

Dr. Nandan Sarkar

Assistant Professor (Pharmaceutical Chemistry)
Department of Pharmaceutical Technology (DoPT)
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CAREER OBJECTIVE

To achieve professional excellence and contribute my research expertise in the field of frontier areas of medicinal chemistry which help me to explore my abilities and make meaningful contributions to the best of myself in the area of pharmaceutical sciences.

WORK EXPERIENCE

- **December 2021 to present-** Assistant Professor (Pharmaceutical Chemistry), Department of Pharmaceutical Technology, School of Medical Sciences, Adamas University, Barasat, Kolkata-700126, India.

Being at Adamas University, Department of Pharmaceutical Technology, routinely taking classes on Medicinal Chemistry, Pharmaceutical Chemistry and Pharmaceutical Analysis Subjects in M. Pharm, B. Pharm and D. Pharm. Apart that involved in various departmental and university level committee i.e., time table coordinator, AU branding SPOC, VAC & Minor SPOC, Academic & Planning monitoring, Placement training and Internship, mentor mentee system, subject modulation, course or programme modulation, organizing departmental conferences and webinars, in the approval of PCI, NAAC, NBA and NIRF, conduction of projects work to graduate students. And actively conducting individual and collaborative research.

- **January 2021 to June 2021 -** Research Scientist at TCG Life Sciences (Chembiotek), Salt Lake Sector V, Kolkata – 700091, West Bengal, India

Hands-on experienced on *in-vitro* ADME (kinetic and thermodynamic solubility, log D, PPB, CYPs P450 Inhibition and Metabolic assay) preclinical studies, product efficacy claim, technical communication and scientific writing. Experience in project planning and execution. Exhibit good scientific communication skill, experience in working with cross-functional team.

- **February 2020 to January 2021-** Assistant Professor (Pharmaceutical Chemistry), School of Pharmaceutical Technology, Adamas University, Barasat, Kolkata-700126, India

Being at Adamas University, School of Pharmaceutical Technology, routinely taking classes on Pharmaceutical Chemistry and Pharmaceutical Analysis Subjects in B. Pharm and D. Pharm. Apart that involved in various departmental and university level committee i.e., time table coordinator, mentor mentee system, subject modulation, course or programme modulation, organizing departmental conferences and webinars, in the approval of PCI, NAAC, NBA and NIRF, conduction of projects work to graduate students. And actively conducting individual and collaborative research.

- **May 2019 to February 2020-** Research Associate at School of Chemistry and Biochemistry, Thapar Institute of Engineering & Technology, Patial-147005, Punjab. Involved in coumarin analogues/derivatives with potential biological activity evaluation.
- **April 2014 to May 2017-** JRF, Amity Institute of Biotechnology, Amity University, Uttar Pradesh, Noida in a DBT Funded project. Apart research, on regular basis I have taken theory classes and conducted practical classes for the course M. tech. M Sc, B. Tech + M. Tech dual courses etc. I have trained M. Tech, MSc and B. Tech + M. Tech dual courses for their final dissertation research projects.
- **February 2013 to December 2013-** JRF, Department of Chemistry, Assam University, Silchar as a in a DBT Funded project.
- **March 2012 to January 2013-** Research Associate, Ixoreal Biomed Private Limited (Plot P-I/A APIIC Green Industrial Park, Jadcherla, Mahaboob Nagar 509302, Andhra Pradesh) as (R&D; Natural Product Chemistry Division).
- **October 2010 to July 2011-** Research Trainee. Indian Institute of Integrative Medicine, Jammu (CSIR), NPC Division.

Area of Expertise

- Natural Product Chemistry
- Medicinal Chemistry & Organic Synthesis
- Synthetic Methodology
- Biological activity evaluation

Professional and Core Competence (R&D)

- Isolation & Characterization of bioactive molecules from natural sources.
- Medicinal chemistry of Natural Products (e.g., Rosmarinic acid, andrographolide, Bisphenol F) to generate library of analogous with enhanced biological activity and least side effects.

- Multistep synthesis of biologically active synthetic and/or natural product-based hybrid scaffolds for lead identification.
- Expertise in handling air and moisture sensitive reactions, performing reactions under inert atmosphere and endured in purification of products in minor amounts.
- Experienced in performing micro scale to multi gram scale reactions.
- Knowledge of 1D, 2D NMR, HRMS, IR and other analytical techniques for structural elucidation.
- Development of new analytical methods and validation methods of drug.
- Computer skills and chemistry tools such as Chemdraw, Mestre nova etc.
- Using databases such as Sci-Finder, Integrity and Dictionary of Natural Products.
- Capable of both collaborative and independent research.
- Experienced in guiding post graduate project students in various projects.
- Maintain good interpersonal relationships.
- Identifying research problems and solving them independently.

Ph. D research Work

- **July 2015-December 2020:** PhD in Pharmaceutical Sciences, Under the supervision of Prof. (Dr.) Sabari Ghosal, Centre of Plant and Environmental Biotechnology, AIB, AUUP, Noida-201301.India and Dr. Debaraj Mukherjee, Sr. Scientist & HOD, NPC-microbes Division, NPC-Plant, BOC, Indian Institute of Integrative Medicine, Council of Scientific and Industrial Research, Canal Road, Jammu-180001, J&K
- Thesis entitled '**Bioactive compounds from medicinal plants and their semi-synthetic derivatives**'.
- **PhD research work comprise** of extraction, fractionation, isolation and characterization of bioactive compounds from Medicinal orchids of Arunachal Pradesh and High altitude plants from Ladakh, India by bioassay guided fractionation and evaluation of those compounds against antimycobacterial, leishmanicidal, bacterial and cytotoxicity activities. Preparation of semi-synthetic analogues of the most bioactive compounds to enhance its bio-potential.

PROJECT EXPERIENCES

- Ruthenium catalysed C–H bond activation strategy for C–C and C–X bond formation for biological active compounds (Thapar Institute of Engineering & Technology)
- Medicinal Orchids of Arunachal Pradesh; Micro propagation, Phytochemical Investigation and Biological Activity Evaluation (Amity University, Noida)

- Nitrinium and sulphonium containing monomeric and dimeric, free base and metalized porphyrin-carbon nanoparticles synthesis, characterization and their structure activity relationship (SAR) in interpreting their roles as selective photo synthesizers in photodynamic therapy (PDT) (Assam University, Silchar)
- Development of a new catalyst for synthesis of new chemical entity from microbial origin [Institute of Integrative Medicine, Jammu (CSIR)].
- Determination of pKa value of dibasic acid. (N.S.C.B.I.P Chakdaha in B. Pharmacy 4th year.)

ACADEMIC CAREER

Name of the Examination	Board /University	Name of the Institution	Year of Passing	Percentage of Marks
Ph. D.	Amity University, Noida, Uttar Pradesh	Amity Institute of Biotechnology	2020	89
M. Pharm (Pharmaceutical Chemistry)	Biju Patnaik University of Technology	Roland Institute of Pharmaceutical Sciences/ Biju Patnaik University of Technology	2011	93
B. Pharm	West Bengal University of Technology	Netaji Subhas Chandra Bose Institute of Pharmacy	2009	87
Higher Secondary	W.B.C.H.S. E	Barasat Mahatma Gandhi Memorial High school	2005	65.50
Secondary	W.B.S. E	Barasat Mahatma Gandhi Memorial High school	2003	76.87

TECHNICAL SKILLS

- **Separation Techniques:** Well versed with the extraction/isolation of bioactive constituents from plants, microbes using techniques like, HPLC, Column chromatography, Preparative TLC, FCC, GC and Crystallization etc.
- **Structure Elucidation:** Adept at structural elucidation using NMR (¹H-NMR, ¹³C-NMR [1D and 2D], DEPT), IR, UV, MASS, GC-Mass, LC-Mass.
- **Synthetic Chemistry:** To synthesize compounds and modification of the natural products having biological activities in search of clinical candidates.
- **Instrument Handled:** HPLC (SHIMADZU- Analytical), UV-visible Spectrophotometer, Lyophilizer, IR-Spectrophotometer, SEM.
- **Biological Activity:** Antibacterial and antifungal activities of plant extracts, fractions, purified natural products and synthetic compounds.

PUBLICATION

- Tanmoy Chatterjee, Preet Kumar Dubey, Tiyas Saha, Swapnil Chakrabarty, Subhajeet Chakraborty, Madhushree Dutta, Koustav Dutta, Sanjay Dey and **Nandan Sarkar**, A Comprehensive Survey on the usages of Antibacterial Drug and its Side Effects and Resistance aiding in Understanding Current Scenarios in Local population of Kolkata, West Bengal, India". *Acta Scientific Medical Sciences* 8.6 (2024): 12-21.
- **Sarkar N**, Khanal P, Rawat R, Dey YN, Roy KK. Rosmarinic acid and its derivative's duel as antitubercular agents: insights from computational prediction to functional response in vitro. *J Biomol Struct Dyn*. 2023 Oct 25:1-10. doi: 10.1080/07391102.2023.2272754. Epub ahead of print. PMID: 37878080
- Sourav De, Sabnaz Kazi, Sabyasachi Banerjee, Subhasis Banerjee, **Nandan Sarkar**, Suraj Kumar Shah, Yung-Chih Kuo, S.K. Ashok Kumar. Metallotherapeutic complexes with high selective properties for anti-neoplastic therapy, *Coordination Chemistry Reviews*, <https://doi.org/10.1016/j.ccr.2023.215462> Received 23 July 2023; Accepted 18 September 2023
- **Sarkar N**, De S, Das M, Saha T, Banerjee S, Kumar SA, Kuo YC. Insights of Indole: A Novel Target in Medicinal Chemistry (A Review). *Russian Journal of General Chemistry*. 2023 Jul;93(7):1791-841.
- Kumar D, **Sarkar N**, Roy KK, Bisht D, Mandal B, Dey YN. The Potential of Mur Enzymes as Targets for Antimicrobial Drug Discovery. *Current drug targets*. 2023 Jun 8.
- Tiyas Saha, Monosiz Rahaman, Aritra Saha, Sejuti Ray Chowdhury, Debasmita Dutta Roy, Arijit Das, Aditya Prasanna Mukherjee, Suraj Kumar Shah, Bitasta Mandal, **Nandan Sarkar** and Sourav De An Assessment Report on the Symptoms Following Covid-19 Vaccinated Population *Acta Scientific MEDICAL SCIENCES*, Volume 7 Issue 1 January,2023.
- Sabnaz Kazi, **Nandan Sarkar**, Sourav De., Soma Dasa, Vijayalakshmi P, Sanjay Dey and Sajal Kumar Jha A Comprehensive Survey Report on Women Health Care Problems at the age Group of 18-30 Years *Acta Scientific MEDICAL SCIENCES*, Volume 7 Issue 3 March 2023, 2023.
- De S, SK AK, Shah SK, Kazi S, **Nandan Sarkar**, Banerjee S, Dey S. Pyridine: the scaffolds with significant clinical diversity. *RSC Advances*. 2022;12(24):15385-406.
- Sneha Pervin, Somsubhra Ghosh, Sankhadip Bose, **Nandan Sarkar**, Human immune globulin 10% with recombinant human Hyaluronidase- A Review, September 2021, *Research Journal of Pharmacy and Technology* 14(9), DOI: 10.52711/0974-360X.2021.00783.
- **Nandan Sarkar**, Yadu Nandan Dey, Dharmendra Kumar and Mogana R, "Anti-mycobacterial Constituents from Medicinal Plants; A Review", *Mini-Reviews in Medicinal Chemistry* 2021; 21 (). DOI: <https://doi.org/10.2174/1389557521666210525120325>.
- **Nandan Sarkar**, Puneet Kacker, Hina Amin, Priyanka Narad, Anindya Goswami, Sabari Ghosal, Isolation and characterization of tetrahydronaphthalene lignan glucoside

from *Crataeva nurvala*: apoptosis and molecular docking study. **Pharmacognosy Magazine**, Vol: 15, Issue: 64, Page: 307-312, 2019. DOI: 10.4103/pm.pm_624_18.

- **Nandan Sarkar**, Radha Verma, Aparna Dixit, Sabari Ghosal, Compounds from *Tropidia curculioides* as inducers of apoptosis in cancer cells, **International Journal of pharmaceutical Science and research**, Vol. 10, Issue 7,1000-06, July 2019.
- **Nandan Sarkar**, Biswajit Saha, Sarman Singh, Sabari Ghosal, *Tropidia curculioides*: Secondary Metabolites and Derivatives with Antimycobacterial and Leishmanicidal Activity, **Pharmacognosy Magazine**, 15, 1-4,2019. DOI: 10.4103/pm.pm_196_18
- **Nandan Sarkar**, Anupama Sharma Avasthi, Sabari Ghosal, Bioactive fraction of *Tropidia curculioides*, a rare orchid of Arunachal Pradesh, India: phytochemical profile and marker compounds, **Asian Journal of pharmaceutical and clinical research**, 11, 5, 2018. DOI: <http://dx.doi.org/10.22159/ajpcr.2018.v11i5.24145>
- Ashutosh K. Dash, **Nandan Sarkar**, Nazar Hussain, Sabari Ghosal, Debaraj Mukherjee, Antimicrobial evaluation of dichloro chromene isoxazoles and isoxazoline derivatives, **Scientific Journal of Chemical Research**, Vol.1(1): 32-56, 2018. DOI: 10.13140/RG.2.2.21752.14086
- Manisha Bhatnagar, **Nandan Sarkar**, Nigam Gandharv, Ona Apang, Sarman Singh, Sabari Ghosal, Evaluation of antimycobacterial, leishmanicidal and antibacterial activity of three medicinal orchids of Arunachal Pradesh India. **BMC Complementary and Alternative medicine**, 17, 379, 2017. DOI 10.1186/s12906-017-1884-z
- Anupama Sharma Avasthi, Manisha Bhatnagar, **Nandan Sarkar**, Surinder Kitchlu, Sabari Ghosal. Bioassay guided screening, optimization and characterization of antioxidant compounds from high altitude wild edible plants of Ladakh, **Journal of Food Science and Technology**, 53(8), 3244, 2015. DOI 10.1007/s13197-016-2300-2

Book Chapter:

- **Chaitali Mallick, Srilekha Nag, Nandan Sarkar**, Promising Antiviral Herbal and Medicinal Plants, Taylor & Francis, HIV/AIDS and Medicinal Plants/Herbs, Edition 1st Edition : 1st Published February 2024, Publishers: CRC Press, Taylor & Francis, Pages 35, eBook ISBN9781003329169
- **Nandan Sarkar**, Arindam Maity, Tailor-Made Polysaccharides in Drug Delivery, 1st edition, Elsevier, September 2022, Chapter 12; Modified alginates in drug delivery, Paperback ISBN: 9780128212868. eBook ISBN: 9780128212875

Patents:

- A UK Design Patent on Apparatus for animal tissue preservation in laboratories; Design No:6301342, Grant date: 13th August 2023, Rajaputana Lakshmi Manisha, Pransul Sethi, Mrinal Sharma, Vikrant Abbot, Mineshkumar Ashvinkumar Patel, **Nandan Sarkar**, Anand Prakash Rai, Vaibhav Tripathi, Anju Bhandole, Malvika Singh.
- A Indian Design Patent on PORTABLE FLUID BED SPRAY GRANULATOR: Design No : 399489-001 Date: 08/11/2023, Chirag Goda, Aparna Awasthi, Kaminee Sahu, Prerana Singh, Sharuti Mehta, Sanjana Piplani, **Nandan Sarkar**, Snehal Sanjay Jadhav, Biresh Kumar Sarkar and Dr Ravinesh Mishra.

Conferences:

- Arundhuti Chatterjee, Sharon Bose, Sabnam Parveen, **Nandan Sarkar**, Antioxidants, a Defense of Free Radical: An Approach Linking Physiochemical Conditions or Pathological States and Trigger a Number of Human Diseases on 13th ANNUAL CONFERENCE: “NATCONPH-2023” : An International Conference ON “INNOVATIVE RESEARCH AND DEVELOPMENT IN HEALTH SCIENCES: A GLOBAL TRANSFORMATION FROM TRADITIONAL TO DIGITAL ERA Organized by NSHM Institute of Health Sciences, held on 29th and 30th September , 2023 at NSHM Knowledge Campus, Kolkata – Group of Institutions, West Bengal India.
- Sharon Bose, Arundhuti Chatterjee, Sabnam Parveen, **Nandan Sarkar**, Lifestyle Related Diseases, an Economic Burden; Research Advances in Prevention and Management. from Cell to Community on 13th ANNUAL CONFERENCE: “NATCONPH-2023”: An International Conference ON “INNOVATIVE RESEARCH AND DEVELOPMENT IN HEALTH SCIENCES: A GLOBAL TRANSFORMATION FROM TRADITIONAL TO DIGITAL ERA Organized by NSHM Institute of Health Sciences, held on 29th and 30th September, 2023 at NSHM Knowledge Campus, Kolkata – Group of Institutions, West Bengal India.
- Technical Program Committee and Reviewer for the 9th International Conference on Global Health Challenges (GLOBAL HEALTH 2020) held in Nice, France, between October 25, 2020, and October 29.
- Attended the OPFiCON~2020 International Web Conference on The Expert Opinion: Exploring Clinical & Pharmaceutical Industries with future Endeavour & Opportunities after COVID19 Pandemic on 02 June 2020, Organized by Operant Pharmacy Federation in collaboration with Department of Pharmacy, KGR Institute of Technology & Management.
- Chemical Science Frontiers: The Virtual International Conference” on 29th -30th May 2020 Organised by Department of Chemistry, Uka Tarsadia University, Bardoli – India.
- As an **Organizing committee** in the 2nd national Seminar on Drug industry and academia summit:2020 and Beyond on 4th March 2020 at Convention Centre, Adamas University, Barasat, Kolkata-700126, India
- **Nandan Sarkar**, Nigam Gandharv, Sarman Singh, Ona Apang and Sabari Ghosal, Study of anti-bacterial, anti-tubercular and leishmanicidal activity of medicinal orchids of Arunachal Pradesh at 3rd One Day National Seminar on Current Regulations on Herbal Drugs and Food Supplements held on 16th May 2017 at Convention Centre, Jamia Hamdard, New Delhi.
- **Nandan Sarkar**, Nigam Gandharv, Sarman Singh, Sabari Ghosal, Satyrium nepalense: A rare epiphytic medicinal orchid of Arunachal Pradesh; Phytochemical Screening, Anti-Mycobacterial, Anti-microbial and Leishmanicidal Evaluation at India

International Science Festival (IISF) - Young Scientists' Conclave (YSC) held at NPL, Delhi on Dec 8-11, 2016

- Manisha Bhatnagar, **Nandan Sarkar**, Ona Apang, Sarman Singh and Sabari Ghosal, Bioprospecting and Micro propagation of Medicinal orchids of Arunachal Pradesh at 7th World Ayurveda Congress and Arogya Expo held at Kolkata 1st to 4th December, 2016.
- Manisha Bhatnagar, **Nandan Sarkar**, Nigam Gandharv, Sarman Singh, Sabari Ghosal, Evaluation of Anti-tubercular and Anti-Bacterial Potential of Medical orchids of Arunachal Pradesh at 29th International Symposium on the Chemistry of Natural Products and The 9th International Conference on Biodiversity” held in Turkey. 24th-27th September 2016.
- Anupama Sharma Avasthi, Manisha Bhatnagar, **Nandan Sarkar** and Sabari Ghosal, Search for antimicrobial constituents from high altitude medicinal plants of Ladakh and chemical profiling of the most active fraction at virtual event poster session of Labroots, Microbiology & Immunology-2016, September 7-8, 2016.
- **Nandan Sarkar** and Sabari Ghosal*, Study of Antibacterial and Anti-Mycobacterial Activity of *Tropidia curculioides*; an endemic Orchid of Arunachal Pradesh at India International Science Festival (IISF) on December 4-8, 2015 at Indian Institute of Technology. New Delhi.

Workshop/symposium/FDP:

- A one-day Workshop on “Air Pollution Sources and Mitigation Strategies” in collaboration with “National Environmental Science Academy” on 15th May 2017 at Amity University Uttar Pradesh, Sec- 125, Campus, Noida
- Workshop on Methodology in Biosocial Research on 29-30th March, 2016 at Amity.
- AIIMS-DBT Brain storming symposium on challenges in Tuberculosis Diagnosis and Management on World TB Day-24th March 2015.
- Symposium on Current trends in Drug Discovery research in India on 11th April 2015 at Shiv Nadar University, Greater Noida, U.P.
- Fundamentals of HPLC with Lab solution workstation on 23-24th April 2015 at SAIP, Delhi.
- Organized webinar and conferences in national and international level.
- Completed NAAC accredited and various other Faculty Development Programme (FDP).

Journal Reviewers:

- *Egyptian Journal of Chemistry*
- *InSc-International Journal of Basic and Applied sciences*
- *Journal of Pharmacy and Pharmacology*
- *Journal of Drug Design and Medicinal Chemistry*

Professional members:

- Life Member in the Association of Pharmaceutical Teachers of India (APTI) WB/LM-171
- Lifetime member of Institute of Scholars (InSc)
- Lifetime member of Society of Pharmaceutical Education and research (SPER)
- Lifetime member of Indian Pharmacy Graduates Association (IPGA)

Achievements:

- Recipient of RA-CSIR
- Recipient of Young Researchers Award 2020 By Institute of Scholars (InSc)
- As a Convenor organized National Conference on “Healthcare Industry & Academia Summit: 2022 and Beyond” on 23rd & 24th November 2022 in collaboration with Central Ayurveda Research Institute, Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of Ayush, Govt. of India
- As a co-convenor organized a National Workshop on 'Unravelling the Path from Protein Targets to Drug Development: Exploring Computational Biology' on 28th September - 1st October 2023 in collaboration with IIT Madras, India

COMPUTER PROFICIENCY

Well versed with basic computer applications. MS Office (MS Word, Power point and Excel etc.) and Chem Draw.

STRENGTHS

Communication skills, Willingness to learn, Ability to work in groups, High degree of self-motivation, Honest, Positive attitude and Hardworking nature.

PERSONAL DETAILS

Name	:	Nandan Sarkar
Father's Name	:	Late. Samiran Sarkar
Mother's Name	:	Mrs. Lila Sarkar
Date of birth	:	10/02/1988
Gender	:	Male
Marital status	:	Single

Nationality : Indian
Passport : Yes
Languages known : English, Hindi and Bengali
Hobbies : Listening music, Cooking, Reading newspaper and story books
Permanent Address : C/o Mr. Samiran Sarkar, Villege-Mondalganthi, PO:
Bamangachi, City Sadar Barasat, Kolkata-743248, West Bengal, India.

REFERENCES

Dr. Sajal Kumar Jha

Ex-Professor & Asso. Dean

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Dr Debaraj Mukherjee

Principal Scientist & Head

NPC (Microbes & Plant), BOC
IIIM(CSIR) Jammu.

Ph. No: 09419144508

Email Id: dmukherjee@iiim.ac.in

DECLARATION

I hereby declare that the above given information is true and correct to the best of my knowledge and belief. And if any information given above is incorrect my candidature is liable to be rejected.

Place: Barasat

Date:

(NANDAN SARKAR)