CURRICULUM VITAE

1. **Name**: **Deepika Tripathi**
2. **Father's Name** :Chandra Shekhar Tripathi
3. **Nationality**: Indian
4. **Date of Birth**:11th Nov, 1991
5. **Category**: General
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7. **Address for correspondence**: Deepika Tripathi,
   D/O Chandra Shekhar Tripathi
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9. Educational Qualification:

1. Ph.D. awarded in Botany, thesis entitled "*In-vitro* conservation and enhanced production of bioactive compounds with high medicinal efficacy from *Withania coagulans* (L.) Dunal" (2020)

2. M. Sc. Botany, Banaras Hindu University, U. P. India- 2013 (82.2 %)

3. B. Sc. (Botany, Zoology, Chemistry), D.D.U. Gorakhpur University, U. P. India- 2011 (70.8 %).

4. Intermediate, Biology, U. P. Board, India- 2008 (66.2 %)

5. High School, Science, U. P. Board, India- 2006 (72.3 %).

10. Work experience (after Ph. D.):

1. DBT- RA fellow in G B Pant National institute of Himalayan Environment, Kosi-Katarmal, Almora, Uttarakhand (From 1 October 2020 to Till date)
2. Research Associate (Project) CSIR- CIMAP, Lucknow (From 24 July 2020 to 30 September 2020)

11. Awards & Recognition:

1. Qualified for DBT-RA fellowship (2020).
2. Qualified National Eligibility Test (NET) 2013 December in Life Sciences and CSIR/UGC JRF 2014 June.
3. Awarded **C. S. I. R. –UGC Junior Research Fellowship** (2015- 2016).
4. Awarded **C. S. I. R. –UGC Senior Research Fellowship** (2017- 21 September 2019).
5. **Life Member** of 'The Indian Botanical Society', IBS, India.
6. **Life Member** of 'Indian science congress association'ISCA, India
7. **Best poster presentation award** inNational Symposium on 'Current Trends and Future Prospects in Plant Science Research' (CTPSR) held at Department of Botany, BHU-Varanasi.

12. Teaching Experience:

Teaching in M.Sc.(Applied Microbiology and Botany) – Practical classes.

13. Computer Experience:

Experience with MS word, MS Excel, Power point and Window ' xp', handling of SPSS and Sigma plot etc.

14. Research significance:

For the first time we were able to demonstrate that thin cell layer explant works as the most suitable method for *in-vitro* propagation of medicinally important endangered plant *W. coagulans*. I have biosynthesized biocompatible therapeutically important AgNPs from *W. coagulans* and identified the involvement of withanolides in AgNPs synthesis. Estimated the optimal concentration of AgNPs that enhanced plant growth and elicitated the biosynthesis of withanolides. These pioneering efforts advanced the work aimed at construction of lines that accumulate pharmaceutical compounds in *W. coagulans*. This research work not only improves sustainable production of this endangered plant also improves their medicinal efficacy.

15. Five best Publications:

1. **Deepika Tripathi**, Arusha Modi, Gopeshwar Narayan, Shashi Pandey-Rai (2019) Green and cost-effective synthesis of silver nanoparticles from endangered medicinal plant *Withania coagulans* and their potential biomedical properties. Material science and engineering C; 100, 152-164. (**IF: 7.328**)
2. **Deepika Tripathi**, Krishna Kumar Rai, Sanjay Kumar Rai and Shashi Pandey-Rai (2018) An improved thin cell layer culture system for efficient clonal propagation and *in vitro* withanolide production in a medicinal plant *Withania coagulans* Dunal. Industrial crops and products. 2018; 119(C):172-182 ISSN: 0926-6690. (**IF: 6.449**)
3. **Deepika Tripathi**, Krishna Kumar Rai and Shashi Pandey Rai (2021) Impact of green synthesized WcAgNPs on *in-vitro* plant regeneration and withanolides production by inducing key biosynthetic genes in *Withania coagulans*. Plant cell reports. 40: 283-299. https://doi.org/10.1007/s00299-020-02630-z **(IF: 4.964)**
4. Neha Pandey, Niraj Goswami, **Deepika Tripathi**, Krishna Kumar Rai, Sanjay Kumar Rai, Shilpi Singh and Shashi Pandey-Rai (2018) Epigenetic control of UV-B-induced flavonoid accumulation in Artemisia annua L. Planta. 249(2), 497-514. 10.1007/s00425-018-3022-7(**IF: 4.540**)
5. Krishna Kumar Rai, Nagendra Rai, Mohd Aamir, **Deepika Tripathi**, and Shashi Pandey-Rai (2020) Interactive role of salicylic acid and nitric oxide on transcriptional reprogramming for high temperature tolerance in *Lablab purpureus* L.: Structural and functional insights using computational approaches. Journal of biotechnology. 309, 113-130 (**IF: 3.595**).

16. Total List of Publications:

1. **Deepika Tripathi,** Mithilesh Singh, and Shashi Pandey-Rai (2022) Crosstalk of nanoparticles and phytohormones regulate plant growth and metabolism under abiotic and biotic stress. *Plant Stress*, 100107. DOI: https://doi.org/10.1016/j.stress.2022.100107
2. Dheeraj Shootha, **Deepika Tripathi**, Mithilesh Singh, Devendra Kumar and Sezai Ercisli (2022). Antioxidant, antimicrobial and phytochemical analysis of three endemic Rhododendron spp. of Sikkim Himalaya. South African Journal of Botany. DOI: https://doi.org/10.1016/j.sajb.2022.04.016 **(IF: 3.11)**
3. Shachi Shuchi Smita, Mashu Trivedi, **Deepika Tripathi**, Shashi Pandey-Rai and Rakesh Pandey (2021). Nuromodulatory potential of *Asparagus racemosus* and its bioactive molecule Shatavarin IV by enhancing synaptic acetylcholine level and nAChR activity. Neuroscience Letters. 764: 136294. DOI: 10.1016/j. neulet.2021.136294 **(IF: 3.197)**
4. Shashi Pandey-Rai, Krishna Kumar Rai, **Deepika Tripathi**, Neha Pandey, Sanjay Kumar Rai, Apoorva and Vinay Kumar Singh (2021) *In- vivo* studies and Molecular Docking of Modeled *Mus musculas* 8S Lipoxygenase Protein Using Some Natural Bioactive Compounds. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences. 92 (20); 359- 370. DOI: 10.1007/s40011-021-01284-5
5. **Deepika Tripathi**, Ram Prasad Meena and and Shashi Pandey Rai (2021) Short term UV-B radiation mediated modulation of physiological traits and withanolides production in *Withania coagulans* (L.) Dunal under *in-vitro* condition. Physiology and Molecular Biology of Plants. DOI: 10.1007/s12298-021-01046-7 **(IF: 3.023)**
6. **Deepika Tripathi**, Arusha Modi, Shachi Suchi Smita, Gopeshwar Narayan and Shashi Pandey Rai (2021) Biomedical potential of green synthesized silver nanoparticles from root extract of *Asparagus officinalis*. Journal of Plant Biochemistry and Biotechnology. DOI: 10.1007/s13562-021-00684-y **(IF: 1.525)**
7. **Deepika Tripathi**, Krishna Kumar Rai and Shashi Pandey Rai (2021) Impact of green synthesized WcAgNPs on *in-vitro* plant regeneration and withanolides production by inducing key biosynthetic

genes in *Withania coagulans*. Plant cell reports. 40: 283-299. https://doi.org/10.1007/s00299-020-02630-z **(IF 4.964)**

8. Shashi Pandey-Rai, Krishna Kumar Rai, **Deepika Tripathi**, and Vinay Kumar Singh (2021) In-silico and invitro studies of Human 15-lipoxygenase B protein with bioactive phytocompounds having strong anti-inflammatory potential. Journal of Scientific Research. 65(1): 173-181.
9. Krishna Kumar Rai, Nagendra Rai, Mohd Aamir, **Deepika Tripathi**, and Shashi Pandey-Rai (2020) Interactive role of salicylic acid and nitric oxide on transcriptionalreprogramming for high temperature tolerance in *Lablab purpureus*L.: Structural and functional insights using computational approaches. Journal of biotechnology. 309, 113-130 (**IF: 3.595**).
10. Neha Pandey, **Deepika Tripathi**, Sanjay Kumar Rai and Shashi Pandey-Rai (2019) Transverse thin cell layer culture for high frequency shoot germination in *Boerhaavia difusa* L., it's conservation and assessment of genetic fidelity. Plant Archives. 19 (1) 1093-1101.
11. **Deepika Tripathi**, Arusha Modi, Gopeshwar Narayan, Shashi Pandey-Rai (2019) Green and cost-effective synthesis of silver nanoparticles from endangered medicinal plant *Withania coagulans* and their potential biomedical properties. Material science and engineering C. 100, 152-164 (**IF: 7.328**).
12. Neha Pandey, Niraj Goswami, **Deepika Tripathi**, Krishna Kumar Rai, Sanjay Kumar Rai, Shilpi Singh and Shashi Pandey-Rai (2018) Epigenetic control of UV-B-induced flavonoid accumulation in *Artemisia annua* L. Planta. 249(2), 497-514. 10.1007/s00425-018-3022-7(**IF: 4.540**)
13. **Deepika Tripathi**, Krishna Kumar Rai, Sanjay Kumar Rai and Shashi Pandey-Rai (2018) An improved thin cell layer culture system for efficient clonal propagation and *in vitro* withanolide production in a medicinal plant *Withania coagulans* Dunal. Industrial crops and products 119(C):172-182 ISSN: 0926-6690. (**IF: 6.449)**
14. Neha Arora, **Deepika Tripathi**, Neha Pandey, Krishna Kumar Rai, Sanjay Kumar Rai and Shashi Pandey-Rai (2017) Study of Antioxidant, Anti-inflammatory, and DNA-Damage Protection Properties of Some Indian Medicinal Plants Reveal their Possible Role inCombating Psoriasis. Int. J. Appl. Sci. Biotechnol. 5(2): 141-149. DOI: 10.3126/ijasbt.v5i2.17618.
15. Sanjay Kumar Rai, Krishna Kumar Rai, Neha Pandey, Anjana Kumari, **Deepika Tripathi**, Nagendra Rai and Shashi PandeyRai (2016). Varietal performance of turmeric *(Curcuma longa* L.) with special reference to curcumin and essential oil content under climatic conditions of Indogangatic plains. Indian Journal of Vegetable Science. 43 (1): 36-43.
16. Anjana Kumari, Neha Pandey, Ram Prasad Meena, **Deepika Tripathi** and Shashi Pandey-Rai (2016). *In-vitro* characterization of somaclonal variant against salt tolerance by analyzing antioxidative defense system and secondary metabolites in *Artemisia annua* L. International Journal of Pharma and Bio Sciences. 7(2): (B) 700 – 714.

17. Book /Chapters:

1. Shashi Pandey-Rai, Neha Pandey, Anjana Kumari, **Deepika Tripathi** and Sanjay Kumar Rai. Impact of integrated omics technologies for identification of key genes and enhanced artemisinin production in *Artemisia annua* L.In book "*Artemisia annua*: Prospects, Applications and Therapeutic Uses" Taylor & Francis Group ISBN: 1138632104.
2. Shashi Pandey-Rai, **Deepika Tripathi**, Neha Pandey, Krishna K. Rai, Anjana Kumari and Sanjay Kumar Rai. Herbal cure for Psoriasis: an autoimmune disorder. In book "Trends in life science research". Ed. R. P. Sinha and U. P. Srivastava. Nova publishers. ISBN: 978-1-53613-242-7.
3. **Deepika Tripathi** and Shashi Pandey-Rai (2019)*Withania coagulans*: An Overview on Therapeutic Potential and Use of Recent Biotechnological Approaches for Conservation and Enhancement of Secondary Metabolites. In book "Innovations in life science research". Ed. R.P. Sinha, Nandita Ghoshal and Shashi Pandey-Rai. Nova publishers. ISBN: 978-1-53615-868-7.
4. **Deepika Tripathi** and Shashi Pandey-Rai (2021) Impact of green synthesized silver nanoparticles with natural bioactive compounds on plant developmental behavior. In book'Natural Bioactive Compounds: Technological Advancements'. Ed. R. P. Sinha and D.-P. Häder. Elsevier ISBN: 978-0-12-820655-3.
5. **Deepika Tripathi**, Arti Bisht, Indra Dutt Bhatt and Mithilesh Singh (2021) Optimization of in-vitro cell culture conditions for increasing biomass and nutraceutical production. In Book 'Nutraceuticals production from plant cell factory'. Ed. Tarun Belwal. Springer
6. **Deepika Tripathi**, Dheeraj Shootha, Shailendra Pradhan and Mithilesh Singh (2021) Bioactive compounds and pharmacology of an important medicinal plants *Spilanthes acmella* Murr. In Book 'Bioactives and Pharmacology of Medicinal plants'CRC press, Taylor & Francis Group (In-Press).

7. **Deepika Tripathi** and Dharm Chand Attri (2021) Bioactive compounds and pharmacological efficacy of *Thymus vulgaris* L.: A traditional folk medicinal plant. In Book 'Bioactives and Pharmacology of Medicinal plants'CRC press, Taylor & Francis Group (In-Press).
8. Dharam C. Attri, **Deepika Tripathi**, Vijaylaxmi Trivedi and M C Nautiyal (2021). Phytochemistry and bioactive potential of *Citrullus colocynthis* (L.) Schrad.In Book 'Bioactives and Pharmacology of Medicinal plants' CRC press, Taylor & Francis Group (In-Press).
9. Varsha Mishra, Khashti Dasila, Mithilesh Singh and **Deepika Tripathi** (2022). Hemp Varieties: Genetic and Chemical Diversity. In book 'Revolutionizing the Potential of Hemp and Its Products in Changing the Global Economy'. Tarun Belwal and Naveen Chandra Belwal (Eds), Springer

18. Hindi chapters/articles:

1. **Deepika Tripathi**, Anjana Kumari, Neha Pandey and Shashi Pandey-Rai (2016). Malaria keupchaar main *Artemisia annua*: ekchamatkariaushadiyapaudha. Pragati (BHU) ISSN 2321-2934
2. **Deepika Tripathi** and Shashi Pandey-Rai (2018) Paadapjivanmeidutiyaupapapachyako ki Bhumika. Vigyan ganga. ISSN-2231-2455
3. Sanjay Kumar Rai, Apoorva, **Deepika Tripathi** and Shashi Pandey-Rai(2021) कृषकों के लिए लाभदायक: मलेरियारोधी आर्टिमिसिया एनुआ पौधे की वैज्ञानिक खेती. Krishi utkarsh magazine, 7, 7-10.

19. Conferences (Oral presentation):

1. **Deepika Tripathi** and Shashi Pandey Rai. Clonal propagation of endangered medicinal plant *Withania coagulans* Dunal *via* thin cell layer technique and withanolide production under *in vitro* condition. International conference on "Trends in biochemical and biomedical research advances and challenges" (TBBR) 13-15th February 2018 organized by Department of Biochemistry, BHU-Varanasi.
2. **Deepika Tripathi** and Shashi Pandey Rai.Effect of green synthesized silver nanoparticles on plant growth dynamics and secondary metabolites in medicinal plant *Withaniacoagulans*Dunal using *in vitro* grown plantlets. National conference on "Ecological restoration, carbon sequestration and biotechnological approaches for biodiversity conservation" XLI all India Botanical Conference of IBS. 25-27th October 2018 organized by school of studies in Botany, Jiwaji University, Gwalior.

20. **Conferences (poster presentation):**

1. **Tripathi D**, Pandey N, Kumari A and Pandey-Rai S. Rapid in-vitro Mass propagation of a critically endangered antidiabetic plant *Withania coagulans* Dunal. International Conference on Recent Innovations in Ayurvedic sciences and Technology (ICRIAST) held at Department of Kayachikitsa, Faculty of Ayurveda, IMS BHU. 24-25 October, 2015
2. Pandey N, Kumari A, **Tripathi D** and Pandey-Rai S. Selective modulation of secondary metabolism under ultraviolet-B radiation in *Artemisia annua* L. International Conference on Recent Innovations inAyurvedic sciences and Technology (ICRIAST) held at Department of Kayachikitsa, Faculty of Ayurveda, IMS BHU. 24-25 October, 2015.
3. Kumara A, Pandey N, **Tripathi D** and Pandey-Rai S. Effect of arsenic stress on secondary metabolism of *Artemisia annua* L., an antimalarial plant. International Conference on Recent Innovations inAyurvedic sciences and Technology (ICRIAST) held at Department of Kayachikitsa, Faculty of Ayurveda, IMS BHU. 24-25 October, 2015
4. Pandey N, Rai SK, Kumari A, **Tripathi D** and Pandey-Rai S. Antioxidant, Anti-inflammatory and DNA damage protection potential of *Celestruspaniculatus* and *Curcuma longa* reveal their possible role against Psoriasis. International Conference on Recent Innovations inAyurvedic sciences and Technology (ICRIAST) held at Department of Kayachikitsa, Faculty of Ayurveda, IMS BHU. 24-25 October, 2015
5. Pandey N, Kumari A, **Tripathi D** and Pandey-Rai S. Abiotic stress induced secondary metabolite production in *Artemisia annua* L., an antimalarial plant. National conference on Interdisciplinary Approaches in Chemical Sciences. Organized by Center for Interdisciplinary Research in Basic Sciences, Jamia Milia Islamia, New Delhi on 16th Dec 2015.
6. Rai SK, Pandey N, Kumari A, **Tripathi D**, Rai KK and Pandey-Rai S.Bioefficacy of essential oil extracted from *Artemisia annua* L to control wilt disease of Brinjal caused by *Fusarium solani* F. Sp. Melongenae. National Symposium on Impact of climate change on plant-microbe interactions and its implications held at Department of Botany, BHU,18-19 December 2015.

7. **Tripathi D**, Pandey N, Kumari A and Pandey-Rai S.thin cell layer technique for rapid in-vitro propagation of *Withaniacoagulans* a highly endangered medicinal herb. 37th Annual Meeting of Plant Tissue Culture Association (PTCA-INDIA) 25-27 Feb 2016 held at NBRI, Lucknow.
8. Pandey N, Kumari A, **Tripathi D**, Rai SK, and Pandey-Rai S. Modulation of artemisinin biosynthesis by methyl Jasmonte and Fungal elicitors in hairy root cultures of *Artemisia annua* L. in Emerging trends in fungal biology and plant protection pp-2016 and42nd Annual Meeting of the Mycological Society of India, held at Botany Department, February 16-18, 2016.
9. Kumari A, **Tripathi D**, and Pandey-Rai S. Effect of exogenous salicylic acid in alleviation of arsenic generated oxidative stress and enhancing secondary metabolites in *Artemisia annua* L. In International conference on Climate change and its implications on crop production and food security (ICCCICPFS) 12-13 Nov. 2016 held at IAS, BHU, Varanasi.
10. **Tripathi D**, Kumari A, Rai KK and Pandey-Rai S. Effects of culture media strength and plant growth regulators on *in-vitro* seed germination of *W. coagulans*Dunal. In International conference on Climate change and its implications on crop production and food security (ICCCICPFS) 12-13 Nov. 2016 held at IAS, BHU, Varanasi.
11. **Tripathi D**, Kumari A, Pandey N, Rai KK and Pandey-Rai S. Biosynthesis of silvernanoparticles from aqueous leaf extract of *W. coagulans*Dunal and its biomedical potential. In Indo US International conference on nanotechnology: Science and applications in advance materials and beyond (NSAAMB) 19-22 Dec 2016 Held at Department of chemistry, I Sc, BHU, Varanasi.
12. Rai KK, Yadav A, **Tripathi D**, Rai SK, Rai N and Pandey-Rai S. Prospects of nanoparticles for enhancement of food quality and crop yield in Indain Bean (*Lablab perpureus* L.) In Indo US International conference on nanotechnology: Science and applications in advance materials and beyond (NSAAMB) 19-22 Dec 2016 Held at Department of chemistry, I Sc, BHU, Varanasi.
13. Yadav A, **Tripathi D** and Pandey-Rai S. Remediation of Arsenic toxicity by exogenous application of salicyclic acid in *Artemisia annua* L. National symposium on issue and challenges in ecological sciences (ICES- 2017) 23-25 February 2017 held at Department of Botany, BHU, Varanasi.
14. Pandey N, **Tripathi D** and Pandey-Rai S. Early responses to UV-B exposure involve quick activation of acclimation mechanism through adjusting primary and secondary metabolism in *Artemisia annua* L. National symposium on issue and challenges in ecological sciences (ICES-2017) 23-25 February 2017 held at Department of Botany, BHU, Varanasi.
15. **Tripathi D.**Green synthesis of silver nanoparticles from *in-vitro* grown *Withaniacoagulans*Dunal plantlets. In 40th annual meeting of IBS and national symposium on Evaluation and conservation of plant germplasm. 15 – 17th September 2017 held at Department of Botany, Punjabi University, Patiala.
16. Pandey-Rai S.**,** Apoorva, **Tripathi D**, Goswami N, Maurya B, Sharma L and Rai SK. Functional analysis of *Anabaena sp*. PCC7120 phytochelatin synthase (*pcs*) gene in *Artemisia annua* hairy root cultures for enhanced metal tolerance and secondary metabolite production. Symposium on "Advances in biology of algae and cyanobacteria". 8-9th February 2018 held at Department of Botany, BHU-Varanasi.
17. Pandey N, **Tripathi D** and Sangwan N. Active involvement of defense mechanism to mitigate adverse effects of UV-B radiation in *Withaniasomnifera* L. Dunal, an important medicinal plant. International conference on "Trends in biochemical and biomedical research advances and challenges" (TBBR) 13-15th February 2018 organized by Department of Biochemistry, BHU-Varanasi.
18. **Tripathi D**, Goswami NK, Maurya B, Sharma L, Apoorva and Pandey-Rai S. Green synthesis of silver nanoparticles from *Asparagus officinalis* root extract and its antimicrobial and cytotoxic activity. In Bio-Sangam an international conference on "Innovations and translational dimensions: food, health, environmental biotechnology." 9-11thMarch 2018 held at MNNIT Allahabad.
19. Pandey N, **Tripathi D** and Sangwan N. Modulation of defense mechanism and protective metabolites in *Withaniasomnifera* L. Dunal to mitigate adverse effects of UV-B radiation. In Biosangam an international conference on "Innovations and translational dimensions: food, health, environmental biotechnology." 9-11th March 2018 held at MNNIT Allahabad.
20. Rai KK, Rai N, **Tripathi D** and Pandey-Rai S. Effect of salicylic acid and nitric oxideon *Lablab purpureus*L. and *in-silico* characterization of heat shock factor protein under high temperature stress. National Symposium on 'Current Trends and Future Prospects in Plant Science Research' 1-3 February 2019 held at Department of Botany, BHU-Varanasi.
21. **Tripathi D**, Maurya B, Sharma L and Pandey-Rai S.Fabrication of biocompatible silver nanoparticles *via in-vitro* propagated endangered plant *Withaniacoagulans*and their biomedical

applications. National Symposium on 'Current Trends and Future Prospects in Plant Science Research' 1-3 February 2019 held at Department of Botany, BHU-Varanasi.

22. **Tripathi D**, Smita SS, Modi A, Narayan G and Pandey-Rai S. Elucidation of silver nanoparticles green synthesis using *Asparagus officinalis* root extract and validation of antimicrobial and cytotoxic potential. National Symposium on 'Current Trends and Future Prospects in Plant Science Research' 1-3 February 2019 held at Department of Botany, BHU-Varanasi.
23. **Tripathi D**, Maurya B, Sharma L and Pandey-Rai S. Green synthesized silver nanoparticles from medicinal plants *Withaniacoagulans* Dunal and Asparagus officinalis: A remedy for cervical cancer prevention. 8th International Translational Cancer Research Conference. Department of Biochemistry, Institute of Science, Banaras Hindu University. 13-16 FEB 2020.

21. Workshops: Workshop on 'High throughput omics data for mining of important genes/traits linked to agricultural productivity' organized by the Bioinformatics Sub DIC, Pantnagar.

Deepika Tripathi

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