National Institute of Technology Rourkela

Registration Seminar

Seminar Title	: Extraction, Characterization and Stability of Red Weaver Ant (Oecophylla smaragdina) Lipids for Edible Oil Fortification
Speaker	: Jishu Raj Chetia (Rollno : 523fp1002)
Supervisor	: Dr. Dibyakanta Seth
Venue	: CH 113
Date and Time	: 08 Jan 2025 (17.00)
Abstract	: The search for sustainable and nutrient-rich food alternatives is essential to meet the needs of a growing population and limited agricultural resources. Insects present a promising alternative as they are highly nutritious and have a minimal impact on the environment. Among them, Red Weaver Ants (*Oecophylla smaragdina*) are notable for their rich nutrient profile, including proteins, lipids, calcium, and zinc. Further, it has also been used as a source in traditional medicine. The current study aims to explore the extraction, characterization, and stability of lipids from Red Weaver Ants (*Oecophylla smaragdina*) for edible oil fortification. This ant was found to possess an approximate lipid content of about 24%, signifying that they are potential candidates for being a lipid-rich source. GC-MS analysis revealed the presence of bioactive compounds, including oleic acid, n-hexadecanoic acid, eicosane, dodecanoic acid, and 9-octadecenoic acid, underscoring their nutritional and functional potential. NMR spectroscopy further confirmed key lipid components, such as unsaturated fatty acids, saturated hydrocarbons, and esters, with characteristic signals for alkene, carboxylic acid, and long-chain aliphatic groups. This discovery underlines the prospects of Red Weaver Ant lipids as a sustainable ingredient in food innovation, and its incorporation into edible oil fortification could fill nutritional gaps and facilitate health-oriented applications in an environmentally friendly manner.