

Meet Dr. Kapileswar Seth, Thieme Chemistry Journals Awardee 2026!



Dr. Kapileswar Seth is currently an assistant professor at National Institute of Pharmaceutical Education and Research (NIPER) Guwahati (India). He pursued his PhD studies at NIPER, SAS Nagar (India), completing his degree in 2013, then began postdoctoral research at the same institution. He undertook further postdoctoral research at IIT Bombay (India) and then Indiana University–Purdue University Indianapolis (USA), prior to taking up his current position at NIPER Guwahati.

Thieme: Which field of organic chemistry are you interested in the most and why?

Dr. Seth: I am most interested in sustainable organic transformations, particularly organo-catalysis and transition-metal catalysis, as they enable efficient, selective, and environmentally benign synthetic methodologies. My research has focused on developing catalytic systems that minimize chemical waste production, and reduce synthetic steps and energy consumption while maintaining high performance.

In organocatalysis, we have demonstrated metal-free, mild, and selective transformations, with outcomes published in reputed journals, such as *ACS Omega*, *J. Org. Chem.*, *ACS Sustainable Chem. Eng.*, and *Synlett*. Similarly, in transition-metal catalysis, we have achieved precise construction of complex molecular frameworks, with publications in *J. Org. Chem.*, *Green Chem.*, and *Synthesis*. Overall, my motivation lies in advancing catalytic technologies for sustainable pharmaceutical, agrochemical, and industrial applications with notable positive impact on environmental, societal and economic aspects.

Thieme: Following that, what is the focus of your current research activity?

Dr. Seth: My current research focuses on sustainable synthetic medicinal chemistry, where my research team is actively engaged in design and synthesis of small-molecule heterocyclic entities using environmentally benign and efficient synthetic strategies. The aim is to integrate sustainable organic transformations with medicinal chemistry to develop biologically active compounds.

My research group is particularly working on heterocyclic scaffolds targeting multiple therapeutic areas, such as cancer, oxidative-stress-related disorders, and microbial infections. These compounds are evaluated for both antimicrobial and antioxidant activity, and for anticancer potential through various biological assays (in vitro studies).

The overall objective is to develop step-/atom-efficient, cost-effective, scalable, and sustainable synthetic methodologies while identifying promising lead molecules with significant therapeutic potential.

Thieme: What do you think about the modern role and prospects of organic chemistry?

Dr. Seth: The modern role of synthetic organic chemistry is pivotal in advancing science through academia and industry, particularly in medicinal chemistry and pharmaceutical research. It underpins the entire drug discovery and development pipeline, from the preliminary design and synthesis of small molecules, through structure–activity relationship (SAR) studies and lead optimization, to large-scale synthesis and final production. Synthetic organic chemistry enables the creation and refinement of compounds targeting numerous diseases ensuring high potency, efficacy, selectivity, and safety. It also supports process development, improving yield, scalability, and cost-effectiveness for industrial applications through fit-for-purpose synthetic technologies. By integrating green chemistry and catalysis, organic chemistry enables sustainable and efficient manufacturing. Overall, it remains indispensable in transforming initial molecular ideas into clinically relevant therapeutic agents.

Thieme: Which difficulties are there for young upcoming chemists in your field? Do you have any tips?

Dr. Seth: One of the major difficulties faced by young researchers in chemistry is securing consistent research funding. Limited availability of grants and high competition make it challenging to sustain innovative and long-term projects. This directly impacts access to advanced instrumentation, skilled manpower, and interdisciplinary research opportunities. Another challenge is bridging the gap between academic research and industrial application through academia–industry collaboration. Often, promising laboratory findings fail to translate into scalable or commercially viable processes. To overcome these challenges, young chemists should focus on securing government and industry funding through well-defined, application-oriented research ideas/proposals. Building strong academia–industry partnerships is crucial for resource sharing, technology transfer, and real-world impact. Additionally, developing interdisciplinary skills, maintaining a high-quality publication record, and pursuing sustainable and translational research can significantly enhance career prospects and research success.

Thieme: What is your most important scientific achievement to date and why?

Dr. Seth: My most important scientific achievement to date is receiving this award, which I consider my most prestigious independent scientific recognition. It acknowledges my and my research team's efforts in bridging synthetic organic chemistry with medicinal chemistry, where we have developed sustainable synthetic strategies to access biologically relevant small-molecule heterocycles. The work reflects my approach of transforming fundamental organic synthesis into clinically meaningful outcomes, including the design, synthesis, and biological evaluation of compounds targeting cancer, microbial infections, and oxidative-stress-related disorders. By integrating catalytic methodologies with medicinal chemistry principles, we aimed to create efficient, scalable, and environmentally responsible pathways for drug-like or promising lead molecules. I consider this achievement particularly significant because it highlights innovation at the interface of synthetic organic chemistry and medicinal chemistry — moving beyond synthesis toward impactful therapeutic discovery and sustainable drug development.

Thieme: Could you tell us something about yourself outside the lab, such as your hobbies or extra-work interests?

Dr. Seth: Outside the lab, I have a strong passion for exploring the hidden and less-travelled regions of northeast India with my family and friends. I am particularly drawn to unexplored landscapes, remote villages, and offbeat natural sites that offer a sense of authenticity and tranquillity away from crowded tourist spots. This interest not only allows me to appreciate diverse cultures, local traditions, and cuisines, but also helps me reconnect with nature and maintain a balanced lifestyle. I enjoy planning these trips, discovering unique routes, and capturing moments through photography. Such experiences refresh my perspective, enhance my creativity, and indirectly inspire my scientific thinking by exposing me to new environments and ideas.