Faculty Profile

Name	**Dr. SWARUP. H. A**
Department	Chemistry
Qualification	M.Sc., Ph.D.
Designation	Assistant Professor
Area of specialization/Research	Drug discovery, Synthetic Organic and Medicinal Chemistry, Heterocyclic and Material Chemistry
Date of Joining BNMIT	28/08/2020
Nature of Association (Regular/Contractual/Adjunct)	Regular
e-mail	swarupha@yahoo.co.in swarupha.org@gmail.com
No. of years of Experience	Research: 10 years

Academic Qualifications

- **Postdoctoral researcher** **:** Indian Institute of Science (**IISc**), Bangalore, **2019.**
- **Ph. D.** **:** Manasagangothri, **University of Mysore**, Mysore, **2018.**
- **M. Sc. (Organic chemistry)** **:** Manasagangothri, **University of Mysore**, Mysore, **2010.**
- **B. Sc. (PCM)** **:** Government Science College, Hassan, **University of Mysore**, **2008.**

Experience in Research:

Ph.D. research experience

- Synthetic applications of Iodine/DMSO, T3P and dithioesters in heterocycles.
- Developed transition-metal-free construction of disubstituted, trisubstituted 1,2,3-NH-triazoles and triazolo pyridazine via intermolecular 1,3-dipolar cycloaddition reaction and screened for anticancer activity against human cancer cell lines.
- Novel approach for regioselective synthesis of thioxotriaza-spiro derivatives via oxalic acid.
- Green synthetic approach for the construction of 3,5-disubstituted 1,2,4-oxadiazoles and ataluren analogues and screened for anticancer activity against human cancer cell lines.

- Innovative approach for the synthesis of N-substituted amides and indole based triarylmethanes using propylphosphonic anhydride (T3P®).
- Structural studies of 2, 5-disubstituted 1, 3, 4-thiadiazole derivatives and their studies on antioxidant, antimicrobial activities and molecular docking.
- A novel and facile synthesis of 3,5-disubstituted isothiozoles under metal free conditions.
- Developed novel PARP inhibitors sensitize human leukemic cells in an endogenous PARP activity dependent manner.
- Synthesis of autocyclized and oxidized forms of SCR7 (dihydropteridinol derivative) induce cancer cell death by inhibiting nonhomologous DNA end joining in a Ligase IV dependent manner.

Postdoctoral research experience:

- Drug design and synthesis.
- Designed novel and facile synthetic routes for the synthesis of different heterocyclic compounds and bioactive molecules.
- Total synthesis using modern techniques in multi-step organic synthesis.
- Production of milligram to multi-gram of target molecules.
- Synthesized several bioactive molecules like Bcl2 inhibitor-Disarib and DNA repair inhibitor-SCR7 with characterization of intermediates using a full scope of instrumentation.

Company Experience*:*

- I worked as **Principal Scientist** at **Iosynth Labs Pvt. Ltd**, BBC Bangalore Helix Biotech Park, IBAB Campus, Electronics City Phase 1, Bengaluru, Karnataka, India 560100 from **2019-2020.** As a Principal Scientist, I worked in the field of synthetic organic chemistry and biocatalysis. I have been involving in the synthesis of chiral pure compounds using enzymes (transaminase, lipase, protease etc).
- I worked as Senior Research Associate at **Syngene International Pvt. Ltd.,** Bengaluru, Karnataka, India (A BIOCON Group of Company) from **November 2010 to December 2014. (4 years**)
  - As a Senior Research Associate in the Synthetic Chemistry unit I have handled several projects single-handedly at the company. I have been involved in the small-scale (≈30 mg) and large-scale (≈500 g) preparation of certain organic molecules in multi steps synthesis using various organic and inorganic reagents. This involves planning, along with the project leader, a synthetic route to the desired target and working it out in a feasible way.

- Working for many multinational company projects (Novartis, Merck, Abbot etc.,) for synthesizing their interested targets of pharmaceutical interest.
- A thorough knowledge of handling a wide variety of hazardous and non-hazardous reactions like:
  - Reactions using Cyanides, Bromine and Thiophosgenes and n-BuLi, LDA, LiHMDS, NaH etc.
  - Preparation of very low boiling point (2 °C) compound.
  - Reductions using LAH, $NaBH_4$ etc.
  - Hydrogenation reactions using Pd, Raney Ni catalysts.
  - Variety of Oxidation reactions.
  - Bond formation reactions like Suzuki, Buchwald type of couplings, and Reformtosky reactions/Grignard reactions.
  - High pressure and high-temperature reactions using autoclaves and pressure tubes.
- Purification techniques of Organic compounds using flash column chromatography, isolera, grace, preparative thin layer chromatography and preparative HPLC techniques. Also handling of biotage column for parallel purification (10–12 compounds), Combi flash chromatography, Genevac for parallel liquid evaporation and drying of the organic compounds and microwave reactions for high temperature reactions using microwave radiations.
- Chiral synthesis (asymmetric synthesis) and also purification of the racemic mixture by HPLC methods and analyzing through Chiral – NMR techniques.
- Analyzing the chemical structures and monitoring the reactions using NMR (^{1}H, ^{13}C, DEPT, D_2O exchange etc), GCMS, LCMS, UV and Infrared Spectroscopy and HPLC techniques.
- Interpret experimental data and technical journals. Maintain laboratory notebook and prepare detailed reports. Effectively present information to customers, colleagues, top management, and/or public groups.

❖ I worked as project trainee at Astrazeneca, India Pvt.Ltd, Bangalore. Title: "The electronic effect on aryl bromides towards Suzuki coupling - a study"

Instrumentation and software knowledge:

- Hand on experience with combiflash and biotage purifier.
- Hand on experience with Microwave, Hydrogenator, pressure reactor, Autoclave etc.
- Handling of equipments such as NMR, HPLC, GC, LCMS and FT-IR.
- Good knowledge in scientific software's like Scifinder, Reaxys, Bilstien, Chem Draw, ISIS Draw, MestReNova and basic knowledge in windows operation system, Microsoft Office.

Awards:

Awarded as DST-fast track young scientist project fellowship at the Department of Chemistry, University of Mysore, Mysuru-570006, Karnataka, India. Title: "Facile Total Synthesis of Bioactive Quinazolinone Alkaloids (Rutaecarpine, Luotonin, Euxylophoricine, Evodiamine and their analogous."

Research Publications:

International Journals

1. **H. A. Swarup,** Kemparajegowda, K. Mantelingu and K. S. Rangappa, "Effective and transition-metal-free construction of disubstituted, trisubstituted 1,2,3-NH-triazoles and triazolo pyridazine via intermolecular 1,3-dipolar cycloaddition reaction." ***ChemistrySelect.,*** 2018, 3, 703–708. (**Impact factor: 1.81**)
2. **H A. Swarup,** N. Chaithra, K. Mantelingu and K. S. Rangappa. "Green synthetic approach for the construction of 3,5-disubstituted 1,2,4-oxadiazoles and ataluren analogues from dithioesters using water." ***ChemistrySelect.,*** 2018, 3, 5390– 5394. (**Impact factor: 1.81**)
3. **H. A. Swarup,** N. Chaithra, N. C. Sandhya, K. Mantelingu and K. S. Rangappa. "Innovative approach for the synthesis of N-substituted amides from nitriles and alcohols using propylphosphonic anhydride (T3P®) under solvent-free conditions. ***Synth. Commun.,*** 2019, 49, 2106–2116. (**Impact factor: 1.79**)
4. S. V. Vartak, **H. A. Swarup,** V. Gopalakrishnan, V. K. Gopinatha, V. Ropars, M. Nambiar, F. John, S. K. S. Kothanahally, R. Kumari, N. Kumari, U. Ray, G. Radha, D. Dinesh, M. Pandey, H. Ananda, S. S. Karki, M. Srivastava, J. B. Charbonnier, B. Choudhary, K. Mantelingu and S. C. Raghavan."Autocyclized and oxidized forms of SCR7 induce cancer cell death by inhibiting nonhomologous DNA end joining in a Ligase IV dependent manner." ***FEBS Journal.,*** 2018, 1–18 (**Impact factor: 4.5**)
5. K. N. Nandeesh, **H. A. Swarup,** N.C. Sandhya, C. D. Mohan, C. S. Pavan Kumar, M. N. Kumara, K. Mantelingu, S. Ananda and K. S. Rangappa. "Synthesis and antiproliferative efficiency of novel bis(imidazol-1-yl)vinyl-1,2,4-oxadiazoles" ***New. J. Chemistry.,*** 2016**,** 40, 2823-2828. (**Impact factor: 3.277**)
6. M. Hegde, K. Mantelingu, **H. A. Swarup,** C. S. Pavankumar, I. Qamar, S. C. Raghavan and K. S. Rangappa."Novel PARP inhibitors sensitize human leukemic cells in an endogenous PARP activity dependent manner." ***RSC Advances.,*** 2016, **6**, 6308-6319. (**Impact factor: 3.289**)

7. Kemparajegowda, **H. A. Swarup,** N. C. Sandhya, S. Rangappa, K. Mantelingu and K. S. Rangappa, "Efficient one-pot synthesis of 3,5-disubstituted 1,3,4-thiadiazole from dithioesters under mild condition". ***ChemistrySelect.,*** 2019, 4, 4611 –4614. (**Impact factor: 1.79**)
8. M. Pandey, V. Gopalakrishnan, **H. A. Swarup,** S. Kumar, G. Radha, A. E. Jose, S. V. Vartak, R. Sebastian, M. Srivastava, B. Choudhary, M. Kempegowda, S. S. Karki and S. C. Raghavan. **"**Water-soluble version of SCR7-pyrazine inhibits DNA repair and abrogates tumor cell growth in mouse models". ***Journal of Radiation and Cancer Research.*** 2019, 10, 27-43. **(Impact factor: 1.5)**
9. V. K. Gopinatha, **H. A. Swarup,** S. C. Raghavan, K. Mantelingu and K. S. Rangappa "Discovery of Novel Approach for Regioselective Synthesis of Thioxotriaza-Spiro Derivatives via Oxalic Acid." ***Synlett.*** 2019, 30, 2004-2009. **(Impact factor: 2.369)**
10. Kemparajegowda, **H. A. Swarup,** N. C. Sandhya, S. Rangappa, K. Mantelingu and K. S. Rangappa, "Structural studies of 2, 5-disubstituted 1, 3, 4-thiadiazole derivatives from dithioesters under the mild condition: Studies on antioxidant, antimicrobial activities and molecular docking." ***Synth. Commun.,*** 2020, 50, 1528–1544. **(Impact factor: 1.79)**
11. N. Chaithra, **H. A. Swarup**, S. Shamanth, N. C. Sandhya, A. Shivakumar, K. S. Rangappa and K. Mantelingu. "A novel and facile synthesis of 3,5-disubstituted isothiozoles under metal free conditions using acetophenones and dithioesters." ***Synth. Commun.,*** 2020, 50, 2647–2654 **(Impact factor: 1.79)**
12. S. Cheruku, N. Chaithra, P. Shetty, **H. A. Swarup**, N. C. Sandhya, K. Mantelingu and M. N. Kumara. An efficient synthesis of medicinally important indole based triarylmethanes by using propylphosphonic anhydride (T3P®)." ***Synth. Commun.,*** 2020, 50, 1486–1494**. (Impact factor: 1.79)**
13. U. Ray, A. E. Jose, R. Suresh, U. Kaloor, **H. A. Swarup**, M. Nambiar and S. C. Raghavan, "Water-soluble SCR7 Can Abrogate DNA End Joining and Induce Cancer Cell Death." *Clin. Oncol. Res.*, 2020, 1-7**. (Impact factor: 1.86)**

National Journals

1. A. B. Ramesha, N. C. Sandhya, **H. A. Swarup,** K. Mantelingu, Kanchugarakoppal S. Rangappa. "Iodine mediated one pot synthesis of imidazo [1,5-a] azines from dithioesters." ***IJHC.,*** **2015**, 24, 465-472.

No. of citations: 59, h-index: 05, i10-index: 02

Papers presented in International/National Conferences

- Poster presentation on **"A novel and metal free construction of 4,5-disubstituted 1,2,3-NH-triazoles via intermolecular 1,3-dipolar cycloaddition reactions and their biological studies"** paper presented in two days international conference on **"Developing Drugs for Tomorrow (Challenges and Opportunities)"** organized by Adichunchanagiri Institute for Molecular Medicine, held at B G Nagara, Karnataka, during 1st and 2nd January 2018.
- Poster presentation on **"Efficient synthetic approach for the construction of 4,5-disubstituted 1,2,3-NH-triazoles via intermolecular 1,3-dipolar cycloaddition reactions"** paper presented in the **"International Conference on Nanomaterials and Their Applications"** organized by UGC-CPEPA, UPE and DST-PURSE programmes, held at University Of Mysore, Mysuru, Karnataka, during 1st and 2nd March 2018.

PERSONAL DETAILS

Father name	**:** Ashok H.R
Date of birth	**:** 30/06/1987
Languages Known	**:** Kannada, English, Hindi
Permanent Address	**: Dr. Swarup. H.A., 4th Cross,** **Sampige road, K.R. Puram,** **Hassan, Karnataka, India-573201**
Nationality	**:** Indian

September 01, 2020 **Dr. Swarup H.A**