Dr. Rajpratap B. Kshatriya
Senior Research Scientist,
R & D Synthesis
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Objectives & Skills in Polymer & Polymer intermediate Job profile

Utilize the synthetic skills for the mainly for diversified organic monomer molecules, Functional polymers, PSA synthesis, adhesives, speciality chemicals, pigments and coatings for application in diverse industrial clients. Data interpretation of these molecules using UV, IR, NMR, DSC, TGA, GPC, PDI, DP, HPLC, LC-MS & GC-MS. Supporting the supervisor valuable input for optimization of process of critical molecules. to develop coatings and formulations dovetailed to product applications with specified functional properties and machine runnability of coated substrates and also to develop compostable materials & polymers leading to biodegradable / bio compostable environment friendly packaging solutions.

Strong knowledge of Polymers, Composites, Natural Fibres, Polymers in solution, chemical & physical modifications, processing, films, coatings and emulsions. Knowledge of Surface and interfacial properties, particle engineering, barrier properties (water & gas), diffusion, porosity, tortuosity, rheological properties. Well versed in chemical and material characterization top of published prior art (patents, research publications, competitor products, regulatory environment – in the areas of polymers, their modification, additives, extenders, bio-materials, coating technologies etc.) and build competitive intelligence – through reverse engineering of novel technologies in the market techniques.

A) Work History:

1. Senior Research Scientist: Synthesis of polymer molecules as per client & HPLC method development (Basic research reactions for wide applications)

R & D, A. Pvt. Ltd., Mumbai, **India,** 01/11/2022 till date

2. Post Doc- Research Associate: : Synthetic chemistry Industrial Projects & HPLC & GC method development (Basic organometallic reaction development)

School of Chemical Sciences, Centre of Excellence, Department of Basic Sciences, Department of atomic energy-University of Mumbai, **India,** 2021-2022

3. Research Professor: Synthetic projects of polymer chemistry

Department of Chemistry, UKA Tarsadia University Gujarat, **India**, 2019-2021

4. Post Doc- Research Associate: Synthesis Industrial Research Project of fine chemicals, dyes and pigments & HPLC & GC method development (Basic methodology development for fine chemicals)

Department of Fine Chemical Technology, Institute of Chemical Technology, Mumbai, **India,** Tenure: 1/1/2017- 30/06/2019

5. Post Doc-Research Associate : 2016-2017: **Organic Synthesis project of organometallic chemistry & HPLC, LC-MS & GC method development (Basic reaction development for C-C, C-N and, C-O bond formation)**

CPRU (Industry project), University of Kwazulu Natal, Durban, **South Africa**

6. Post Doc-Research Associate: Bioanalytical Method development & Validation

Instrumentation- HPLC, GC, LC-MS and GC-MS for material extracted from cell line. 2015-2016

Instituite of Chemical Technology, Matunga, Mumbai, **India**.

B. Academic Qualifications:

1) Ph.D. (Chemistry) : S. P. Pune University, Maharashtra, **India,** October 2010 – March 2016

2) UCG-NET/SET: Test for PhD registration in **India.** Qualified 2009

3) M.Sc. (Chemistry): (Distinction: First rank in Organic Chemistry, Semester pattern) S. P. Pune University, **India,** April 2001-2003

4) B.Sc. in Chemistry: (Distinction, Annual pattern/yearly pattern) S. P. Pune University, Maharashtra, **India**, 1998 - 2001

3. Industrial Research Experience in Synthetic R & D:

1. Research Officer : Organic Synthesis R & D

IPCA Lab. Ltd. from Feb. 2005 to Oct. 2006

2. Research Officer: Organic Synthesis R & D

Watson Pharma Dombivli (Sekhsaria chemical) - 2006-2007

3. Research Executive: Organic Synthesis R & D in

RPG life sciences 2007-2008, Mumbai

4. Research Executive: Organic Synthesis Pilot R & D

Vital Laboratory, Vapi, Gujarat, Jan 2015-June 2015

R & D related Expertise:

Instrumental Expertise: IR, HPLC, GC, LCMS, Mass, TGA, DSC, NMR (1D & 2D), GC-MS

Software Handled: Chemdraw, MestroNova & Topspin

Computer Literacy : MS-Office (Word, Excel, Powerpoint), Internet

Literature Searching Online: Sci-finder, Reaxys, Patent search

Patent & Manuscript : Patent writing, Review writing and Paper writing (English)

Regulatory Knowledge: Regulatory guidelines for impurities and cGMP & DMF filing

Laboratory Instruments: Autoclave for pressurized reactions, Vaccum Distillation, Rotatory evaporator, UV chamber, Column purification

Expertisein R & D: Moisture and air sensitive reaction, organometallic reactions, polymer synthesis reactions, Pyrophoric agents and disposal of hazardous chemicals

C) List of publications

Manuscripts submitted:

1. Modernization in Process Development of of polymerss having Aliphatic Ether and Amine linkers (Last 25 years covered, ***ACS-Org. Process Res. Dev. 2023,*** **(IF-3.8**).

2. Organometallic chemistry: A basic science for functionalized polymer & modification of properties (***ACS-Org. Process Res. Dev. 2023,*** **(IF-3.8**).

Manuscripts Published:

1. Recent advances in synthetic methodologies of H8-BINOL catalyzed asymmetric synthesis: Kshatriya, R.B.* *ACS-Omega* 2023, 8, 20,17381-17401 **(IF= 4.134)**
2. Synthesis and Evaluation of Anticancer Activity of Pyrazolone Appended Triarylmethanes: Kshatriya R. B., Saha S*. *Chemistry Select* **2021**, 6(24), 6230-6239 **(IF = 1.81)**
3. Bronsted acid catalyzed Domino synthesis of functionalized 4H-Chromens and their ADMET Molecular Docking: Kshatriya R. B., Jejurkar V., Saha S*. Chemistry Select **2019**, 4(27), 7943-7948 **(IF = 1.81)**
4. Solvent-free, mechanochemically scalable synthesis of 2,3-dihydroquinazolin-4(1H)-one using p-TSA at room temperature: Yashwantrao, G. Kshatriya R. B., Saha S*. ACS Sust. Chem. and Eng. **2019**, 7, 15, 13551-13558 **(IF = 6. 97)**
5. In memory of Prof. Venkatraman: Recent advances in the synthetic methodologies of flavones: Kshatriya R. B., Jejurkar V, Saha S*. Tetrahedron, **2017**, 74(8), 811-833 **(IF= 2.64)**

6. Recent advances in the synthetic methodologies of triarylmethanes: Ksatriya R. B., Jejurkar V., Saha S*. Eur. J. Org. Chem. **2019**, 2019 (24), 3818-3841 (**IF =3.0**)
7. Synthesis, antimicrobial screening and in-silico appraisal of iminocarbazole derivatives : Jejurkar V., Mali S., Kshatriya R. B., Saha S*. Chemistry Select **2019**, 4, 9470-9475 (**IF = 1.81**)
8. Review: Synthesis of flavones by different methods : Kshatriya R. B., Shaikh Y. I., Nazeruddin G. M*. Oriental J. of Chem. **2013**, 29(4), 1475-1487 (**IF = 0.5**)
9. Synthesis of flavanones using methane sulphonic acid as a green catalyst and comparison under different conditions : Kshatriya R. B., Nazeruddin G. M*. Oriental J. of Chem. **2014**, 30(2), 857-862 (**IF = 0.5**)
10. A Brief Review: Flavonoids as a Pharmacophore : Kshatriya R.B.,Nazeruddin G. M*. Journal of Applicable Chemistry **2015**, 4(3), 801-817 (**IF = 0.654**).