** CURRICULUM VITAE**

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**Degrees:**

Ph.D., Botany, University of Lucknow & CSIR-CIMAP (Council of Scientific and Industrial Research-Central Institute of Medicinal and Aromatic Plants), Lucknow, 2001

[**Thesis tiltle** “Genetic Improvement of Rose scented Geranium (*Pelargonium sp*.) through Biotechnological approaches” under supervision of Prof. Sushil Kumar ]

M.Sc., Botany, Delhi University, Delhi, 1994

B. Sc., Botany (Hons), Delhi University, Delhi, 1992

**Academic Positions:**

Dec 2018 TARE Fellowship

July 2017-Assistant Coordinator for Post Graduate Programme in Plant Sciences, Department of Botany, University of Lucknow

April 2011- Professor, Department of Botany, University of Lucknow

April 2006- Associate Professor, Department of Botany, University of Lucknow

June 1996- Assistant Professor, Department of Botany, University of Lucknow

**Teaching and Research Experience**

About **24 years** in the field of **teaching post graduates** and **undergraduates** in the Department of Botany, Lucknow University and **research** at **CIMAP** (Central Institute of Medicinal and Aromatic Plants, Lucknow, CSIR, India) and Department of Botany, **Lucknow University**, Lucknow, India.

The initial work was carried out in the Genetic Resources and Biotechnology Division of CIMAP, CSIR, India. It involved **tissue culture** and **genetic transformation techniques**. During this period useful somaclones of rose scented geranium (*Pelargonium* *graveolens*) were generated and stably established and propagated for several generations under stringent field conditions .Genetic transformation studies were carried out using super virulent strains of *Agrobacterium* *rhizogenes*. Several transformants were also produced in *P*. *graveolens* and *Pogostemon* *patchouli* of which few showed improvement over the existing cultivar in terms of agronomic characters and their essential oil yield and quality. Besides, *Alternaria* *alternata* toxin tolerant callus lines were produced from which disease free plants of *P*. *graveolens* were generated. The variants produced in various experiments were analysed at molecular level too. A ***Geranium* plant** with improved traits has been **accepted as U.S.Patent**. Other works were conducted in the area of biochemical and molecular profiling of medicinally and aromatically important plants like *Ocimum*, *Salvia* *sclarea*, *Pogostemon* and conifers like *Pinus* and *Cephalotaxus*. Research work in the area of morphotaxonomy in few conifers is also being attempted. The Post-doctoral research work is mainly focused on two major objectives. The first includes the manipulation of plant secondary metabolites using plant cell/tissue culture. Attempts have been made to establish plant cell/tissue culture for the production of therapeutically important drugs and vaccines. The second objective revolves around the biochemical as well as molecular characterization of economically important gymnosperms eg. *Cephalotaxus*, *Taxus* and *Pinus* and certain medicinally and aromatically important plants.

**Graduate Courses Taught at University of Lucknow:**

Taxonomy of Angiosperms, Diversity and Biology of Gymnosperms.

**Post graduate Courses Taught at University of Lucknow:**

Classical and Molecular Taxonomy of Angiosperms, Economic Botany, Paleobotany and fossil studies, Diversity, evolutionary history and Biology of Gymnosperms.

**Post Doctoral Project Supervisions:**

**Completed-01**

**In progress-02**

**Ph. D Supervisions:**

**Thesis awarded- 07**

1. Syed Arshad Hasan Rizvi (2010), Effect of various environmental factors on quality and yield of essential oil and other biochemical and molecular studies in few species of *Ocimum.*

2. Aradhana Vaish (2012), Fungi-Mediated Arsenic removal from Arsenic contaminated soil Of U.P.

3. Ankit Singh (2013), Expression Of Rabies Coat protein in planta and its efficacy as anti- rabies antigen.

4. Dildar Husain (2015) , Studies on the dwarf shoots of genus *Pinus* LINN. in Kumaun hills.

5. Vartika Agrawal (2016), Comparative evaluation of Nonstick cookware and their toxicological implications.

6. Verandra Singh (2017), To explore the role of histone deacetylases in epigenetic regulation of fiber development in *Gossypium hirsutum*.

7. Lav Singh (2020) - Structural Biochemical and Molecular studies in few selected species of *Pinus* from North-west Himalayas.

**Thesis under submission -07**

**1.** Naina Marwa- Enhancement of phytoextraction in arsenic accumulator plants through nutrient and microbial intervention

2. Ravi Prakash Srivastava- Phytochemical and Molecular Characterization of *Selinum* species from Indian Himalayas.

3. Shivaraman Pandey- Study of Diversity and Taxonomy of Leguminosae- Caesalpinioideae in Uttar Pradesh.

4. Subhash Reddy Gaddam-Functional Characterisation of stress associated miRNA(s) in *Arabidopsis thaliana.*

5. Shailaja Pandey – Taxonomical studies in the tribe Andropogeae Dumort. (Poaceae) from Western Himalaya, India.

6. Kriti Kumari – Physicochemical and molecular changes in Pyxine cocoes (Sw.) Nyl. (Lichenized Fungi) exposed to air pollution.

7. Sanchita Singh – “siRNA mediated control of Cotton mealybug (Phenacoccus solenopsis) using integrated transcriptomic and proteomic approaches”.

**Publications and Patents:**

Patent-01-[New and distinct somaclonal variety of rose scented geranium](https://patents.justia.com/patent/PP20149), US-**Patent number:**PP20149 (2009)

Peer Reviewed Articles (17)

Chapters in Book (3)

Conference Proceedings (22)

Working Papers (2)

**Peer Reviewed Articles:**

1) Naina Marwa, Namrata Singh, Suchi Srivastava, **Gauri Saxena**, Vivek Pandey, Nandita Singh. Characterising the hypertolerance potential of two indigenous bacterial strains (*Bacillus flexus* and *Acinetobacter junii*) and their efficacy in arsenic bioremediation (2018). **JournalofAppliedMicrobiology**.<https://doi.org/10.1111/jam.14179>

2) Ravi Prakash Srivastava, Pooja Dixit, Lav Singh, Praveen C. Verma and **Gauri Saxena**. (2018). Status of *Selinum* spp. L. a Himalayan Medicinal Plant in India: A Review of Its Pharmacology, Phytochemistry and Traditional Uses. **Current Pharmaceutical Biotechnology,** 2018, 19

# 3) Ravi Prakash Srivastava, Pooja Dixit, Lav Singh, Praveen Chandra Verma and Gauri Saxena. (2018). Comparative morphological and anatomical studies of leaves, stem, and roots of *Selinum vaginatum* C.B.Clarkeand *Selinumtenuifolium* Wall.Flora.<https://doi.org/10.1016/j.flora.2018.08.017>.

4) Verandra Kumar, Babita Singh, Sunil K. Singh, Krishan M. Rai, Surendra P. Singh, Anshulika Sable, Poonam Pant, **Gauri Saxena** and Samir V. Sawant**\*. (**2018). Role of GhHDA5 in H3K9 deacetylation and fibre initiation in *Gossipium hirusitum.* **The plant Journal.** DOI: 10.1111/tpj.14011.

5) Shivraman pandey, **Gauri Saxena** and Lal Babu Chaudhary. Reinvestigation of the occurrence of Caesalpinia crista L. (Caesalpinioideae, Leguminosae) in Uttar Pradesh. **Journal of Biological and Chemical Research**. Vol.35.No.2:568-573,2018.

6) Ankit Singh , Gurminder Kaur, Sanchita Singh , Neetu Singh, **Gauri Saxena** & Praveen C. Verma (2017). Recombinant Plant Engineering for Immunotherapeutic Production. **Curr Mol Bio Rep.** DOI 10.1007/s40610-017-0078-2.

7) Pooja Dixit, Lav Singh, Praveen Chandra Verma and **Gauri Saxena** (2016). Altitudinal Influences on Leaf and Wood Anatomy and its Ecological Implications in *Cephalotaxus griffithii* of Indian Himalayas. **J. Biol. Chem. Research**33(1): 388-399.

8) Pooja Dixit, **Gauri Saxena**, Dinesh Kumar and Lav Singh (2016). Behavioural study on the pollen grains of *Pinus roxburghii* collected from Lucknow, India- A Report. ***The Palaeobotanist*** **65**: 285-296.

9) Praveen C Verma, Harpal Singh, AS Negi**, Gauri Saxena**, Laiq Ur Rahman and Suchitra Banerjee (2015). Yield enhancement strategies for the production of Picroliv from hairy root culture of *Picrorhiza kurroa* Royle ex. Benth. **Plant Signal Behav**. 10(5). e10234976.

10) Ankit Singh, Subhi Srivastava, Ankita Chouksey, B. S. Panwar, Praveen C Verma, S.Roy, P.K.Singh**, Gauri Saxena** and R.Tuli (2015). Expression of Rabies Glycoprotein and Ricin Toxin B Chain (RGP-RTB) Fusion Protein in Tomato Hairy Roots: A Step towards Oral Vaccination for Rabies. **Molecular Biotechnology** 57(4):359-370.

11) Arshad H. Rizvi, M.M. Abid Ali Khan, **Gauri Saxena** and A.A. Naqvi (2012). A comparative study on the chemical composition of oil obtained from whole seeds and crushed seeds of *Nigella sativa* L. from India. **J. Biol. Chem. Research** 29 (1):44-51.

12) P. C. Verma, Vaishali Basu, Vijayta Gupta, **Gauri Saxena** and L. Rahman (2009). Pharmacology and chemistry of a potent hepatoprotective compound Picroliv isolated from the roots and rhizomes of *Picrorhiza* *kurroa* Royle ex Benth.(Kutki) **Current Pharma. Biotechnology** (10)4.

13) **G. Saxena**, P.C.Verma, L. Rahman, Suchitra Banerjee, R.S.Shukla & S. Kumar(2008).Selection of leaf blight resistant *Pelargonium* *graveolens* plants regenerated from callus resistant to culture filtrate of *Alternaria* *alternata*. **Crop Protection**. 27:558-565.

14) **G. Saxena**, S. Banerjee, L. Rahman, P.C. Verma, G. R. Mallavarapu, & S. Kumar(2008). Field performance of somaclones of scented geranium (*Pelargonium* *graveolens* L’Her Ex Ait)) for evaluation of their essential oil yield and composition. **Industrial Crops and Products**. 27:86-90.

15) **G. Saxena,** S. Banerjee, L. Rahman, P. C. Verma, G. R. Mallavarapu, & S. Kumar (2007). Rose scented geranium (*Pelargonium* *sp*.) generated by *Agrobacterium* *rhizogenes* mediated *Ri*-insertion for improved essential oil quality. **Pl. Cell Tiss Organ Cult**.90: 215-223.

16) **G. Saxena**, S. Banerjee, Ritika gupta, L. Rahman, B. R.Tyagi, S. Kumar, G. R. Mallavarapu, & S. Ramesh (2004). Composition of the essential oil of a new isomenthone – rich variant of geranium obtained from Geraniol – rich cultivar of *Pelargonium* species. **J. Essent.** **Oil Res** 16:85-88.

17) **G. Saxena**, S. Banerjee, L. Rahman, G. R. Mallavarapu, S. Sharma & S. Kumar (2000). An efficient in vitro procedure for micropropagation and generation of somaclones in rose scented Pelargonium. **Plant Science**, 155: 133-140.

**Chapters in Books:**

# 1. Ankit Singh, Gauri Saxena & Praveen C. Verma (2016). Oral Rabies Vaccine Design for Expression in Plants. [Vaccine Design](https://link.springer.com/book/10.1007/978-1-4939-3389-1) pp 547-567

2. Arshad H. Rizvi, M. M. Abid Ali Khan, Praveen C. Verma, **Gauri Saxena** (2014) Biochemical Activity of *Ocimum gratissimum* Essential Oil Against Fruit-Rotting Fungi *Penicillium expansum* and *Penicillium digitatum.*  In: R.N. Kharwar et al (eds). **Microbial Diversity and Biotechnology in Food Security**. pp 343-348. DOI: 10.1007/978-81-322-1801-2\_30. (Springer India).

3. Ankit Singh, [**Gauri Saxena**](https://www.researchgate.net/researcher/16009318_Gauri_Saxena) and [Praveen C. Verma](https://www.researchgate.net/researcher/39470595_Praveen_C_Verma) (2016). [Oral Rabies Vaccine Design for Expression in Plants](http://scholar.google.co.in/scholar?oi=bibs&cluster=292412574654776090&btnI=1&hl=en) In: Vaccine Design: Methods and Protocols, Volume 2: **Vaccines for Veterinary Diseases** 547-567 Springer, New York.

**Conference Proceedings:**

1. Shivendra P. Chauhan, Gauri Saxena, S. Banerjee and Sushil Kumar. Resistance to leaf blight caused by *Alternaria* *alternata* in geranium (*Pelargonium* *graveolens* var. Algerian) calliclones (Paper presented at Indian Phytopathological Society – Golden Jubilee International Conference, November 10-15, 1997 India).
2. Ramwant Gupta, **Gauri Saxena**, R.K. Srivastava, Hukum Singh, K.P.Singh and Munna Singh (September18-20, 2008). Biochemical characterization and its taxonomical significance in few members of Labiatae- *Salvia sclarea* and *Pogostemon patchouli.* Paper presented in National Conference on increasing production and productivity of Medicinal and Aromatic Plants through traditional practices at G B Pant University of Agriculture and Technology , Pantnagar, Uttarakhand.
3. V. Agarwal, N. Kumar, A. Srivastava, R. Kumar, **G. Saxena** and V. P. Sharma. Polytetrafluoroethylene based anodized cookware’s suitability assessment with particular relevance to migration of metals. Paper presented at International Conference on Recent Advances in Environmental Protection (RAEP 2009) conducted  by St John’s College, Agra; December 17-19th 2009.
4. A. Rizvi and **Gauri Saxena** (February21-24,2010). Effect of crushing on the chemical composition of seed essential oil of Nigella sativa L. From India. Poster presented at AROMED International symposium on current status and opportunities in aromatic and medicinal Plants”, CIMAP, Lucknow.
5. A. Vaish, P. K. Srivastava, **G. Saxena** and A. Kaul (December15-17,2011). Arsenic- A potential hazardous metalloid. Paper presented at fourth International Congress of Environmental Research, SVNIT, Surat, India.
6. V. Agrawal, A. Pandey, S. Umar, **G. Saxena**, and V.P. Sharma. Assessment of Migration potential of Additives used in Laminoid pouches in simulating conditions and survey on usage trends among the consumers of Lucknow and Kanpur city. Paper presented at 98th Indian Science Congress; Jan 3-7, 2011.
7. V. Agrawal, S. Kapoor, S. Sachdev, **G. Saxena** and V.P. Sharma. Plastic solid waste management: Challenges, strategies and Innovative Development. Paper presented in National Conference on Science of climate change and earth sustainability; Issue and challenges held during 12-14 Sept. 2011 at University of Lucknow in Collaboration with the society of Earth Scientist, India.
8. Dildar Husain and **Gauri Saxena**. Anatomical studies on needles in few species of Pinus Linn. Poster presented at 34 All India Botanical Conference (Oct 10-12, 2011).
9. Dildar Husain, Devendra Kumar, Dinesh Kumar and **Gauri Saxena** (Nov. 18-19, 2011). Anatomical studies on dwarf shoots of some exotic species of Pinus Linn. Growing in kumaon hills, Western Himalayas. Poster presented at National seminar on ‘Recent advances in plant sciences- Diversity, Conservation and its Application.
10. A. Rizvi, P. C. Verma and **Gauri Saxena** (2012). Biochemical activity of *Ocimum gratissimum* essential oil against fruit rotting fungi *(Penicillium expanses* and *Penicillium digitatum*) Poster presented at International Conference on Mycology and Plant Pathology- Biotechnological Approaches at BHU.
11. A. Vaish, P. K. Srivastava, N. Singh, R. D. Tripathi and **Gauri Saxena** (December 8-11, 2010). Impact of metal pollution in fungi. Paper presented at fourth International Conference on ‘Plants and Environmental Pollution’ organised by ISEB and NBRI (Lucknow).
12. A. Vaish, P.K Srivastava, Manjul Gupta, **Gauri Saxena** (March 2-4, 2012). Fungal Bioremediation of metal pollution. Paper presented in the national seminar on ‘Environmental Concerns and Sustainable Development- Issues and Challenges for India’ at BHU, Varanasi.
13. Dildar Husain and **Gauri Saxena**, Recent natural disaster in Uttarakhand- A Report, poster presented at National Seminar on Himalayan Devastation and Eco-Balancing (August 31, 2013):. Organised by Department of Botany, University of Lucknow, Lucknow.
14. Pooja Dixit and **Gauri Saxena.** Role of Plant Tissue culture Techniques in conservation of biodiversity in the Himalayan Ranges, poster presented at National Seminar on Himalayan Devastation and Eco-Balancing (August 31, 2013), Organised by Department of Botany, University of Lucknow..
15. Pooja Dixit, **Gauri Saxena** and Dinesh Kumar (19-20 Feb. 2015). Behavioural studies on the pollen grains of *Pinus roxburghii* collected from Lucknow, India-----*A Report*. Paper presented at International Conference on Current perspective and emerging issues in Gondwana evolution. Organised by BSIP, Lucknow.
16. Dildar Husain and **Gauri Saxena**. Genetic Diversity among some exotic species of *Pinus* using RAPD. Poster presented at Fifth International Conference on Plant & Environmental Pollution:ICPEP-5, 24-27 Feb,2015, Organised by International Society of Environmental Botanists and CSIR-NBRI.
17. Ravi Prakash Srivastava and **Gauri Saxena**. A review of natural compound in Selinum and their uses as a potent drug. International Conference on Functional Biology and Molecular Interactions: Application in Health and Agriculture . 20-22 December, 2017.
18. Pooja dixit, Lav Singh, Mahendra Darokar and **Gauri Saxena**. Antibacterial and Antimalarial Activities From Aerial Parts of *Cephalotaxus Griffithi* from Northern Himalayas. 1st North Indian Science Congress (NISC-2018. 10th & 11th January, 2018.
19. Lav Singh, Pooja Dixit and **Gauri Saxena**. Structural variations in Resin ducts of Few Native and Exotic Species of *Pinus* Linn. From Northwest Himalayas. 1st North Indian Science Congress (NISC-2018) .10th & 11th January, 2018.
20. Rinkey Tiwari, Himanshu Dwivedi and **Gauri Saxena**. Assessment of diversity of the genus *Ficus* L. (Moraceae) in the Western Himalaya in India. National conference on diversity and utilization of tropical plants (NCDUTP-2018). Feb 2018.
21. Asifa khan, **Gauri Saxena** and Abdul Samad. Molecular Characterization, pathogenesis and recombinant studies of rapidly evolving Begomoviruses infecting a new host Andrographis paniculata**. 6th International Conference on Virology**. PGI, Chandigarh. 12-14 November, 2018.
22. Ravi Prakash Srivastava and **Gauri Saxena**. Conservation Strategies in *Selinum*- A Himalayan Medicinal And Aromatic Herb. 6th International Conference on Plants & Environmental Pollution (ICPEP-6). 27-30 November 2018.
23. Vartika Agarawal, Pallavi Somvanshi and **Gauri Saxena** (2019) . Biopolymers: An emerging tool for environment safety, climate change and sustainable development.World Conference of Disaster Management, Mumbai, India. 29 Jan-1 February.
24. Lav Singh, Pooja Dixit and Gauri Saxena. (2019). A report on total phenolic content and anti-oxidant in needle extracts of few exotic and indigenous species of *Pinus* growing in Northwestern Himalayas. International Conference on New Age Opportunities and Challenge for Quality, Safety and GMPs in Herbal Drug Development. February 22-23, 2019.
25. Pooja Dixit, Lav Singh and Gauri Saxena. (2019). Phenolic content and antibacterial activity in *Cephalotaxus* sp. growing at different altitudes in Northeastern hilly tracts of Himalaya. International Conference on New Age Opportunities and Challenge for Quality, Safety and GMPs in Herbal Drug Development. February 22-23, 2019.
26. Ravi Prakash Srivastava and Gauri Saxena. (2019). HPLTC fingerprinting of leaf, stem and root extracts of *Selinum tenuifolium*- a Himalayan medicinal herb. International Conference on New Age Opportunities and Challenge for Quality, Safety and GMPs in Herbal Drug Development. February 22-23, 2019.

**Working Papers:**

1. Morpho-anatomical variations and their phylogenetic implications in needles of few native and exotic species of *Pinus* growing in Indian Himalayas. Lav Singh, Pooja Dixit, Ravi Prakash Srivastava, Shivaraman Pandey,Praveen Chandra Verma and **Gauri Saxena**.. January 2019, Manuscript. [Under submission].
2. Assessment of total phenolics, flavonoid content and anti-oxidant activities in needles of few selected Exotic and Indigenous *Pinus* spp. growing in North-western Himalayas. . Lav Singh, Atul Kumar Upadhyay, Pooja Dixit, Ravi Prakash Srivastava ,Praveen Chandra Verma and **Gauri Saxena**.. January 2019, Manuscript. [Under submission].
3. Effect of rhizospheric inoculation of isolated arsenic (As) tolerant strains on growth, As-uptake and bacterial communities in association with *Adiantum capillus-veneris.* Naina marwa, Nishtha Mishra, Namrata Singh, Aradhana Mishra, **Gauri Saxena,** Vivek Pandey and Nandita Singh. February, **Journal of Hazardous Materials**. Manuscript. [Under submission].

**Other Professional Service:**

October 2012, Reviewer, Journal of Asia-Pacific Entomology (Elsevier).

December 2018, Reviewer, Journal Flora (Elsevier).