National Institute of Technology Rourkela

Defence Seminar

Seminar Title	: Unconventional Umpolung of Bromocations in the accelerated Organocatalytic Dibromination of C□C/C≡C Bonds Alongside Kinetic Studies to Establish the Structure-Reactivity Relationship of C□C Bonds
Speaker	: Jeetendra Panda (Rollno : 517cy6007)
Supervisor	: Prof. Gokarneswar Sahoo
Venue	: MC-319 (Chemistry Seminar Room)
Date and Time	: 28 Jun 2024 (08:00 am)
Abstract	: Umpolung or polarity inversion is a chemical modification process by which the normal alternating donor and acceptor reactivity pattern is interchanged due to electronegative heteroatoms. Herein, an unprecedented concept of polarity reversal of cationic halogen using organocatalyst has been discussed along with experimental and computational evidences. Further, applying the above concept, an accelerated dibromination of unsaturated C&mdashC bonds have been achieved with a wide range of substrates. This protocol would be a great alternative, as the previous methods used for the dibromination were either consists direct or in situ generated molecular bromine. However, while developing this methodology a few substrates do not give any dibromo product which was unanticipated. Thus study of the structural factors that affect the reactivity of C□C bonds was intended Wherein the rate of reaction of the C□C functionality varying electron density and the structural changes due to the presence of substituents have been studied. This revealed that not only the substituents but the planar orientation of the olefin could also affect the reactivity. Following this, a chiral dibromination protocol has been intended using the umpolung concept for which both chiral organocatalyst as well as chiral bromocationic source is required. Thus synthesis of a never before reported chiral N-bromosuccinimide has been envisioned and efforts towards the synthesis of the same has been documented.