

## **Dattatray K. Sawant, (Ph. D.)**

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### **OBJECTIVE:**

To find a position where I can utilize my knowledge and skills for chemical analysis. Additionally, I can also learn different analytical instrumentations, EPA rules and regulations. My ultimate aim is to make a positive contribution in the field of science that is also beneficial to society.

### **SUMMARY:**

Talented, self-motivated, and experienced analytical research scientist; proficient in using different analytical instruments (UPLC-MS, ICPMS, ICPOES, Mercury analyzer, Gas chromatography, FTIR, and Raman spectrometer) along with sample preparations. Through knowledge of EPA methods, rules and regulations. Strong experience in analytical chemistry, synthetic organic chemistry with emphasis on novel methodology development; thorough knowledge in physical, organic, and biochemistry, proven mentoring abilities. Excels as a team player or in an independent setting; solid problem-solving capabilities. Skill sets transferrable to analytical chemistry, materials characterization, and process analysis.

### **SKILLS:**

- Operate and maintain UPLC-MS (waters TQ-S detector), ICP-MS (Perkin Elmer Nexlon 350X and Perkin Elmer elan DRC ii), ICP-OES (Perkin Elmer Optima 8300), High level mercury analyzer (CETAC QuickTrace™ M-6100), Low level mercury analyzer (MERX-T), FTIR (Perkin Elmer), Raman, Karl Fischer moisture analyzer, and TOC instruments.
- Strong analytical instrumentation background in HPLC, GC, and UV-VIS.
- Experience of method development, validation, verification, and transfer of analytical methods (SW\_6020, EPA\_200.8, SW\_6010, EPA\_200.7, SW\_7470, EPA\_245.1, and EPA\_1631).
- Knowledge and experience of sample preparation for UPLC-MS, GC-MS, ICP-MS, ICP-OES.
- Familiar with EPA methods, rules, and regulations.
- Experience in multi-step synthesis and analysis of intermediates, dyes and agrochemicals
- Skilled in LabView, Gaussian, Chemdraw, and MS Office programs

### **PROFESSIONAL EXPERIENCE:**

#### **RTI Laboratories, Livonia, MI**

January 2018 – September 2020

##### *Analytical Scientist*

- Analysis of PFAS and PFOS compounds using EPA methods.
- Analysis of cyanotoxins peptides by UPLC-MS/MS.
- Trace metals analysis by using ICPMS, ICPOES as per EPA methods.
- High level and low-level mercury analysis by using mercury analyzers according to EPA methods.
- Sample preparations for ICP, UPLC, and GC.

**University of Missouri - Kansas City, MO**  
**and**

August 2011 – December 2017

**University of Kentucky, KY**

August 2008 – May 2010

*Graduate Teaching Assistant*

- Designed and delivered undergraduate lab lectures via PowerPoint and chalk talks.
- Taught undergraduate organic and analytical chemistry laboratories
- Set up problem solving and exam review sessions and graded lab reports, quizzes and exams
- Obtained excellent and consistent teaching reviews from all student course evaluations.
- Trained high school and undergraduate students in the research laboratory.

**Transcarb Energy Pvt Ltd., Mumbai, India**

March 2011 - July 2011

*R&D Scientist*

- Contributed to the design, development and construction of a pilot plant that was successfully utilized for the production of biogas from cow dung.
- Designed, developed and implemented analytical procedures for qualitative and quantitative analysis of cow dung and intermediate products.

**S. D. Finechem Ltd., Boisar, MH, India**

November 2007 - June 2008

*R&D Officer*

- Responsible for process development and synthesis of fine chemicals.
- Optimized existing synthetic pathways of commercial compounds
- Successfully developed purification methods for light sensitive and heat sensitive compounds.

**Indofil Chemicals Ltd, Thane, MH, India.**

June 2005 – March 2007

*R&D Officer*

- Synthesized, designed and developed agrochemicals like propargite, difenconazole and dodine
- Optimization of processes by changing solvents, temperature, reagents and quantities of reagents.
- Development of a solvent system for monitoring reactions using a TLC technique.
- Separation and purification of compounds using column chromatography, distillation, extraction and recrystallization techniques.
- Identification and synthesis of possible impurities in the reaction mixtures.

## **EDUCATION:**

**University of Missouri - Kansas City (UMKC), MO**

December 2017

*PhD – Analytical and Physical Chemistry*

GPA: 3.704/4.0

Advisor: Curators' Professor James R. Durig and Prof. Kathleen Kilway

- Thesis title: Conformational Behavior and Structural Parameters of Some Cyclic and Chain Molecules.

**University of Kentucky, KY**

May 2010

*MS – Organic chemistry and biochemistry*

GPA: 3.179/4.0

Contributor in the book '**Commonwealth Chemical Demonstrations**' (2010), **Dr. Fitzgerald B. Bramwell**, Empire Science Resources LLC, Lexington, KY, USA.

**University of Mumbai, India**

May 2004

*B. Tech (Technology of Intermediates and Dyes)* Project Description: Synthesized C.I. Direct Blue 106 from basic raw materials and studied the change in the shade of the dye as a function of temperature (35-55°C).

### Relevant coursework at the graduate level:

Molecular Spectroscopy, Organic Spectroscopy, Proteomics and Mass Spectroscopy, Advanced Analytical Chemistry, Advanced Bio-organic Chemistry, Advanced Organic Chemistry, and Physical Chemistry.

### PUBLICATIONS:

1. **Sawant, Dattatray K.**; Klaassen, Joshua J.; Gounev, Todor K. and Durig, James R.; *r<sub>0</sub>* Structural Parameters, conformational, vibrational studies and *ab initio* calculations of cyanocyclopentane; *Spectrochim. Acta A* (2015), 151, 468-479.
2. **Sawant, Dattatray K.**; Klaassen, Joshua J.; Panikar Savitha S. and Durig, James R.; Infrared and Raman Spectra, adjusted *r<sub>0</sub>* structural parameters, and vibrational assignment of isopropyl isocyanide; *Journal of Molecular Structure* (2014), 1073, 112-118.
3. Guirgis, Gamil A. §; **Sawant, Dattatray K.** #; Brenner, Reid E.; Deodhar, Bhushan S.; Seifert, Nathan A.; Geboes, Yannick; Pate, Brooks H.; Herrebout, Wouter A.; Hickman, Daniel; Durig, James R.; Microwave, *r<sub>0</sub>* Structural Parameters, Conformational Stability and Vibrational Assignment of (Chloromethyl)fluorosilane; *J. Phys. Chem. A* (2015) 119, 11532-11547.
4. Durig, James R.; Guirgis, Gamil A. §; **Sawant Dattatray K.** #; Seifert, Nathan A.; Deodhar, Bhushan S.; Pate, Brooks H.; Panikar, Savitha S.; Groner, Peter; Overby, Jason S.; Askarian, Sahand M.; Microwave, *r<sub>0</sub>* structural parameters, conformational stability and vibrational assignment of cyclopropylcyanosilane; *Chem. Phys.* (2014), 445, 68-81.
5. Durig, James R.; Klaassen, Joshua J.; **Sawant, Dattatray K.** ; Deodhar, Bhushan S.; Panikar, Savitha S.; Gurusinghe, Ranil M.; Darkhalil, Ikhlas D.; Tubergen, Michael J.; Microwave, structural, conformational, vibrational studies and *ab initio* calculations of isocyanocyclopentane; *Spectrochim. Acta A* (2015), 136, 3-15.
6. Panikar, Savitha S.; Deodhar, Bhushan S.; **Sawant, Dattatray K.**; Klaassen, Joshua J.; Deng, June; Durig, James R.; Raman and Infrared Spectra, *r<sub>0</sub>* structural parameters, and vibrational assignments of (CH<sub>3</sub>)<sub>2</sub>PX where X= H, CN, and Cl; *Spectrochim Acta A* (2013), 103, 205-215.
7. Guirgis, Gamil A.; Klaassen, Joshua J.; Deodhar, Bhushan S.; **Sawant, Dattatray K.**; Panikar, Savitha S.; Dukes, Horace W.; Wyatt, Justin K.; Durig, James R.; Structure and conformation studies from temperature dependent infrared spectra of xenon solutions and *ab initio* calculations of cyclobutylgermane; *Spectrochim Acta A* (2012), 99, 266-278.
8. Deodhar, Bhushan S.; Brenner, Reid E.; **Sawant, Dattatray K.**; Guirgis, Gamil A.; Geboes, Yannick; Herrebout, Wouter A.; Durig, James R.; Vibrational assignments and conformer stability determination of cyclobutyldichlorosilane by variable temperature Raman spectra in krypton solution; *Vib. Spec.* (2015), 81, 119-130.

(§ major contributor in the synthesis of compounds and # major contributor in the computational, vibrational and Raman spectroscopic studies of compounds)

### PRESENTATIONS:

1. **Sawant, Dattatray K.**; Durig, James R.; Microwave, *r<sub>0</sub>* Structural Parameters, Conformational Stability and Vibrational Assignment of (Chloromethyl)fluorosilane; *PITTCON Conference and Expo*, Atlanta, Georgia, March 6-10 (2016).
2. **Sawant, Dattatray K.**; Durig, James R.; Vibrational, Conformational and Structural Studies of Isocyanocyclopentane and Cyanocyclopentane; *SCIX*, Reno, Nevada, September 28 – October 3 (2014).
3. **Sawant, Dattatray K.**; Durig, James R.; Microwave, Structural, Conformational, Vibrational Studies and *ab initio* Calculations of Isocyanocyclopentane; Abstracts, 247th ACS National Meeting & Exposition, Dallas, TX - March 16-20 (2014).

4. **Sawant, Dattatray K.**; Durig, James R.; Structure and Conformation Studies from Temperature Dependent Infrared Spectra of Xenon Solutions and Ab Initio Calculations of Cyclobutylgermane; *PITTCON Conference and Expo*, Philadelphia, PA, March 17-21 (2013).
5. **Sawant, Dattatray K.**; Durig, James R.; Structural, Conformational and Vibrational Studies of Isocyanocyclopentane From Infrared, Raman Spectra and *ab Initio* Calculations; 68th OSU International Symposium on Molecular Spectroscopy, Columbus, Ohio, June 17-21 (2013).
6. **Sawant, Dattatray K.**; Brenner Reid E., Fernanda De La Torre Maria, McNearney and Durig, James R.; Conformational, Vibrational Studies and *ab initio* Calculations of Fluoroacetylchloride; Abstracts, 50th Midwest Regional Meeting of the American Chemical Society, St. Joseph, MO, United States, October 21-24 (2015).
7. Panikar, Savitha S.; Deodhar, Bhushan S.; **Sawant, Dattatray K.**; Klaassen, Joshua J.; Deng, June; Durig, James R.; Raman and Infrared Spectra,  $r_0$  structural parameters, and vibrational assignments of  $(CH_3)_2PX$  where X= H, CN, and Cl; *Abstracts, 47th Midwest Regional Meeting of the American Chemical Society*, Omaha, NE, United States, October 24-27 (2012), MWRM-125
8. Panikar, Savitha S.; Deodhar, Bhushan S.; **Sawant, Dattatray K.**; Klaassen, Joshua J.; Deng, June; Durig, James R.; Raman and Infrared Spectra,  $r_0$  structural parameters, and vibrational assignments of  $(CH_3)_2PX$  where X= H, CN, and Cl; *39th FACSS National meeting*, Kansas City, MO September 30-October 5 (2012).

#### **AWARDS, AFFILIATIONS, EXTRACURRICULAR ACTIVITIES:**

- Mr. and Mrs. Fong Wu Cheng graduate scholarship, UMKC 2014
- M. M. Kothari Scholarship 2000

#### **References:**

##### **1. Dr. Kuldeep Shetye**

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##### **2. Charles J. Wurrey, Ph. D.**

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