

SANJEEWA K. RODRIGO, Ph.D.
Senior Research Scientist
Sri Lanka Institute of Nanotechnology (SLINTEC)

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EDUCATION

- Ph.D. in Chemistry** (2008-2014)
University of Cincinnati, Cincinnati, Ohio, USA
Dissertation: *Nickel catalyzed regioselective reductive coupling reactions, Advisor: Prof. Hairong Guan*
- BSc. Special Degree in Chemistry (Hons, Second Class Upper Division)** (2003-2007)
Minor in Biology, Molecular Biology, Statistics
University of Peradeniya, Sri Lanka
Dissertation: *Bioactivity of Acronychia pedunculata and Adenantha pavonina and Isolation of antimicrobial compounds from Acronychia pedunculata, Adviser: Prof. B.M.R. Bandara*

WORK EXPERIENCE

- Senior Research Scientist** 01/2018- Current
Sri Lanka Institute of Nanotechnology (SLINTEC)
- Postdoctoral Fellow** 12/2016-12/2017
Dept. of Biomedical, Chemical, and Environmental Engineering, University of Cincinnati
- Scientist** 04/2015-11/2016
Pegasus Technical Services Inc., Cincinnati, OH, USA
- Postdoctoral Scholar** 06/2014-04/2015
Department of Molecular and Cellular Biochemistry, University of Kentucky, Lexington, KY
- PhD Intern** 05/2013-08/2013
Beauty Technology Division, Procter and Gamble Company, Cincinnati, OH, USA
- Research Assistant** 09/2008-04/2014
Department of Chemistry, University of Cincinnati, Cincinnati, OH, USA
- Lecturer** 12/2007-04/2008
Department of Physical Sciences, Rajarata University of Sri Lanka
- Teaching Assistant** 09/2007-11/2007
Department of Physical Sciences, Rajarata University of Sri Lanka
- Industrial Intern** 05/2006-07/2006
Lankem Paints Limited, Sri Lanka

SKILLS AND QUALIFICATIONS

- Highly Proficient with **multistep-organic synthesis, C-C coupling reactions** and **column chromatographic techniques**
- Highly experienced with **inorganic/organometallic chemistry**
- Highly experienced in **handling air and moisture sensitive materials** using Schlenk line and glove box techniques
- Highly experienced in utilizing **electrospray aerosol technology** for **encapsulation** and to make **nanomaterial**
- Highly experienced with **Isolation of natural products from medicinal plants**
- Proficient with LCMS, GCMS, FT-IR, *in situ* reactor IR to study reaction kinetics, NMR (2D, multi nuclear), UV-Vis, Electrospray aerosol generator, Wide-range particle spectrometer (WPS), analytical techniques
- Creative problem solving, fast learning, and strategic planning abilities evidenced by meeting multiple independent/collaborative project goals within the research career
- **Strong oral and written communication skills** demonstrated with several conference presentations and publications
- Proficient with relevant softwares and scientific databases (Chemdraw, Mesrenova, Minitab, Kaleidagraph, Scifinder, Reaxys, Scopus)
- Proficient with instrument handling and trouble shooting.

INDUSTRIAL INTERNSHIPS

Ph.D. summer internship working on hair color in the Beauty Technology Division at the **Procter and Gamble Company**, Cincinnati, Ohio

- Worked on mechanistic aspects of dye formation
- Leveraged in house **LCMS, UV-VIS** and **MALDI-MS** instruments and expertise to support mechanistic insights
- Collaborated with internal experts in hair color mechanism team
- Developed insights for a top priority hair color program
- Demonstrated strong teamwork skills

Internship at **Lankem Robbialac**, Sri Lanka, at the paint-manufacturing facility.

- Formulated a new phosphate pre-treatment system

RESEARCH EXPERIENCE

University of Cincinnati, Cincinnati, OH

Postdoctoral Fellow

2016-2017

- Development of dual capillary electrospray systems and synthesis of core-shell micro/nanomaterial
- Designed and built an electrospray instrument.

US EPA, Cincinnati, OH

Scientist at Pegasus Technical Services Inc., (onsite contractor to US EPA)

2015-2016

- Development of an oil simulant using aerosol technology to be utilized in oil spill studies at US EPA, Cincinnati following project related QAPP and QA&QC procedures
- Developed an SOP for a new Bruker FTIR
- Prepared monthly reports on research progress

University of Kentucky, Lexington, KY

Postdoctoral Scholar

2014-2015

- Synthesis of *Pittsburgh compound B (PIB)* analogs as photoaffinity probes to chemically map the Alzheimer's brain (*manuscript in preparation*) in collaboration with Sanders-Brown Center On Aging, university of Kentucky.
- Synthesis of Isoprenoid analogs as drug candidates for breast cancers

University of Cincinnati, Cincinnati, OH

Graduate Research Assistant

2008-2014

- Developed a new synthetic method for 1,4-difunctionalized compounds using nickel-catalyzed reductive coupling of propiolate esters and aldehydes
- Designed and synthesized *N*-heterocyclic carbene ligands to carry out asymmetric version of propiolate ester and aldehydes coupling
- Designed a kinetic model to study the mechanism of nickel-catalyzed reductive coupling of propiolate esters and aldehydes
- Developed a new synthetic method for substituted arenes using nickel-catalyzed cyclotrimerization of propiolate esters and related alkynes
- Discovered a nickel-based catalytic system for the hydrogenation of esters

University of Peradeniya, Sri Lanka

Undergraduate Researcher

2006-2007

- Studied biological activities (*antimicrobial, cytotoxic, antifungal and antioxidant*) of plant materials from *Acronychia pedunculata* and *Adenanthera pavonina*
- Isolated three antimicrobial compounds, which are active against MRSA (Methicillin-resistant *Staphylococcus aureus*) from *Acronychia pedunculata* root extract
- Compared soxhlet and sonicator methods for plant material extraction

AWARDS & RECOGNITION

University of Cincinnati, Cincinnati, OH, 2008-2014

- Procter & Gamble award for “Most applicable work for industry” for “Efficient and Regioselective [2 + 2 + 2] cyclotrimerization of ynoates and related alkynes catalyzed by nickel”, November 15th, 2013- Runner-up
- One of the 60 participants of CENTC (NSF Center for Enabling New Technologies Through Catalysis) summer school, University of Washington, Seattle, Washington, June 22nd - 26th 2013
- 30th Brown Lectures, Purdue University poster competition winner: \$ 100 award, April 2013
- Henry Hochstetter award for excellence in teaching, 2012

University of Peradeniya, Peradeniya, Sri Lanka, 2003-2007

- University Colors awards for best performance in cricket, 2004, 2005, 2006, University of Peradeniya, Sri Lanka

Professional Affiliations

- American Chemical Society (ACS)
- Chemistry Graduate Student Association (CGSA), University of Cincinnati
 - Have contributed to science camps organized by CGSA at local schools

PUBLICATIONS

Articles in International Peer Reviewed Journals

- **Rodrigo, S. K.**; Guan, H. “Mechanistic Study of Nickel-Catalyzed Reductive Coupling of Ynoates and Aldehydes” *J. Org. Chem.* **2017**, *82*, 5230-5235 (Cited by 2)
- **Rodrigo, S.K.**; Powell, V. I.; Coleman, G. M.; Krause, J. A.; Guan, H. “Efficient and Regioselective Nickel-Catalyzed [2+2+2] Cyclotrimerization of Ynoates and Related Alkynes.” *Org. Biomol. Chem.* **2013**, *11*, 7653-7657 (Cited by 22)
- **Rodrigo, S.K.**; Guan, H. “Quick Installation of a 1,4-Difunctionality via Regioselective Nickel-Catalyzed Reductive Coupling of Ynoates and Aldehydes” *J. Org. Chem.* **2012**, *77*, 8303-8309 (Cited by 6)
- Koralegedara, N.H.; Al-Abed, S.R.; **Rodrigo, S. K.**; Karna, R.R.; Scheckel K.G.; Dionysiou, D.D.; “Alterations of Pb Speciation by sulfate from addition of flue gas desulfurization gypsum in two Contaminated Soils”, *Sci Total Environ.* 2016, DOI: 10.1016/j.scitotenv.2016.10.027 (Cited by 3)
- Yang, W.M.; **Rodrigo, S.K.**; Zimmer, T “Synthesis of Environmental Simulants or Tracers Using Novel Aerosol Based Techniques”, *manuscript in preparation*

Abstract Publications in Local Conferences

- **Rodrigo, S. K.**; Jayasingha, U. L. B.; Bandara B. M. R. “Antifungal, antioxidant and cytotoxic activity of *Acronychia pedunculata* and *Adenanthera pavonina*.” *Proc. Peradeniya Univ. Res. Sessions*, **2007**, *12*, 94-95 (Cited by 19)

Abstract Publications in International Conferences

- Rodrigo, S.K.**; Yang, W; Conmy, R; Sorial, G; Zimmer, A. “Electrospray Aerosol Synthesis of Crude Oil Simulant/tracer to mimic the Behavior of Oil Droplets in Water” 254th ACS National Meeting, Washington DC, 2017 (Poster)
- Rodrigo, S.K.**; Powell, I; Guan, H. “Efficient and regioselective [2+2+2] cyclotrimerization of ynoates and related alkynes catalyzed by nickel” 247th ACS National Meeting, Dallas, TX, 2014. (Poster)
- Rodrigo, S.K.**; Guan, H. “Quick Installation of a 1,4-Difunctionality via Regioselective Nickel-Catalyzed Reductive Coupling of Ynoates and Aldehydes.” Graduate Poster Forum, University of Cincinnati, 2013. (Poster)
- Rodrigo, S.K.**; Powell, I; Guan, H. “Nickel-Catalyzed Regioselective cyclotrimerization of Alkynes to Synthesize Substituted Aromatic Compounds.” Oesper Symposium, ACS Local Meeting, Cincinnati, OH, 2012. (Poster)

- Rodrigo, S.K.;** Krause, J. A.; Guan, H. "Ni-Catalyzed Multi component coupling: A new approach to synthesize 1,4-Difunctionalized Compounds." 243rd ACS National Meeting, San Diego, CA, 2012. **(Oral)**
- Rodrigo, S.K.;** Guan, H. "Ni-Catalyzed Direct Synthesis of 1,4-Difunctionalized Compounds." Graduate Poster Forum, University of Cincinnati, 2012. **(Poster)**
- Rodrigo, S.K.;** Krause, J. A.; Guan, H. "Nickel-Catalyzed Multicomponent Coupling: A New Approach to Synthesize 1,4-Difunctionalized Compounds." Ohio Inorganic Weekend, Cincinnati, OH, 2011. **(Poster)**
- Rodrigo, S.K.;** Krause, J. A.; Guan, H. "Nickel-Catalyzed Multicomponent Coupling: A New Approach to Synthesize 1,4-Difunctionalized Compounds." Oesper Symposium, ACS Local Meeting, Cincinnati, OH, 2011. **(Poster)**
- Rodrigo, S.K.;** Krause, J. A.; Guan, H. "Ni-Catalyzed Direct synthesis of 1,4-Difunctionalized Compounds." Oesper Symposium, ACS Local Meeting, Cincinnati, OH, 2010. **(Poster)**
- Rodrigo, S.K.;** Krause, J. A.; Guan, H. "Ni-Catalyzed Direct Synthesis of 1,4-Difunctionalized Compounds." 240th ACS National Meeting, Boston, MA, 2010. **(Oral)**
- Rodrigo, S.K.;** Guan, H. "Ni-Catalyzed Direct Synthesis of 1,4-Difunctionalized Compounds." 41st ACS Central Regional Meeting, Dayton, OH, 2010 **(Oral)**
- Rodrigo, S.K.;** Guan, H. "Ni-Catalyzed Direct Synthesis of 1,4-Difunctionalized Compounds." Graduate Poster Forum, University of Cincinnati, 2009. **(Poster)**
- Rodrigo, S.K.;** Jayasinghe, U. L. B.; Bandara, B. M. R. "Antifungal, Antioxidant and Cytotoxic activity of *Acronychia pedunculata* and *Adenanthera pavonina*." Peradeniya University Research Session (PURS) 2007. **(Oral)**

TECHNICAL PROFICIENCY

Organic synthesis | Inorganic/organometallic synthesis | Nanomaterial synthesis | Purification techniques | Schlenk and glove-box techniques | Solvent purification systems | Multi-nuclear NMR spectroscopy | HPLC | Gas chromatography | FT-IR spectroscopy | Fluorescence and UV-Vis spectroscopy | Wide-range particle spectrometer | Electro spray aerosol techniques | Particle size analysis

DISSEMINATION OF KNOWLEDGE

Review of International Journal Articles

- Organometallics (impact factor 3.862)
- Journal of Organic Chemistry (impact factor 4.849)

Workshops and Science Camps

- Have contributed to science camps organized by CGSA at local schools

Teaching

- University of Cincinnati

Teaching assistant: 2008-2014

Taught freshman recitation, Organic lab and Organic recitation, Inorganic lab.

- Rajarata University of Sri Lanka

Temporary Lecturer: 2007-2008

Taught Physical Chemistry for first year and second year undergraduate students.

Temporary Demonstrator: 2007

Taught first year General Chemistry Lab, second year Organic Chemistry Lab.

Mentoring

- Mentored & guided five undergraduate students and two PhD students at university of Cincinnati.

RESEARCH GRANTS

- Graduate Student Governance Association (GSGA), University of Cincinnati, Research fellowship, 2014 - \$1200
- University research council summer fellowship, April 2013-\$3000 (proposal ranked 12 out of 200 applications)

COMPUTER SKILLS

- **Operating Systems** Microsoft Windows, Apple Mac OS X, Linux
- **Programming** Python, C
- **Word Processing & Presentation** Microsoft Office, Endnote

LEISURE INTRESTS

Cricket | Travelling | Programming & building circuits with Arduino

PROFESSIONAL REFERENCES

Prof. Hairong Guan (Ph.D. adviser)

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University of Cincinnati
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Prof. James Mack (Ph.D committee member)

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University of Cincinnati
Phone: +15135562872
E-mail: james.mack@uc.edu

**Prof. B. M. R. Bandara
(Undergraduate research adviser)**

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Faculty of Science
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