

---

Registration Seminar

---

Seminar Title	: Effect of enteric tau in the development and maintenance of sensory and non-sensory organ of <i>Drosophila melanogaster</i>
Speaker	: Surajita Sahu ( Rollno : 522ls1014)
Supervisor	: Prof. Monalisa Mishra
Venue	: Ls Seminar Room
Date and Time	: 20 Nov 2024 (10AM)
Abstract	: Tau (Tubulin Associated Unit) is a widely recognized microtubule-associated protein that is primarily situated in the cytoplasm of neurons and plays an important role in Alzheimer's diseases (AD). It is expressed in axons essential for the maintenance and formation of microtubules. Under pathological conditions, it is hyperphosphorylated, detached from microtubules, and plays a major part in the neurodegenerative process by impairing neuronal function, causing inflammation, and causing necrosis/cell death. Aggregated forms lead to the formation of neurofibrillary tangles (NFTs) in the brains of Alzheimer's patients it is reported that patients with AD have Tau aggregates in both their brain and gut. However, the function of Tau in the brain has been continuously researched, whereas its involvement in the gut needs more attention. In our study, we have examined the effects of different forms of Tau: Tau monomer, oligomer, and aggregates at 10 $\mu$ M concentrations by feeding them to third-instar <i>Drosophila</i> larvae. To evaluate cytotoxicity and genotoxicity, we used DCFH-DA staining and DAPI staining, respectively. Additionally, hemolymph extracts were subjected to an NBT assay to detect the amounts of reactive oxygen species (ROS) Phenotypic analysis was conducted across larval, pupal, and adult stages, and histological studies examined cytoskeletal alterations in the sensory and non-sensory organs of adult flies. Our findings reveal that all forms of Tau—monomers, oligomers, and aggregates—induce genotoxicity, cytotoxicity, and cytoskeletal defects in <i>Drosophila melanogaster</i> .