Utilizing Renewable Energy to Functionalize C(sp^2)-H Bond for the Synthesis of Value-Added Compounds

Sudipta Raha Roy

Associate Professor
Indian Institute of Technology Delhi
New Delhi
Email: srr@chemisry.iitd.ac.in

Functionalization of C-H bonds owing to the large kinetic barrier associated with its bond cleavage has always been most dynamic topics to synthetic chemists.[1] Tremendous advancements have been done in the field of metal catalyzed C-H bond functionalization to achieve diverse functionalities.[2] These viable strategies offer great opportunities for the synthesis of pharmaceutically relevant molecules, agrochemicals, natural products and complex molecular scaffolds.[3] The classical methods mainly rely on utilization of pre-activated precursors for both reactivity as well as selectivity. However, the requirement for installation of an activating group prior to transformation adds cost to the synthetic route and lead to production of unwanted byproducts. Therefore, development of more atom and step-economical methodologies for direct C-H functionalization without any pre-activation of starting material is highly desirable.

As a part of our ongoing interest on the functionalization of C-H bonds[4], how the readily available and cost-effective building-blocks can be utilized to functionalize C(sp^2)-H bond in the presence of light and electricity will be discussed in this lecture.

References:

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