Short Presentation Inter-Disciplinary Explorations in Chemistry (I-DEC 2018)

Unified Total Syntheses of *Amaryllidaceae* Alkaloids and Proaporphine Alkaloids Sharing Complex Architecture

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Abstract: Nature produces a variety of complex natural products of biological relevance and majority of these are isolated in entioenriched form (1-2, Figure).¹ Since these are isolated from Nature in limited quantity (mostly in mg scale), total synthesis endeavours can play a crucial role in bioactivity evaluation by providing access to significant quantity.²



Figure. Architecturally complex alkaloids of biological relevance.

Towards this, catalytic asymmetric construction of organic molecules sharing all-carbon quaternary stereocenter is one of the challenging aspects of synthetic organic chemistry.³ Towards this direction, naturally occurring alkaloids (Figure 1) with impressive diversity of biological activities drew our interest for efficient total syntheses.² The synthetic strategy relied on an enantioselective decarboxylative allylation using chiral non-racemic Pd(0)-catalyst to construct an all-carbon quaternary stereocenter required for these natural products. Our synthetic endeavors towards the total syntheses of these architecturally complex alkaloids will be discussed.¹⁻²

References:

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Mrinal Kanti Das was born in Raghunathganj, West Bengal, India on 6th of April, 1991. After completing his BSc. from Burdwan Raj College (under Burdwan University), in May 2011, he pursued MSc. from Visva Bharati University in August 2013 taking majors as organic chemistry. In June and December 2012, he qualified CSIR-NET (JRF) and GATE 2012 and joined the AB Research Group, IISER Bhopal in August, 2013 for his doctoral studies. He has received Ph.D. degree from the Dept. of Chemistry, IISER Bhopal in July, 2018. He worked on total synthesis of Amaryllidaceae alkaloids during his Ph.D. Currently, he is working on the total syntheses of proaporphine alkaloids. His hobbies includes listening music, watching movies and playing cricket.