

## CURRICULUM VITAE

### Dr. Hanumant Singh Rathore

Associate Professor in Biotechnology with a proven record of leading research projects and collaborative initiatives. Expertise in tissue engineering, drug delivery, and biopharmaceutical studies, with successful grant acquisitions and high-impact publications



### Personal Information

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### Employment Details/ Professional Experience

Academic and research experience: 15 years

Administrative (Head In-charge of Department): 7 years

Designation	From	To	Institute
Associate Professor	14 Feb 2024	Till date	Department of Biotechnology, School of Engineering & Technology, Nagaland University, Meriema, Kohima, Nagaland, India.
Assistant Professor	14 Feb. 2011	13 Feb 2024	

### Educational Qualification

- Doctor of Philosophy in Technology (Ph.D.) at Central Leather Research Institute (CSIR-CLRI) Chennai and Anna University Chennai (2017). Title: A novel gum kondagogue based scaffold and its application in skin tissue regeneration. (Supervisor: Lt. Dr. P. K. Sehgal, Dr. Sanjeev Gupta, Co-supervisor: Dr. T. S. Uma).
- Master of Technology in Biotechnology at A. C. College of Technology (Centre for Biotechnology) Anna University Guindy Chennai (2007-2009)
- Bachelor of Pharmacy in S.L.T. Inst. of Pharmaceutical Sciences, Guru Ghasidas University Bilaspur (C.G.) (2003-2007)

### Fields of Interest

- Tissue engineering
- Biopharmaceutical and drug delivery

### Research Projects: 5

- “Genomic study of Eri silkworm”, Nagaland University, (Ongoing)-Principal Investigator (2024 to 2026).
- “Death receptor-5 targeted lipid nanoparticles of  $\gamma$ -secretase inhibitor for simultaneous targeting of breast cancer cells and cancer stem cells” DBT Delhi Govt of India (Completed)-Principal Investigator (2021 to 2025).
- “Systematic exploration and analysis of indigenous Nagaland medicinal plant *Clematis nepaulesis* for the effective treatment of Rheumatoid Arthritis” DBT Delhi Govt of India (Completed)- Co-Principal Investigator
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- “An effective treatment approach of T-cell induced autoimmune diabetes through sitagliptin-anti CD4 immuno-nano Conjugates in BALB/c mice” DBT Delhi Govt of India (Completed)- Principal Investigator. (2014-2017).

### Technology Developed

Associate developer for the technology “**Species identification of Mithun and Yak meat by AL-PCR assay.**”

### Publications (h index: 10, Cumulative impact factor 73.81): 20

- Mech, M.M.; Rathore, H.S.; Milton, A.A.P.; Karabasanavar, N.; Hanah, S.S.; Srinivas, K.; Khan, S.; Hussain, Z.; Kumar, H.; Ramesh, V.; et al. (2026) Development and Application of a Polymerase Spiral Reaction (PSR)-Based Isothermal Assay for Rapid Detection of Yak (*Bos grunniens*) Meat. *Foods*, 15, 115. <https://doi.org/10.3390/foods15010115> (Impact Factor 5.1)
- Mech, M. M., Rathore, H. S., Milton, A. A. P., Karabasanavar, N., Srinivas, K., Khan, S., Hussain, Z., Ramesh, V., Kumar, H., Das, S., Ghatak, S., & Shivanagowda, G. P. (2026). Development of a visual assay for Mithun (*Bos frontalis*) meat authentication using polymerase spiral reaction (PSR). *Food Control*, 179, 111576. (Impact Factor 6.3) <https://doi.org/10.1016/J.FOODCONT.2025.111576>
- Imchen, L., Manisekaran, R., Jamir, I., Rathore, H. S., Senthilvelan, T. (2025) A

- review on plant-mediated synthesis of AgNPs and their formulations for wound healing application. *Molecular Biology Reports* 52, 419. (Impact Factor 2.9) <https://doi.org/10.1007/s11033-025-10512-4>
- Mech, M. M., Rathore, H. S., Jawla, J., Karabasanavar, N., Hanah, S. S., Kumar, H., Ramesh, V., Milton, A. A. P., Vidyarthi, V. K., Sarkar, M., & Shivanagowda, G. P. (2025) Development of rapid alkaline lysis–polymerase chain reaction technique for authentication of Mithun (*bos frontalis*) and Yak (*bos grunniens*) species. *Molecules* 30(4), 934.. <https://doi.org/10.3390/molecules30040934> (Impact Factor 4.2)
  - Manisekaran, R., Chettiar, A. D. R., Marasamy, L., Arthikala, M. K., Kandasamy, G., Ibarra, V. C., & Rathore, H. S. (2024). Copper, Zinc, and Titanium-Based Semiconductor Nanomaterials for Antimicrobial Coatings and Their Mechanisms. *Nano Select*, 6 (5), e202400155 (Impact Factor 3) (WOS) <https://doi.org/10.1002/nano.202400155>
  - Kumari, M., Naik, M. R., Rathore, H. S., Shukla, A. K., Dar, A. I., Kiran, A. V. R., Kumari, K., Acharya, A., & Krishnamurthy, P. T. (2025). Targeted delivery of DAPT using dual antibody functionalized solid lipid nanoparticles for enhanced anti-tumour activity against triple negative breast cancer. *International Journal of Pharmaceutics*, 670, 125142. (Impact Factor 5.3) (WOS/Scopus) <https://doi.org/10.1016/j.ijpharm.2024.125142>
  - Thennarasu, G., Rajendran, S., Kalairaj, A., Rathore, H. S., Panda, R. C., & Senthilvelan, T. (2024). A comprehensive review on the application of semiconductor nanometal oxides photocatalyst for the treatment of wastewater. *Clean Technologies and Environmental Policy*, 1-22. (Impact Factor 4.2) (WOS/Scopus) <https://doi.org/10.1007/s10098-024-02960-6>
  - Sharma, A., Goel, H., Sharma, S., Rathore, H. S., Jamir, I., Kumar, A., Thimmappa, S. C., Kesari, K. K., & Kashyap, B. K. (2024). Cutting edge technology for wastewater treatment using smart nanomaterials: recent trends and futuristic advancements. *Environmental Science and Pollution Research*, 31(48), 58263-58293. (Impact Factor 5.8) <https://doi.org/10.1007/s11356-024-34977-1>

- Singh, P., Rathore, H. S., Chhetri, N. B., & Gargate, G. (2024). IP audit of an academic institute-case study of central university and institute of excellence in India. *International Journal of Intellectual Property Management*, 14(2), 160-181. (Impact Factor 0.8) (Scopus) <https://doi.org/10.1504/IJIPM.2024.137208>
- Gomathi, E., Maharaja, P., Rathore, H. S., Boopathy, R., Panda, R. C., Senthilvelan, T., & Arthanareeswari, M. (2023). Treatment of textile dye consortium through photo-electro-fenton process using graphite-Ti electrode system and toxicity studies. *Carbon Letters*, 33(7), 2011-2025. (Impact Factor 4.5) <https://doi.org/10.1007/s42823-023-00551-x>
- Senthilvelan, T., Rathore, H. S., Gomathi, E., Panda, R. C., Issac, P. K., Guru, A., & Arockiaraj, J. (2023). The enzymatic decolorization of leather azo dyes (AB 113 and AB 52) using crude fungal laccase: an eco-friendly approach towards pollution reduction. *Biomass Conversion and Biorefinery*, 1-13. (Impact Factor 4.1) <https://doi.org/10.1007/s13399-023-04888-1>
- Rathore, H. S., Sivagnanam, U. T., Abraham, L. S., Prakash, D., Panda, R. C., & Senthilvelan, T. (2022). Green synthesized silver nanoparticles-impregnated novel gum kondagogu–chitosan biosheet for tissue engineering and wound healing applications. *Polymer Bulletin*, 79(9), 7215-7227. (Impact Factor 3.1) <https://doi.org/10.1007/s00289-021-03832-5>
- Konyak, P. M., Hiese, Z., Prabu, S. L., Ruckmani, K., Hiese, V., Ajungla, T., & Rathore, H. S. (2022). Persuasive and Strategic Approaches for Preliminary Phytochemical Screening, Quantitative Analysis and Antioxidant Activity of Crude Plant Extracts from *Clematis napaulensis* DC Indigenous to Nagaland, India. *The Journal of Plant Science Research*, 38(2), 739-751. <https://doi.org/10.32381/JPSR.2022.38.02.27>
- Kartik, S., Prakash, D., Kumar, R. R., Ramkumar, V., Vishista, K., Rathore, H. S., Panda, R. C., & Senthilvelan, T. (2021). Betel leaf-derived carbon nano-sphere/renewable resourced polyurethane coatings for high-performance applications. *Polymer Bulletin*, 78, 3527-3541. (Impact Factor 3.1) <https://doi.org/10.1007/s00289-020-03264-7>

- Rathore, H. S., Senthilvelan, T., Vasantharaja, R., Abraham, L. S., Prakash, D., Sivagnanam, U. T., & Gupta, S. (2019). Fabrication and characterization of chitosan film impregnated ciprofloxacin drug: A comparative study. *Biocatalysis and agricultural biotechnology*, 18, 101078. (Impact Factor 4.2) <https://doi.org/10.1016/j.bcab.2019.101078>
- Thondawada, M., Wadhvani, A. D., S. Palanisamy, D., Rathore, H. S., Gupta, R. C., Chintamaneni, P. K., Samanta, M. K., Dubala, A., Verma, S., Krishnamurthy, P. T., & Gowthamarajan, K. (2018). An effective treatment approach of DPP-IV inhibitor encapsulated polymeric nanoparticles conjugated with anti-CD-4 mAb for type 1 diabetes. *Drug development and industrial pharmacy*, 44(7), 1120-1129. (Impact Factor 3.25) <https://doi.org/10.1080/03639045.2018.1438460>
- Kumar, S. S. D., Mahesh, A., Antoniraj, M. G., Rathore, H. S., Houreld, N. N., & Kandasamy, R. (2018). Cellular imaging and folate receptor targeting delivery of gum kondagogu capped gold nanoparticles in cancer cells. *International journal of biological macromolecules*, 109, 220-230. (Impact Factor 5.16) <https://doi.org/10.1016/j.ijbiomac.2017.12.069>
- Ramanathan, G., Singaravelu, S., Muthukumar, T., Thyagarajan, S., Rathore, H. S., Sivagnanam, U. T., & Perumal, P. T. (2017). Fabrication of Arothron stellatus skin collagen film incorporated with *Coccinia grandis* as a durable wound construct. *International Journal of Polymeric Materials and Polymeric Biomaterials*, 66(11), 558-568. (Impact Factor 2.6) <https://doi.org/10.1080/00914037.2016.1252351>
- Ghatak, S., Yadav, R. P., Rathore, H. S., Thou, K., Jakha, F., Sumi, K. T., Zothan, S., & Kumar, N. S. (2017). Mitochondrial control region and GSTP1 polymorphism associated with familial urinary bladder cancer in Karbi-Anglong tribe of Assam, Northeast India. *Egyptian Journal of Medical Human Genetics*, 18(1), 99-104. <https://doi.org/10.1016/j.ejmhg.2016.02.002>
- Rathore, H. S., Sarubala, M., Ramanathan, G., Singaravelu, S., Raja, M. D., Gupta, S., & Sivagnanam, U. T. (2016). Fabrication of biomimetic porous novel sponge from gum kondagogu for wound dressing. *Materials Letters*, 177, 108-111. (Impact Factor 3.4) <https://doi.org/10.1016/j.matlet.2016.04.185>

### Books and Book Chapters: 5

- A comprehensive textbook for Intellectual Property Rights: 2024, Scientific International Publishing House ISBN 978-93-5757-830-7 (2024)
- Essentials of bioinformatics for beginners, AG Publishing House, ISBN 978-81-19832-30-9 (2024)
- rDNA Technology, Scientific International Publishing House, ISBN 978-93-6132-096-5 (2024)
- Python Programming, Scientific International Publishing House, ISBN 978-93-6132-168-9 (2024)
- Machine learning using R, Scientific International Publishing House, ISBN 978-93-5757-646-(2023)
- Biomedical Applications of Carbon-Based Nanomaterials (Book Chapter) Nanomaterials and their biomedical applications, Tuhin Subhra Santra, Springer, ISBN 978-981-33-6252-9 (2021) DOI 10.1007/978-981-33-6252-9\_6

### Patents (Granted): 8

- Digital and Portable Automated Microbiology System (Design no. 396061-001, 15/11/2023)
- Apparatus for Synthesis of Pharmaceutical Nanosuspension (Design no. 398362-001, 14/12/2023)
- Animal Tissue Storage Device for Laboratory Purpose (Design no. 398085-001, 14/12/2023)
- Portable Device for The Diagnosis of Skin Cancer (Design no. 6319795, 25/10/2023)
- AI-Based Biosensor Device To Detect Breast Cancer (Design no. 398936-001, 04/01/2024)
- Bacterial colony analysis device (Design no. 404484-001, 14/01/2024)
- Volatile oil extraction apparatus (Design no. 411057-001, 16/05/2024)
- Portable franz diffusion cell for permeation studies of transdermal formulation (Design no. 409923-001, 02/05/2024)

### International/National Conferences presented

- **Invited talk** on An effective approach for the treatment of type-I diabetes, Department of Molecular Analytics, SIMATS, Chennai, 24 Jan 2025.
- **Oral presentations** on Green synthesis of silver nanoparticles using *Laggetera crispata* (VAHL) Hepper & J.R. I. wood and its antibacterial activity, International Conference on Multidisciplinary Research & Innovation (ICMRI-2024), St. Joseph University, Dimapur, 25 Oct 2024.
- **Invited talk** on Intellectual Property Rights- A Glance, One-day National workshop Entitled “Intellectual Property Rights and Innovations for Academics and Research”, St. Joseph University, 3 May 2024

- **Invited talk** on Herbal drug research during Recent advances in Herbal drug research in reference to Ayurveda and Pharmacovigilance of AUS&H Drugs, Regional Ayurveda Research Centre, Dimapur, 4 March 2023.
- **Invited talk** on Biotechnology research in 21st century during Research methodology in scientific studies, Govt. Lahiri P. G, College, 9 June 2022
- **Invited talk** on An effective approach for the treatment of type –i diabetes using stiglipitin-plga-nps conjugated with anti-cd-4 mab during Anthropology biological diversity and affinities A critical rethinking of the enduring issue in India, St. Joseph University, Dimapur, 18 Mar 2022
- Talk on Vision, 5<sup>th</sup> Induction program for B Tech, 8 Aug. 2023.
- **Invited Lecture** on GOI initiative in online learning in International summit on Pharmaceutical Learning and collaboration-II 2020, Guru Ghasidas Central University Bilaspur, 7 June 2020.
- **Deliver a speech** on Pharmaceuticals from animals in three days entrepreneurship development awareness Camp, Department of Zoology, St. Joseph University, Dimapur 25 Oct. 2019.
- **Oral Presentation** on the topic Preparation and characterization of novel gum sponge and its efficacy in wound healing in International Conference (SPER Bangkok 2019) 3 Oct 2019.
- Presented on the topic Hands on training on Dynamic Light Scattering (DLS) in the seminar on Biotechnology: An emerging future, organized by Department of Biotechnology, SET, Nagaland University, Dimapur on 28th March 2019
- **Oral presentation** during 12th Annual Convention of ABAP & **International Conference** on “Biodiversity, Environment and Human Health: Innovations and Emerging Trends” (BEHIET 2018) organized at school of life sciences, Mizoram University, Aizawl, Mizoram during 12 -14 November 2018
- **Oral presentation** during TEQIP-II sponsored **International Conference** on Trends and Innovations in Chemical & Pharmaceutical Technologies (TIPCT 2017), 2-4 February 2017, Anna University, BIT, Tiruchirappalli
- **Poster presentation** during TEQIP-II sponsored **International Conference** on Trends and Innovations in Chemical & Pharmaceutical Technologies (TIPCT 2017), 2-4 February 2017, Anna University, BIT, Tiruchirappalli
- **1st prize in a poster presentation** during 5th Annual **International Convention** of Association of pharmacy professionals held in Department of Pharmaceutical Technology, Anna University, Tamilnadu during 22nd -23rd Jan 2016
- **Poster presentation** during **Indo-Australian conference** on Biomaterials, Tissue Engineering, Drug delivery system & regenerative medicine (BiTERM-2015) organized by Department of Chemistry, Anna University, Chennai held from 5th to 7th February 2015.

- **Poster presentation** in 1st **International Symposium** on frontiers in pharmaceutical research and nanotechnology (Nanopharma 2011) during 5th and 6th March 2011.
- **Oral presentation** during **98th Indian Science Congress** quality education and excellence in scientific research in Indian Universities held at SRM University, Chennai during 3-7 Jan 2011
- **Poster Presentation** in the **national seminar** on "Advances In Drug Discovery And Development" organized by SLT Institute of pharmaceutical sciences, Guru Ghasidas University, Bilaspur on Jan.18th-19th, 2008

### International/National Conferences Participated: 10

### Professional Training/Workshops/FDP: 20

### Administrative/Teaching / Educational Development Activities

- In-charge Common Pool (Department of Humanities and Basic Sciences), NU SET Aug 2021 to Aug 2023
- Head In-charge, Department of Biotechnology, July 2017-2019, July 2012-2014, Aug 2023 – April 2025
- Member in BPGS in Agricultural Chemistry and Soil Science 2021-2023
- Member in BPGS-Genetics & Plant Breeding 2021-2023
- School board member of School of Agriculture Sciences 2023-2025
- Member of Board of Studies in Dept. of Agricultural Engineering 2023-2025
- Member of Board of Studies in Dept. of Information Technology 2023-2025
- Task force committee members for NAAC SSR
- Member of B Tech admission committee
- LPC member/ DPC member
- Screening committee member
- Board of studies member of st. Joseph University for community services 2022
- Member of RAC
- Member of Academic Council, St. Joseph University 2024 to till date

### Ph.D Supervision: 5

S. No.	Name of Scholar	Title	Year of registration
1	Lolenmenla Imchen	Phytochemical evaluation of medicinal plants and their wound healing activity	2021
2	Moon Moon Mech	Development of dna based molecular techniques for Species authentication of Mithun ( <i>bos frontalis</i> ) and Yak ( <i>bos grunniensis</i> ) meat	2022
3	Kuluve Chotso	Elucidating genetic diversity and genomic footprints of selection in Arunachali Mithun	2023

		using whole genome sequencing	
4	Ngoiang Ongh	Therapeutic properties of different botanical parts of mulberry	2023
5	Angphoi	Course work	2026

### Professional Development, Honors/Awards

- Best Teacher Award 2024 from Nagaland University.
- Received Rs. 10000 for Research Publication 26 Mar. 2024.
- June 2010-Feb 2011: Senior Research Fellow (SRF) from Central Leather Research Institute (CSIR-CLRI), Chennai
- June 2009-May 2010: GATE-Junior Research Fellow (JRF) from Central Leather Research Institute (CSIR-CLRI), Chennai
- 2007, 2008, 2009 Qualified in “Graduate Aptitude Test in Engineering” (GATE), conducted by IIT, Kanpur, Indian Institute of Science, Bangalore, IIT Roorkee respectively
- All India 7th rank in JNU-CEE 2007 for admission in M Tech Biotechnology
- Received 8000/- per month fellowship from DBT, Delhi during M Tech. Degree
- HINDI FORTNIGHT 2023
  - Essay competition 1<sup>st</sup>
  - Slogan competition 3<sup>rd</sup>
  - Quiz competition 3<sup>rd</sup>
- Janjatiya gaurav diwas Quiz competition 2<sup>nd</sup> position
- Bharat bhasha utsav quiz competition 3<sup>rd</sup> position

### Professional Memberships

- Indian Science Congress Association, Kolkata (L16609)
- Association of Pharmacy Professionals (**APP/NL/LM-001/16**)
- Society for Tissue and regenerative medicine member (stermi)
- Editorial board member of Nagaland University Research Journal (NURJ)

I do hereby declare that the above-furnished details are true and correct to the best of my knowledge.

Hanumant Singh Rathore