Sandip B. Bharate, *FRSC*

संदिप बि. भराटे

Senior Principal Scientist,
Professor (Medicinal Chemistry) @ AcSIR
Dept of Natural Products & Medicinal Chemistry,
CSIR-Indian Institute of Chemical Technology,
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RESEARCH AREA: Drug Discovery - Natural products driven drug discovery
- Medicinal chemistry- SBDD, hit-to-lead optimization

A. EDUCATION, POSITIONS, HONORS & KEY SCIENTIFIC ACHIEVEMENTS

Education:

- **B. Pharm.** (1997-2001): NDMVPS's College of Pharmacy, Nashik, University of Pune
- **M.S. Pharm.** (07/2001-12/2002): NIPER, S.A.S. Nagar (Advisor: Prof. Kamlesh K. Bhutani)
- **Ph.D.** (07/2003-01/2007): NIPER, S.A.S. Nagar (Advisor: Prof. Inder Pal Singh)

Professional Experience: *Post-PhD experience: 16.5 years*

- **Scientist @ CSIR-Indian Institute of Chemical Technology**
  - Senior Principal Scientist (May 2nd 2023 to Present): Dept of NPMC
  - Professor (Medicinal Chemistry), AcSIR, IICT-Hyderabad Campus (02.05.2023 to Present)

- **Scientist @ CSIR-Indian Institute of Integrative Medicine** Faculty (Chemical Sci.) @ AcSIR, Jammu Campus
  - HoD, NPMC Division (March 24, 2021-May 1, 2023)
  - Senior Principal Scientist (Oct 25, 2020-May 1, 2023): NPMC Division
  - Principal Scientist (Oct 25, 2015- Oct 25, 2020): Med Chem Division
  - Senior Scientist (Oct 25, 2012- Oct 25, 2015): Med Chem Division
  - Scientist Fellow (QHS) (April 25, 2011-Oct 25, 2012): Med Chem Division
  - Professor (10/2020-05/2023)
  - Associate Professor (10/2015-10/2020)
  - Assistant Professor (04/2011-10/2015)
- Associate Professor (Pharm. Chem.) (09/2010-03/2011): Sinhgad College of Pharmacy, Pune
- Postdoctoral Scientist (05/2008-08/2010): Univ. of Montana, USA (Advisor: Prof. Charles M. Thompson)
- Research Scientist - Med Chem (01/2007-05/2008): Nicholas Piramal Research Center, Mumbai
- Trainee Chemist - Med Chem (01/2003-08/2003): Dr. Reddy's Laboratories, Hyderabad

Awards/ Honors

2023: Listed among the World's top 2% scientists consecutively for last 4 years 2019, 2020, 2021 and 2022 in the field of Medicinal Chemistry [Stanford University & Elsevier Analysis of Oct 2022]
2022: Fellow, Royal Society of Chemistry (FRSC), London, England.
2021: CSIR Technology Award 2021 Certificate of Merit (Category: Innovation) for the discovery, development, and out-licensing of Saffron-based nutraceutical product
2020: MEDI Young Investigator Award from the MEDI division of the American Chemical Society
2019: OPPI Young Scientist Award from OPPI, India
2016: CSIR Young Scientist Award from CSIR, India
2015: NASI-Young Scientist Platinum Jubilee Award from NASI, Allahabad
2014: RSC - OSDD Ambassador jointly from Royal Society of Chemistry UK & CSIR India.

2010: Winner of DNDi Innocentive Challenge
2009: Innocentive Top Solver Award for the year 2009 from Innocentive Inc. USA

Professional Memberships

2022 Member, Royal Society of Chemistry (ID 722977).
2022 National Academy of Sciences India (NASI), Life Member (elected Member)
2021 Chemical Research Society of India (Life Member): LM 2815
2017 American Chemical Society (Honorary Membership for 3 years)
2014 Royal Society of Chemistry (Affiliate Member, Honorary membership)
2010 American Chemical Society (Annual Membership)
2004 Indian Society for Mass Spectrometry (Life Member)
2001 Maharashtra State Pharmacy Council (Life Member)

Other Professional Activities

Associate Editor, Medicinal Research Reviews (IF 13.3; Wiley) (Aug 2023 to Present)
Editorial board member:

- Editorial Board Member, *Journal of Medicinal Chemistry* (IF 8.0; ACS) (January 2023-Present)
- Editorial Board Member, *Medicinal Research Reviews* (IF 13.3; Wiley) (Oct 2021-Aug 2023)

Products & Technologies from Independent Research

✓ Licensed to the industry:

IIIM-160: Nutraceutical product (dual anti-IL-6/anti-pain lead for RA) licensed to the industry (M/S Viridis Biopharma Pvt Ltd Mumbai) for launching in the market [Oct 2021]

IIIM-141: Nutraceutical product (multitargeted anti-Alzheimer's lead) licensed to the industry (M/S Pharmanza Herbals, Gujarat] for launching in the market [July 2018]

✓ IND filed/ granted:

IIIM-290: NCE Lead for pancreatic cancer, CDK9 inhibitor
IND approved by DCGI for conducting phase I/II clinical trial in cancer patients.

IIIM-160: Phytopharmaceutical (for rheumatoid arthritis) IND filed to DCGI (April 2020).

B. ADMINISTRATIVE/ LEADERSHIP ROLE

- 05/2023-Present: Nodal Officer & PI of pan-CSIR Mission project on antiviral drug discovery (HCP-041) involving ten CSIR Laboratories.
- 03/2021-05/2023: Head of the Dept, Natural products & Medicinal Chemistry Division, which comprises 16 faculties, four technical staff & 75 students.
- 10/2021-05/2023: Nodal Officer & PI of pan-CSIR Mission project on Phytopharmaceuticals (HCP-38) involving five CSIR Laboratories, IIIM, CDRI, IICB, NIIST, IICT.

C. PUBLICATIONS/ PATENTS

Publications: 162

	Total	As a corresponding author
Research papers	140	98
Reviews	22	14
TOTAL	**162**	**112**

Citations:

As on 31 Aug 2023	Citations	h-Index	i10 index
Google Scholar	7118	42	141
Scopus	5564	38	

Patents: **17**

	Filed	Granted
Total	17	13
As lead inventor	15	11
Patents licensed/ commercialized	02	

Scopus

Google Scholar

(a) Representative Research papers * indicates corresponding author papers

Ctrl + Click on Sr no. to view the full article.

Sr no Ctrl+ click	Authors	Title	Year	Journal (Vol, pp)	Publisher	IF
*140	Sharma M, Sharma A, Thakur S, Nuthakki VK, Jamwal A, Nandi U, Jadhav HR, **Bharate SB***	Discovery of Blood-Brain Barrier Permeable and Orally Bioavailable Caffeine-Based Amide Derivative as Acet ylcholinesterase Inhibitor	**2023**	*Bioorg. Chem. 139, 106719*	Elsevier	5.1
*138	Bhurta D, Hossain MM, Bhardwaj M, Showket F, Nandi U, Dar MJ, **Bharate SB***	Orally Bioavailable Styryl Derivative of Rohitukine-N-oxide Inhibits CDK9/T1 and the Growth of Pancreatic Cancer cells	**2023**	*Eur. J. Med. Chem. 258, 115533*	Elsevier	7.1
*137	Abdullaha M, Banoo R, Nuthakki VK, Sharma M, Kaur S, Thakur S, Kumar A, Jadhav HR, **Bharate SB***	Methoxy-naphthyl linked N-benzyl Pyridinium Styryls as Dual Cholinesterase Inhibitors: Design, Synthesis, Biological Evaluation and Structure-Activity Relationship	**2023**	*ACS Omega, 8, 17591–17608*	ACS	4.1
*135	Nuthakki VK, Choudhary S, Reddy CN, Bhatt S, Jamwal A, Jotshi A, Raghuvanshi, R, Sharma A, Thakur S, Jadhav H, Bharate SS, Nandi U, Kumar A, **Bharate SB***	Design, Synthesis, and Pharmacological Evaluation of Embelin-Aryl/alkyl amine Hybrids as Orally Bioavailable Blood-Brain Barrier Permeable Multitargeted Agents with Therapeutic Potential in Alzheimer's Disease: Discovery of SB-1448	**2023**	*ACS Chem Neurosci. 14, 6, 1193–1219*	ACS	5.8
*134	Bhurta D, **Bharate SB***	Discovery of Pongol, the Furanoflavonoid, as an Inhibitor of CDK7/Cyclin H/MAT1, and its Preliminary Structure-Activity Relationship	**2023**	*ACS Omega,* 8 (1), 1291–1300	ACS	4.1

*133	Raghuvanshi R, Jamwal A, Nandi U, **Bharate SB.***	Multitargeted C9-Substituted Ester and Ether Derivatives of Berberrubine for Alzheimer's Disease: Design, Synthesis, Biological Evaluation, Metabolic Stability, and Pharmacokinetics	**2023**	*Drug Dev Res.* 84(1):121-140	Wiley	5.0
*131	Sharma M, Sharma A, Nuthakki VK, Bhat S, Nandi U, **Bharate SB.***	Design, Synthesis, and Structure-activity Relationship of Caffeine-based Triazoles as Dual AChE and BACE-1 inhibitors	**2022**	*Drug Dev Res.* 83(8):1803-1821	Wiley	5.0
*130	Banoo R, Nuthakki VK, Abdullaha M, Sharma M, **Bharate SB.***	Blood-brain barrier permeable benzylpiperidin-4-yl linked benzylamino benzamides as dual cholinesterase inhibitors	**2022**	*Drug Dev Res.* 83(8):1791-1802	Wiley	5.0
*129	Sharma A, Nuthakki VK, Gairola S, Singh B, **Bharate SB.***	A Coumarin-donepezil Hybrid as a Blood-brain Barrier Permeable Dual Cholinesterase Inhibitor: Isolation, Synthetic Modifications and Biological Evaluation of Natural Coumarins	**2022**	*ChemMedChem*, 17 (8), e202200300	Wiley	3.54
127	Shah K, Maradana MR, Delás MJ, Metidji A, Graelmann F, Llorian M, Chakravarty P, Li Y, Tolaini M, Shapiro M, Kelly G, Cheshire C, Bhurta D, **Bharate SB**, Stockinger B.	Cell-intrinsic Aryl Hydrocarbon Receptor signalling is required for the resolution of injury-induced colonic stem cells	**2022**	*Nature Commun*. 13 (1), 1827	Nature Research	17.7
*124	Raghuvanshi R, Nuthakki VK, Singh L, Singh B, Bharate SS, Bhatti R, **Bharate SB***	Identification of Plant-based Multitargeted Leads for Alzheimer's Disease: In-vitro and In-vivo Validation of *Woodfordia fruticosa* (L.) Kurz.	**2021**	*Phytomedicine*, 91, 153659	Elsevier	6.65
*120	Abdullaha M, Ali M, Kour D, Mudududdla R, Khajuria P, Kumar A, **Bharate SB.***	Tetramethoxystilbene Inhibits NLRP3 Inflammasome Assembly via Blocking the Oligomerization of Apoptosis-associated Speck-like Protein	**2021**	*ACS Pharmacol. Trans. Sci.* 4, 1437-1448	ACS	6.1

		Containing Caspase Recruitment Domain: In-Vitro and In-Vivo Evaluation				
*118	Nuthakki VK; Yadav RR; **Bharate SB.***	Identification of Aplysinopsin as a Blood-brain Barrier Permeable Scaffold for Anti-cholinesterase and Anti-BACE-1 activity	**2021**	*Bioorg. Chem.* 107, 104568	Elsevier	5.28
117	Wani A; Al Rihani SB, Sharma A, Weadick B, Govindarajan R, Khan SU, Sharma PR, Dogra A, Nandi U, Reddy CN, Bharate SS, Singh GD, **Bharate SB**, Vishwakarma RA, Kaddoumi A, Kumar A.	Crocetin promotes clearance of amyloid-β by inducing autophagy via the STK11/LKB1-mediated AMPK pathway	**2021**	*Autophagy*, 17 (11), 3813–3832.	Taylor & Francis	13.4
*115	Abdullaha M; Nuthakki VK; **Bharate SB**.*	Discovery of methoxy-naphthyl linked N-(1-benzylpiperidine) benzamide as a blood-brain permeable dual inhibitor of acetylcholinesterase and butyrylcholinesterase	**2020**	*Eur. J. Med. Chem.,* 207, 112761	Elsevier	6.51
*113	Kumar V; Bharate SS; Bhurta D; Gupta M; Gandhi SG; Singh D; Jaglan S; Kumar A; Vishwakarma RA; **Bharate SB***	Evaluation of rohitukine-enriched fraction of *Dysoxylum binectariferum* Hook.f. (leaves) as Anti-arthritic Phytopharmaceutical Candidate: Chemical Standardization, In-vivo validation, Formulation Development and Oral Pharmacokinetics	**2020**	*J. Ethnopharmacol., 254, 112758*	Elsevier	5.19
*110	Abdullaha M; Ali M; Kour D; Kumar A; **Bharate SB***	Discovery of Benzo[cd]indol-2-one and Benzylidene-thiazolidine-2,4-dione as New Classes of NLRP3 Inflammasome Inhibitors via ER-β Structure Based Virtual Screening	**2020**	*Bioorg. Chem*, 95, 103500	Elsevier	5.28
*106	Nuthakki VK; Mudududdla R;	Synthesis and biological evaluation of indoloquinoline alkaloid cryptolepine and its	**2019**	*Bioorg. Chem.*, 90, 103062	Elsevier	5.28

	Sharma A; Kumar A; **Bharate SB**.*	bromo-derivative as dual cholinesterase inhibitors				
*105	Nuthakki VK; Sharma A; Kumar A; **Bharate SB***	Identification of embelin, a 3-undecyl-1,4-benzoquinone from *Embelia ribes* as a multitargeted anti-Alzheimer agent	**2019**	*Drug Dev. Res.*, 80, 655-665	Wiley	4.36
*104	Abdullaha M; Mohammed S; Ali M; Kumar A; Vishwakarma RA; **Bharate SB***	Discovery of quinazolin-4(3H)-ones as NLRP3 inflammasome inhibitors: computational design, metal-free synthesis and in-vitro biological evaluation	**2019**	*J. Org. Chem.*, *84*, 5129-5140	ACS	4.35
103	Wani A; Gupta M; Ahmad M; Shah AM; Ahsan AU; Qazi PH; Malik F; Singh GD; Sharma PR; Kaddoumi AK; **Bharate SB**; Vishwakarma RA; Kumar A	Alborixin clears amyloid-β by inducing autophagy through PTEN mediated inhibition of AKT pathway	**2019**	*Autophagy*, 15, 1810-1828	Taylor & Francis	16.0
*98	Mudududdla R.; Mohanakrishnan D; Bharate SS; Vishwakarma RA; Sahal D; **Bharate SB***	Orally effective aminoalkyl 10h-indolo-[3,2-b]quinoline-11-carboxamide kills the malaria parasite by inhibiting host hemoglobin uptake	**2018**	*ChemMedChem* , 13, 2581-2598	Wiley	3.47
*93	**Bharate SB;*** Kumar V; Jain SK; Mintoo NJ; Guru SK; Nuthakki VK; Sharma M; Bharate SS; Gandhi SG; Mondhe DM; Bhushan S; Vishwakarma RA.	Discovery and Preclinical Development of IIIM-290, an Orally Active Potent Cyclin-dependent Kinase Inhibitor	**2018**	*J. Med. Chem.* 61, 1664-1687	ACS	8.05
*87	Sharma R; Abdullaha M; **Bharate SB***	Oxidant-Controlled C-sp2/sp3 – H Cross-dehydrogenative Coupling of N-Heterocycles with Benzylamines	**2017**	*J. Org. Chem. 82*, 9786–9793	ACS	4.35
83	Batarseh YS; Bharate SS; Kumar V; Kumar A; Vishwakarma	*Crocus sativus* Extract Tightens the Blood-Brain Barrier, Reduces Amyloid β Load and Related Toxicity in 5XFAD Mice	**2017**	*ACS Chem. Neurosci.*, 8, 1756-1766	ACS	4.42

	RA; **Bharate SB**; Kaddoumi A*					
*80	Mohd Siddique MU; McCann GJP; Sonawane VR; Horley N; Gatchie L; Joshi P; **Bharate SB;*** Jayaprakash V; Sinha BN; Chaudhuri B.	Quinazoline derivatives as selective CYP1B1 inhibitors	**2017**	*Eur. J. Med. Chem.*, 130, 320-327	Elsevier	6.51
*74	Sharma R; Vishwakarma RA, **Bharate SB***	Ligand-free Cu-Mn spinel oxide catalyzed tandem one-pot C-H amidation and *N*-arylation of benzyl amines: A facile access to 2-arylquinazolin-4(3H)-ones	**2016**	*Adv. Synth. Catal.*, 358, 3027-3033	Wiley	5.84
*73	**Bharate SB**;* Singh B; Kachler S; Oliveira A; Kumar V; Bharate SS; Vishwakarma RA; Klotz KN; Gutiérrez de Terán H.	Discovery of 7-(prolinol-N-yl)-2-phenylamino-thiazolo[5,4-d]pyrimidines as novel non-nucleoside partial agonists for the A2A adenosine receptor: Prediction from molecular modeling	**2016**	*J. Med. Chem.*, 59, 5922-5928	ACS	7.45
*71	Yadav RR; Guru SK; Joshi P; Mahajan G; Mintoo MJ; Kumar V; Bharate SS; Mondhe DM; Vishwakarma RA; Bhushan S; **Bharate SB***	6-Aryl substituted 4-(4-cyanomethyl) phenylamino quinazolines as a new class of isoform-selective PI3K-alpha inhibitors	**2016**	*Eur. J. Med. Chem.*, 122, 731-743	Elsevier	6.51
*70	Padala AK; Wani A; Vishwakarma RA; Kumar A; **Bharate SB***	Functional induction of P-glycoprotein efflux pump by phenyl benzene sulfonamides: Synthesis and biological evaluation of T0901317 analogs	**2016**	*Eur. J. Med. Chem.*, 122, 744-755	Elsevier	6.51
*65	Sharma R; Patel N; Vishwakarma RA; Bharatam PV; **Bharate SB***	Metal-free oxidative cyclization of acetophenones with diamines: A facile access to phenylpyridines	**2016**	*Chem. Commun.*, 52, 1009-1012	RSC	6.22
*64	Manda S; Sharma S; Wani A; Joshi P; Kumar V; Guru SK; Bharate SS;	Discovery of a marine-derived bis-indole alkaloid fascaplysin, as a new class of potent P-glycoprotein	**2016**	*Eur. J. Med. Chem.*, 107, 1–11	Elsevier	6.51

	Bhushan S; Vishwakarma RA; Kumar A; **Bharate SB***	inducer and establishment of its structure-activity relationship				
*49	Mahale S; **Bharate SB;*** Manda S; Joshi P; Bharate SS; Jenkins PR; Vishwakarma RA; Chaudhuri B.	Biphenyl-4-carboxylic acid [2-(1H-indol-3-yl)-ethyl]-methylamide (CA224), a non-planar analog of fascaplysin inhibits Cdk4 and tubulin polymerization: Evaluation of in vitro and in vivo anticancer activity	**2014**	*J. Med. Chem.*, *57*, 9658-9672	ACS	7.45
*46	Mudududdla R; Sharma R; Abbat S; Bharatam PV; Vishwakarma RA; **Bharate SB***	Synthesis of 2-phenylnaphthalenes from styryl-2-methoxybenzenes	**2014**	*Chem. Commun.*, *50*, 12076-12079	RSC	6.22
*45	Jain SK; Singh S; Khajuria A; Guru SK; Joshi P; Meena S; Nadkarni J; Singh A; Bharate SS; Bhushan S; **Bharate SB***; Vishwakarma RA.	Pyrano-isochromanones as IL-6 inhibitors: Synthesis, in-vitro and in-vivo anti-arthritic activity	**2014**	*J. Med. Chem.*, *57*, 7085−7097	ACS	7.45

(b) Reviews/ perspectives

S no	Authors	Title	Year	Journal (Vol, pp)	Publisher	IF
*22	Bhurta D, **Bharate SB.***	Styryl Group, a Friend or Foe in Medicinal Chemistry	**2022**	*ChemMedChem, 17(7),e202100706*	Wiley	3.54
21	Nuthakki VK, Mudududdla R, **Bharate SB**.*	Role of basic aminoalkyl chains in the lead optimization of Indoloquinoline alkaloids	**2022**	*Eur. J. Med. Chem.* 227, 113938	Elsevier	7.09
*20	Bhurta D, **Bharate SB.***	Analyzing the Scaffold Diversity of Cyclin-dependent Kinase Inhibitors and Revisiting the Clinical and Preclinical Pipeline	**2022**	*Med. Res. Rev.* 42, 2, 654-709.	Wiley	12.39
*19	Raghuvanshi R.; **Bharate SB**.*	Recent developments in the use of kinase inhibitors in management of viral infections	**2022**	*J. Med. Chem.* 65, 2, 893-921.	ACS	8.04
13	**Bharate SB**; Sawant SD; Singh	Kinase inhibitors of marine origin	**2013**	*Chem. Rev.*, *113*, 6761-6815	ACS	60.6

	PP; Vishwakarma RA.					
5	Singh IP; Sidana J; **Bharate SB**; Foley WJ.	Phloroglucinol compounds of natural origin: synthetic aspects	**2010**	*Nat. Prod. Rep., 27, 393-416*	RSC	13.42
3	Singh IP; **Bharate SB.**	Phloroglucinol compounds of natural origin	**2006**	*Nat. Prod. Rep., 23, 558-591*	RSC	13.42

(d) Patents:

SNo	Inventors	Title	Appl. number	Grant number
1	**Bharate SB,** Bhushan S, Mohammed S, Guru SK, Bharate SS, Kumar V, Mahajan G, Javed MM, Mondhe DM, Vishwakarma RA.	Fused pyrimidines as isoform-selective phosphoinositide-3-kinase-alpha inhibitors and process for preparation thereof	WO2017090058A1, 3818DEL2015 CA3004534	US10696688 (June 2020) EP 3380476 (Sept 2020) GB 3380476 (Sept 2020) IN359878 (March 2021)
2	**Bharate SB**, Kumar A, Manda S, Joshi P, Bharate SS, Wani A, Sharma S, Vishwakarma RA.	Alkylidene Phosphonate esters as P-glycoprotein inducers	WO2016063297A1, 3010DEL2014	EP3209671 (Feb 2019); GB3209671 (March 2019), US10377781B2(Aug 2019) CA 2961166 (April 2021)
3	**Bharate SB**, Kumar A, Bharate JB, Joshi P, Wani A, Mudududdla R, Sharma R, Vishwakarma RA.	Polyalkylated acyl and benzoyl-phloroglucinols as potent P-glycoprotein inducers	WO2016063296A1; 3004DEL2014; CA2962725	US10202326B2 (Feb 2019) EP3209638 (Nov 2019) IN361941 (March 2021)
4	**Bharate SB**, Kumar A, Manda S, Joshi P, Bharate SS, Vishwakarma RA.	*N*-Substituted beta-carbolinium compounds as potent P-glycoprotein inducers	WO2016063303A1, 3002DEL2014;	US10072009 (Sept 2018) IN341979 (July 2020)
5	Vishwakarma RA, **Bharate SB**, Bhushan S, Mondhe DM, Jain SK, Meena S, Guru SK, Pathania AS, Kumar S, Behl A, Mintoo MJ, Bharate SS, Joshi P.	Rohitukine analogs as cyclin-dependent kinase inhibitors and a process for the preparation thereof	WO2014170914A1, US20160052915, EP2986605, CA2908084, IN2013DE01142	US9932327B2(April 2018); EP2986605 (Nov 2017); GB2986605 (Nov 2017) IN322330 (Oct 2019)
6	Jain SK, Sidiq T, Meena S, Khajuria A, Vishwakarma RA, **Bharate SB.**	Preparation of tetrahydro-2H-pyrano[3,2-c] isochromene-6-one analogs for the treatment of inflammatory disorders	WO2014188440A1, 1565DEL2013, CA2913281	US9777014B2 (Oct 2017); EP3004116(January 2018); CA2913281A1 (Feb 2021) IN313578 (May 2019)

7	Vishwakarma R, Jain SK, **Bharate SB,** Dar AH, Khajuria A, Meena S, Bhola SK, Qazi AK, Hussain A, Sidiq T, Uma Shaanker R, Ravikanth G, Vasudeva R, Patel MK, Ganeshaiah KN.	New chromone alkaloid dysoline for the treatment of cancer and inflammatory disorders	IN 2013DE01077A; WO2014167580A1	US9776989B2 (Oct 2017); EP2984078 (Oct 2017); GB 2984078 (Oct 2017) CA2909280 (March 2021)
8	Vishwakarma RA, **Bharate SB**, Kumar A, Singh B, Kumar A, Bhushan S, Hamid A, Joshi P, Guru SK, Kumar S, Hussain A, Qazi AK, Bharate SS, Sharma P, Saxena AK, Mondhe DM, Mahajan G, Wani Z.	10-Substituted colchicinoids as potent anticancer agents	WO2016059650A1, 2929DEL2014	US9868695 (Jan 2018); EP3207026 (Nov 2018) IN370382 (June 2021)
9	Vishwakarma RA, Kumar A, Khan IA, **Bharate SB**, Joshi P, Singh S, Satti N.	A pharmaceutical composition for the treatment of multi-drug resistant infections	WO2016067309A1; 3077DEL2014	EP3212235A1 (Nov 2018); US10064840 (Sept 2018); CA2960455 (Aug 2020)
10	Vishwakarma RA, **Bharate SB**, Bhushan S, Yadav RR, Guru SK, Joshi P.	6-Aryl-4-phenylamino-quinazoline analogs as phosphoinositide-3-kinase inhibitors	WO2015128873A1, 0554DEL2014	EP3110801B1 (Jan 2019) GB3110801B1 (Jan 2019) US10202374 (Feb 2019) IN372693 (July 2021)
11	Singh IP, Bhutani KK, Mitra D, Chauthe SK, **Bharate SB,** Sabde S.	Novel dimeric phloroglucinol compounds as anti-HIV and microbicidal agents	1055DEL2009	Granted (India) (IN 289013)
12	**Bharate SB,** Sharma R, Joshi P, Vishwakarma RA, Chaudhuri B.	Furanochalcones and furanoflavones as inhibitors of CYP1A1, CYP1A2 and CYP1B1 for cancer chemoprevention	IN201611027579, WO2018029710A1	EP3497097 (June 2019) IN374132 (Aug 2021)
13	Bharate SS, Kumar V, Singh R, Rani S, Gupta M, Kumar A, **Bharate SB**, Vishwakarma RA.	Sustained release formulations of *Crocus sativus*	IN201711036084, WO2019077621A1, EP3697389A1 US20200390843 CA3077335 A1	Out-licensed to industry
14	Bharate SS, Singh R, Gupta M, Singh B, Katare AK, Kumar A,	Gastroretentive sustained release	IN201711036683; WO2019077620A1 EP3697388 A1	Out-licensed to industry

	Bharate SB, Vishwakarma RA.	formulations of *Bergenia ciliata*	US20200316150A1 CA3077342A	
15	Bharate SS, Kumar V, Gupta M, Gandhi S, Kumar A, **Bharate SB**, Vishwakarma RA.	Sustained release formulations of *Dysoxylum binectariferum*	IN201811014818; WO2019202610A1 CA 3,097,503 EP3781133 A1	-
16	Bharate SS, Kumar V, Mintoo MJ, Mondhe DM, **Bharate SB**, Vishwakarma RA.	Solid dispersion comprising and anticancer compound with improved solubility and efficacy	IN201811026240, WO202012498A1 EP3820451 CA3099901	-
17	Thompson CM, **Bharate SB.**	Benzothiazole-based pyridinium compounds	US20150259336A1	US9255091B2 (Feb 2016)

D. Research Grants: **20**

E. MENTORING PhDs/ POSTDOCS: 16 PhDs graduated; 2 pursuing.