





Ci<mark>Q</mark>US

Centro Singular de Investi en Ouímica Biolóxica e Materiais Moleculares

CiQUS Lecture



Friday, June 14, 2024

12:15 p.m. - CiQUS Seminar Room

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Abstract

The last to decades have seen tremendous advancements in chemical catalysis due to developments in oxidative reactions, natural product synthesis, chemical biology, etc... The need for environmentally friendly and sustainable chemistry has led to the development of new synthetic approaches that will ensure the emergence of metals that are abundant on Earth and organocatalyzed reactions that will ultimately assist in the development of new industrial chemistry.

Regio-selective cascade reactions have drawn a lot of attention recently due to their ability to produce highly complex organic molecules with the desired selectivity, avoid altering the reaction conditions, isolate the intermediates during the reaction, and produce less toxic waste to the environment. They can also form multiple bonds in a single synthetic operation. Many aspiring organic chemists have been intrigued and piqued by the possibility of developing complex organic molecules in a short amount of time through process optimisation, even if it requires a significant amount of knowledge. My presentation will be focused on our most recent work on synthesis and therapeutic applications. In this context, we are trying to use earth-rich metals and organically synthesized sugars in our laboratory as environmentally friendly substitutes for conventional organic synthesis.



Selected References: [1] (a) P. Paranimuthu, and S. Rajasekhara Reddy, Eur. J. Org. Chem. 2023, e202300430 (b) P. Paranimuthu, U. Vijayasree, J. Jyothylakshmi and S. Rajasekhara Reddy, Org. Biomol. Chem. 2023, 21, 2632-2652. (c) Pooja, G and , S. R, Reddy, Asian J. Org. Chem. 2022, 11, e202200322,. (d) P. Garg, R. S. Rawat, H. Bhatt, S. Kumar, S. R, Reddy,, ChemistrySelect 2022, 7, e202201706 (e) G. Grace and S. R, Reddy,, Appl Organomet Chem 2022, 36, e6518. (g) P. Muthukuru, P Krisnaraj, J Rayadurgam, S. R, Reddy, New J. Chem., 2021, 45, 200075-90. (h) B. K. Villuri, S. S. Ichake, S. R, Reddy, V. Kavala, V. Bandi, C-W. Kuo and C-F. Yao. J. Org. Chem. 2018, 17, 10241. (i) V. Bandi, V. Kavala, A. Konala, C-H. Hsu, B. K. Villuri, S. R, Reddy, L. Lin, C-W. Kuo, C-F. Yao. J. Org. Chem. 2019, 84, 3036. (j) S. I. Sachin., V. B. Kumar, S. R, Reddy, V. Kavala, C-Fa, Yao Org. Lett., 2019, 21, 2256.

Biosketch

Dr. S. Rajasekhara Reddy received his Ph. D. from IIT Madras in 2010. He received his B.Sc. from Acharya Nagarjuna University in India (1997-2000), his M.Sc. from Andhra University in India (2002), and worked at IIT Guwahati in India from 2003 to 2004 as a Junior Research Fellow (JRF). He began his independent research in 2010 as an Assistant Professor, 2014-2022 worked as an Associate Professor at Vellore Institute of Technology (VIT), Vellore, in the Department of Chemistry, School of Advanced Sciences. In 2023, he was promoted to Professor and continues to work at the same institution. He served as a postdoctoral researcher in Professor Ching Fa Yao's lab at National Taiwan Normal University from March to December 2018. Dr. Reddy worked as a visiting professor at NTHU Taiwan as part of SPARC, MHRD-India project (Jan 31st to April 31-2024). Currently he his working as Visiting Professor at Center for Research in Biological Chemistry and Molecular Materials(CiQUS), University of Santiago de Compostela, Spain, May 2024 to June 2024.

His current research focuses on "Synthetic organic chemistry, Catalysis, Medicinal Chemistry, Asymmetric synthesis and chemistry from renewable resources (especially carbohydrates and plants) and Chemical Biology." Dr. Reddy has a track record of publishing in peer-reviewed international publications and attending national and international conferences. Dr. Reddy's scientific contributions are shared through invited talks, oral presentations, and poster presentations, and he has received acclaim from several research institutes and industries (eg. Kaohsiung Medical University KMU [Taiwan], Tunghai University [Taiwan], NTNU[Taiwan], NTHU[Taiwan], NCTU[Taiwan], NSYSU[Taiwan], NCHU[Taiwan], IICT, NIPER, IITs, NITs, Suven Life Sciences Pvt. Ltd). He has given 80 presentations so far, including national and international conferences, faculty development programmes, and workshops, serving as a convener, organising secretary, and co-ordinator, as well as serving on various committees as an organizing member. He recently hosted 12 professors from KMU in Taiwan, organized an Indo-Taiwan workshop, and worked on a Memorandum of Understanding (MOU) between KMU and VIT.

Dr. Reddy is doing meticulous work in teaching, conducting research, and mentoring Ph. D students. 7 doctoral students received their Ph.D. degrees under his guidance. Apart from that, he supervised 17









postgraduate chemistry students and 3 B. Tech. students for their final year projects, completed 8 funded projects. He is now supervising 6 Ph.D. students and three master's students. He has published 48 international research articles in reputed peer reviewed journals, as well as 2 books and 7 book chapters. Two ongoing research projects. With his strong expertise in synthetic organic chemistry, catalysis, carbohydrates, medicinal chemistry.

Web link for more details: https://sites.google.com/view/rajasekharareddys/home.