007-2009
- ✓ Senior Research Fellow (UGC), from 2009-2012
- ✓ Traineeship at Sub-Distributed Information Centre (SDIC)H.P. University Shimla from April-June 2012
- ✓ UGC Post-Doctoral Fellowship for woman, UGC, New Delhi, from 2013-2015

Publications Research Papers

Sarita Devi and Wamik Azmi (2011) Comparative evaluation of different cell disruption methods for the release of L-asparaginase from *Erwinia caratovora* MTCC 1428. *International Journal of Food and Fermentation Technology*. 1(2): 211-219.

Sarita Devi, Aditya Kulshreshtra, Ashutosh Kumar Rai and Wamik Azmi (2012) Bench-Scale Production of L-asparaginase from *Erwinia carotovora* MTCC 1428 in a laboratory fermenter. *International Journal of Life Science and Pharma Research*. 2(3): 25-35.

Sarita Devi and Wamik Azmi (2012) One step purification of antileukemic of L-asparaginase from *Erwinia carotovora* MTCC 1428 and its application. *International Journal of Life Science and Pharma Research*. 2(3): 36-45.

Sarita Devi, Nikhil Sharma, Savitri and Tek Chand Bhalla (2013) Comparative analysis of amino acid sequences from mesophiles and thermophiles in respective of Carbon-Nitrogen Hydrolase family. *3 Biotech* (DOI 10.1007/s13205-012-0111-3).

Manisha Gautam, **Sarita Devi**, Meenu Thakur, Meenakshi Chandel, Umesh Kumar Narta and Wamik Azmi (2013) Potential of biotechnology in the treatment of human diseases. *Himachal Pradesh University A Bi-annual Research Journal*. 2: 160-180.

Sarita Devi and Wamik Azmi (2015) *In silico* analysis of amino acid sequences in relation to specificity and physiochemical properties of mesophilic and thermophilic antileukemic Lasparaginases. *Current Biotechnology*. (DOI : [10.2174/2211550104666150917175410](https://doi.org/10.2174/2211550104666150917175410)).

Wamik Azmi, Umesh Kumar Narta, Nishant Singh, Vibhor Gupta, Shamsheer Singh Kanwar and **Sarita Devi** (2017) An antileukemic glutaminase free L-asparaginase from *Bacillus brevis*. *Current Biotechnology*. 6(1):58-68

Sarita Devi, Savitri, Tilak Raj, Nikhil Sharma and Wamik Azmi (2019) In silico Analysis of L-glutaminase from Extremophiles. *Current Proteomics*. 16, (DOI: [10.2174/1570164615666180911110606](https://doi.org/10.2174/1570164615666180911110606))

Book Chapter

Azmi W, **Sarita Devi** and Khatri J (2012) Antileukemic L-asparaginase from *Saccharomyces cerevisiae*: Biochemical and Genetic aspects. *Microbiology Applications* (191-210)

Madan L. Verma, **Sarita Devi**, and Motilal Mathesh (2019) Photobiocatalysis: At the Interface of Photocatalysis and Biocatalysts. In book: Green Photocatalysts for Energy and Environmental Process, Environmental Chemistry for a Sustainable World 36, Publisher: Springer Nature Switzerland, pp.1-23

Abstracts

Kumar V, Sanjay K, Arya RP, Singh S, **Sarita** and Azmi W (2006) Biotransformation of phenol to L-tyrosine. Presented at 47th annual conference of Association of Microbiologists of India, Microbiology: The challenges ahead 2006 at Department of Biotechnology and Bioinformatics Centre, Barkatullah University, Bhopal. (Abstract No. BB-12, Page 116)

Kumar V, Sanjay K, Arya RP, Singh S, **Sarita** and Azmi W (2006) Production of tyrosine phenol Lyase from actinimycetes isolated from cold desert region of Himachal Himalaya. Presented at 47th annual conference of Association of Microbiologists of India, Microbiology: The challenges ahead 2006 at Department of Biotechnology and Bioinformatics Centre, Barkatullah University, Bhopal. (Abstract No. BB-53, Page 201)

Sarita, Kaur J, Bhalla S, Gautam M, Kaur S, Narta U and Azmi W (2009) Intracellular Lasparaginase from the cells of *Erwinia carotovora* MTCC 1428: Presented at 50th annual conference of Association of Microbiologist of India, “Third Golden Era of Microbiology” at National Chemical Laboratory and Department of Microbiology, University of Pune, Pune. (Abstract No. AM-043, Page 112)

Sarita, Kulshreshtra A, Rai AK, Gulduchha B and Azmi W (2010) Production of Lasparaginase from *Erwinia carotovora* MTCC 1428 in laboratory scale bioreactor. Presented at 51st annual conference of Association of Microbiologist of India, “International Symposium in Crossdisciplinary Microbiology” at Department of Biotechnology, Birla Institute of Technology, Mesra, Ranchi, Central University of Jharkhand, Ranchi and Birsa Agricultural University, Ranchi, India. (Abstract No. IM-08, Page 222)

Wamik Azmi and **Sarita** (2011) A comparison of bacterial cell wall disruption techniques for the extraction of intracellular enzyme. Presented at 98th session of the Indian Science Congress, Part II. Section of Plant Sciences at Sri Ramasamy Memorial University, Chennai. (Abstract No. 206, Page 164-165).

Sarita Devi and Wamik Azmi (2015) One step purification of glutaminase free L-asparaginase from *Erwinia carotovora* MTCC 1428 with anticancer activity. Presented at Two Day International Conference on Emerging Trends in Basic and Applied Sciences organized by Maharaja Agrasen School of Basic and Applied Sciences Himachal Pradesh India . (Abstract No. 34, Page 63-64).

Workshops/Seminars attended

National Roving Seminar on “Patenting in Biotechnology” Organized by Department of Biotechnology, Himachal Pradesh University, Summer Hill, Shimla on November 21, 2005
Actively participated in “Entrepreneurship Development Programme in Biotechnology” Organized by Biotech Consortium India Limited from June 11-15, 2007

Attended 50th annual conference of Association of Microbiologist of India, “Third Golden Era of Microbiology” at National Chemical Laboratory and Department of Microbiology, University of Pune in 2009.

Attended 51st annual conference of Association of Microbiologist of India, “International Symposium in Cross-disciplinary Microbiology” at Department of Biotechnology, Birla Institute of Technology, Mesra, Ranchi, Central University of Jharkhand, Ranchi and Birsa Agricultural University, Ranchi, India in 2010.

Participated in One Week National Workshop-cum-Orientation Programme on “Quality Assurance in Higher Education” under Faculty Development Program jointly organized by Internal Quality Assurance Cell (IQAC), Himachal Pradesh University, Shimla and Jaysingpur College, Vijaynagar, Kolhapur, Maharashtra, From November 11-16, 2013.

Participated in National Workshop on “Mammalian Cell Culture Techniques” organized by Department of Biotechnology, Himachal Pradesh University, Summer Hill, Shimla on May 2013 2015.

I hereby declare that the facts given here as above are true to the best of my knowledge and I have not concealed any facts.

Date: 17/02/2020

(Sarita Devi)

Place: Palampur