Primary goal of our research is

- Screening, Isolation, and characterization of Natural Products, either from plants or microorganisms like secondary metabolites which include phenolics, quinones, flavonoids, alkaloids, terpenoids, and polyacetylenes, surfactants etc. An attention has been given to these as a new source of safe and effective QS inhibitory substances that can function as anti-biofilm agents in bacteria and elucidating their mechanism of action (cell to cell communication).
- Focus on analytical method development techniques from small molecules, like chemical entities in plant extracts (Extra cellular vesicles), to proteins and their characterization.
- The group also focus on characterization and identification of bio-active peptides/ Secondary metabolites from plants endophytes.
- Exposure to air pollutants, toxic industrial chemicals, and heavy metals, pose a great risk for the onset and progression of Alzheimer's disease (AD), Parkinson's diseases, other neurological and metabolic disorders. The research group focuses to study the molecular mechanisms and redox biology of these pathophysiological conditions.
- Environmental deterrents, pathogens and toxins results into accelerated inflammation which lead to atherosclerosis and increased risk of cardiovascular diseases, neurological manifestations, and angio-myogenic complications. Research in these directions which connect immunology and biochemistry may help the pharmaceutical industry to find new interventional therapies.

Publications and Patents

2022:-

- Kishore K. Pinnapti, Reetika Tandon, Pratima Tripathi and Nidhi Srivastava (2022). Recent advances to overcome the burden of *Japanese encephalitis:* A zoonotic infection with problematic early detection. Reviews in medical virology. DOI: 10.1002/rmv.2383
- Goswami, P., Mathur, J., & Srivastava, N. (2022). Silica nanoparticles as novel sustainable approach for plant growth and crop protection. Elsevier, *Heliyon*, *8*(7), e09908. **(Web Link)**
- Goswami, P., Sharma, M., Srivastava, N., & Mathur, J. (2022). Assessment of the fungicidal efficacy of Biogenic SiO2NPs in Eruca sativa against Fusarium wilt. *Journal of Natural Pesticide Research.***(Web Link)**

- Ombase, P., Rajesh, K. P., Singh, L., Baranwal, J., Srivastava, N., & Ranjan, N. (2022). Human telomeric G-quadruplex DNA enabled preferential recognition of copper (II) and Iron (III) ions sensed by a red emissive probe. Elsevier, *Tetrahedron Letters.*

- Gade A, Sharma A, Srivastava N, Flora SJ (2022). Surface plasmon resonance: A promising approach for label-free early cancer diagnosis. Clinica Chimica Acta, Feb 2.

- Monika Chaudhary, Vartika, Sameer Suresh Bhagyawant, Nidhi Srivastava. (2022). Natural Biosurfactant as Antimicrobial Agent: Strategy to Action Against Fungal and Bacterial Activities. Cell Biochemistry and Biophysics, 1-15.

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Amita Bhadkaria, Nidhi Srivastava, and Sameer Suresh Bhagyawant (2021) . A prospective of underutilized legume moth bean (Vigna aconitifolia (Jacq.) Marechàl): Phytochemical profiling, bioactive compounds, and in vitro pharmacological studies. Food Bioscience, 101088 (2021).

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Sharma A, Flora SJ (2021). Positive and negative regulation of ferroptosis and its role in maintaining metabolic and redox homeostasis. Oxidative Medicine and Cellular Longevity, Apr 28; 2021.

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- BOOK: - Singhal, G., & **Srivastava, N.** (2022). *A Practical Handbook of Life Sciences* (1st.). Cambridge Scholars Publishing. **(Web Link)**

Book Chapters published 2021-22

Joshi, S., Choudhary, M., & Srivastava, N. (2021). Cellulase production using different microbial sources. In Current Status and Future Scope of Microbial Cellulases (pp. 1-17). Elsevier.

Verma, V., Singhal G., Joshi S. and Srivastava N. (2021). Plant extracts as enzymes. Plant Extracts: Applications in the Food Industry. 209-223.Academic Press.

Verma, V., Rao, L., Joshi, S., Choudhary, M., & **Srivastava, N.** (2022). Value-added product development from food scraps. In Hrudayanath Thatoi, Sonali Mohapatra and Swagat Kumar Das (Eds.) *Innovations in Fermentation and Phytopharmaceutical Technologies,* (1st Edi., Ch. 19, pp. 417–435) Academic Press, Elsevie

Verma, V., Chaudhary, M., Bhagyawant, S. S., & **Srivastava, N.** (2022). High altitude Sickness: Environmental Stressor and Altered Physiological Response. In Narendra Kumar Sharma, Aditya Arya, *High altitude sickness - solutions from genomics, proteomics and antioxidant interventions.* (1st Ed., Ch. 2., pp. 19-35) Springer Link

Gauri Singhal, Sameer Suresh Bhagyawant and Nidhi Srivastava. (2022).Renewable Biofuels: Sources and Types. Bio clean Energy Technologies Volume (2) pp-13-26 (Springer)

Gauri Singhal, Priya Singh, Anjani Sihag and Nidhi Srivastava (2022). Current trends in green processing: Improvement of Food product.165-180(Elsevier)

Vartika Verma, Lavisha Rao, and Nidhi Srivastava (2022). Molecular Structure and function of Cellulases. Current Status and Future Scope of Microbial Cellulases. Pp 19-38 (Elsevier)

Shashank Reddy, Vartika Verma and Nidhi Srivastava (2022). Marine Biosurfactants: Applications in Agriculture in Book Marine Biosurfactants (CRC Press) edited by Se-Kwon Km and Kyung-Hoon Shin.Doi:10.1201/9781003307464.

Patents:-

1. **Miss Reetika Tandon,Mr. Mayank Handa, Dr. Rahul Shukla,Dr. Nidhi Srivastava (2022) NOVEL METHOD FOR PREPARATION OF VINCRISTINE LOADED EXOSOMES AND THEIR THERAPEUTIC INTERVENTION THEREOF**
Patent Application No is **202211067593.**

2. Miss Reetika Tandon, Shalini Saha ,Dr. Nidhi Srivastava 202211065328 Title

"NOVEL METHOD FOR ISOLATION OF PLANT-DERIVED EXOSOMES AND THEIR WIDE APPLICATIONS THEREOF"

Biotechnology First Batch detail (2020-2022)

Name	Company
1. Anushree Chandrashekhar Gade	Shobhaben pratapbhai patel school of pharmacy and technology management, NMIMS, Mumbai. (JRF)
2. Midhun M	Hetero biopharma, Hyderabad
3. Kalyanbabu Kakumanu	Syngene International Limited, Bangalore
4. Manisha Prabhakar Jadhav	Allscript-Altera, Pune
5. Nita Shivaji Jangid	Dabur Research Foundation, Ghaziabad.
6. Pankaj Sanjay Ombase	Apcer Life Science, Ahmedabad
7. Shashank Reddy Pasika	Hetero biopharma, Hyderabad, also selected for PH.D.
8. Shubham Sharma	Jubliant Biosys, New Delhi
9. Suresh Nayak Diravath	Centre of excellence, department of Biopharmaceutical technology, Chemical engg.Dept. IIT Delhi