



Assistant Professor

Department of Pharmaceutical Analysis, National Institute of Pharmaceutical Education and Research (NIPER) - HAJIPUR, Export Promotional Industrial Park, Vaishali District, Bihar – 844102 (India)

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Date of Joining to the current position: 29th Aug 2025

Educational Qualifications:

2021: Doctor of Philosophy (PhD) in Pharmaceutical Sciences (Manipal Academy of Higher Education, Manipal, Karnataka)

2012: Master of Pharmacy (M. Pharm) in Pharmaceutical Analysis (Grace College of Pharmacy, Palakkad (Calicut University, Kerala)

2009: Bachelor of Pharmacy (B. Pharm): BBD National Institute of Technology and Management, Lucknow (Uttar Pradesh Technical University, Lucknow, Uttar Pradesh)

2006: SDRDT Mahila Polytechnic, Kanpur (Board of Technical Education, UP)

Research Area:

- Neurological studies
- Depression studies
- Mass spectrometry based PK studies
- USFDA/EMA Analytical and Bioanalytical method development and Method validation using HPLC, LC-MS/MS, GC-MS/MS and LC-ICP-MS methods
- Regulatory compliance

Experience:

Current position:

Assistant Professor Dept. Pharmaceutical Analysis at National Institute of Pharmaceutical Education and Research (NIPER)-HAJIPUR, Bihar from 29th Aug 2025 to till date.

Previous Experience:

Manager in department Chemical Safety and Regulatory affairs, Consumer Division in Freyr Solutions, Hyderabad, Telangana (Feb 2021 to Aug 2025)

Team Lead in department of Quality Assurance in Bioavailability and Bioequivalence studies in Ecron Acunova (Navitas Life Sciences), Manipal, Karnataka (May 2012 to Dec 2024)

Key Paper Publications:

- V Beere, K Choudhary, P Bisht, A Rai, N Kumar. Prediction of molecular targets for antidepressant potential of hydroalcoholic extract of Tamarindus indica using network pharmacology approach and evaluating its efficacy in Chronic Unpredictable Mild Stress model in mice - 3 Biotech. 2024;14(10): 232.
- Rai A, Shetty R, Prabhu H, Theerthahalli A, Kumar N, Krishnadas N, Khan A. A Very Sensitive Bioanalytical Method for the Estimation of Escitalopram in Rat Plasma Using Liquid Chromatography with Tandem Mass Spectrometry-Application to Animal Pharmacokinetic Study. Indian Journal of Pharmaceutical Sciences. 2022 Apr 14;84(2):380-9.
- Bandyopadhyay I, Dave S, Rai A, Nampoothiri M, Chamallamudi MR, Kumar N. Oral Semaglutide in the Management of Type 2 DM: Clinical Status and Comparative Analysis. Current drug targets. 2022 Feb 1;23(3):311-27.
- Baranwal A, Aggarwal P, Rai A, Kumar N. Pharmacological actions and underlying mechanisms of catechin: A review. Mini reviews in medicinal chemistry. 2022 Mar 1;22(5):821-33.
- Rai A, Gill M, Kinra M, Dsouza LA, Sumalatha S, Raj S, Shetty R, Nandakumar K, Chamallamudi MR, Kumar N. Assessment of preclinical effect of (+)-catechin hydrate on sexual function: An in silico and in vivo study. Andrologia. 2020 Jul 2:e13737.
- Rai A, Gill M, Kinra M, Shetty R, Krishnadas N, Rao CM, Sumalatha S, Kumar N. Catechin ameliorates depressive symptoms in Sprague Dawley rats subjected to chronic

unpredictable mild stress by decreasing oxidative stress. *Biomedical reports*. 2019 Aug 1;11(2):79-84.

- Kumar N, Rai A, Reddy ND, Shenoy RR, Mudgal J, Bansal P, Mudgal PP, Arumugam K, Udupa N, Sharma N, Rao CM. Improved in vitro and in vivo hepatoprotective effects of liposomal silymarin in alcohol-induced hepatotoxicity in Wistar rats. *Pharmacological Reports*. 2019 Aug 1;71(4):703-12
- Gill M, Kinra M, Rai A, Chamallamudi MR, Kumar N. Evaluation of antidepressant activity of methanolic extract of *Saracaasoca* bark in a chronic unpredictable mild stress model. *NeuroReport*. 2018 Jan 17;29(2):134-140.
- Gill M, Rai A, Kinra M, Sumalatha S, Rao CM, Cheruku SP, Devkar R, Kumar N. Chemically characterised extract of *Saracaasoca* improves the sexual function in male Wistar rats. *Andrologia*. 2018 May 16:e13037.
- Rai A, Das S, Chamallamudi MR, Nandakumar K, Shetty R, Gill M, Sumalatha S, Devkar R, Gourishetti K, Kumar N. Evaluation of the aphrodisiac potential of a chemically characterized aqueous extract of *Tamarindus indica* pulp. *Journal of Ethnopharmacology*. 2018 Jan 10;210:118-124.
- Raj PV, Mudgal J, Reddy ND, Rao CM, Bansal P, Rai A, Kumar N. In vitro and in vivo hepatoprotective action of L- α -phosphatidylcholine in alcohol-induced toxicity model. *International Journal of Pharmaceutical Sciences Review and Research*. 2016 Nov 1;41(1):171-6.
- Kumar N, Rai A, Reddy ND, Raj PV, Jain P, Deshpande P, Mathew G, Kutty NG, Udupa N, Rao CM. Silymarin liposomes improves oral bioavailability of silybin besides targeting hepatocytes, and immune cells. *Pharmacological reports*. 2014 Sep;66(5):788-98.
- Kumar N, Raj VP, Jayshree BS, Kar SS, Anandam A, Thomas S, Jain P, Rai A, Rao CM. Elucidation of structure-activity relationship of 2-quinolone derivatives and exploration of their antitumor potential through bax-induced apoptotic pathway. *Chemical biology & drug design*. 2012 Aug;80(2):291-9.
- Prasanth VG, Eapen SC, Kutty SV, Rai A. Development and validation of UV spectroscopic methods for the estimation of repaglinide and metformin hydrochloride in synthetic mixture. *International Journal of Pharmaceutical Science and Health Care*. 2012;2(2):150-8.

- Eapen C, Prasanth VG, Rai A. Development of UV spectrometric method of glibenclamide (glyburide) in bulk and pharmaceutical formulations. Int J Chem Tech Res. 2012 Jan; 4:356-60.
- Rai A, Eapen C, Prasanth VG. Interaction of herbs and glibenclamide: a review. ISRN pharmacology. 2012;2012.
- Verma R.K. Chaudhary K, Rai A., Garg A., Pandey M., Saraf S.A., Evaluation of Prescription Pattern and Cost-Effectiveness among Patients Associated With Gynaecological Diseases in Government Maternity Hospital, International Journal of Pharmaceutical and Clinical Research, 2009; 1(3): 136-140.