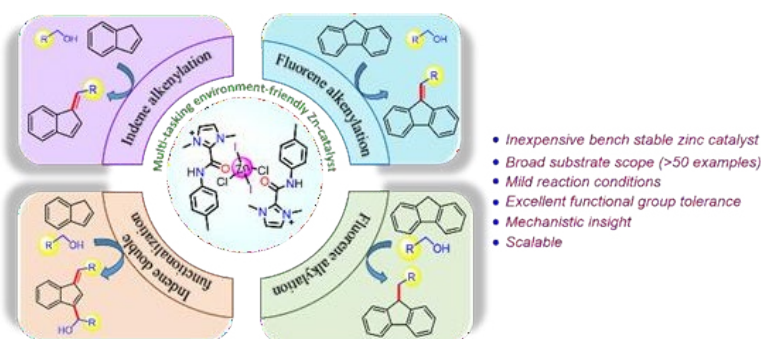


A bench stable zinc-amide compound as an active catalyst for the selective Alk(en)ylation of carbocycles under mild conditions

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Direct functionalization of unactivated organic moiety via C-C bond formation has long fascinated the synthetic chemists. Although the base metal systems are steadily emerging in this area, achieving multitasking activity of a single catalyst to execute several such functionalization under mild conditions is challenging. Herein, we report an effective protocol for the diverse selective C-alk(en)ylation of indene/fluorene with alcohol as a green alkylating agent employing a naturally abundant and eco-friendly zinc derived compound. Notably, this study unveiled the unique potential of a bench-stable Zn compound bearing an amide ligand towards C-C bond forming reactions utilizing an array of alcohols, ranging from aliphatic to aromatic and attractively, also the secondary ones. Moreover, this readily scalable protocol which proceeds via a borrowing hydrogen protocol, as established based on a range of control experiments, works effortlessly under mild conditions using low catalyst loading and affords remarkable selectivity towards alkylated or alkenylated products with high level of functional group tolerance and chemoselectivity. Synthetic utility of the obtained products was showcased by their late-stage functionalization to access unsymmetrical 9,9-disubstituted fluorenes, which is potentially useful for various optoelectronic applications.



Biography

Sangita Sahoo is a research scholar pursuing his doctoral studies (PhD) under the supervision of Dr. Arnab Rit. She joined the Department of Chemistry, at IIT Madras in July 2020. Her research focuses mainly on the development of effective base metal catalyst systems for various organic transformations.

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