National Institute of Technology Rourkela

Registration Seminar

Seminar Title	: Investigating the effect of Advanced Glycation End products of Ribose (Rib-AGEs) on aging in various organs of Drosophila melanogaster
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Supervisor	: Prof. Monalisa Mishra
Venue	: LS Seminar Room
Date and Time	: 14 May 2024 (10AM)
Abstract	: Aging is a universal phenomenon. Every organism in this living world ages with time. Different types of factors are responsible for aging diet and food are some of the significant contributors to aging. Advanced Glycation End (AGE) products are one such factor that accumulates during aging and age-related diseases. However, whether exogenous AGE compounds cause aging or not is an area to be explored specific organs can describe aging and age-related phenomena in an organism. Drosophila melanogaster, a well-known model organism, is used to decode aging and age-associated phenomena. In this study, we fed Ribose-Advanced Glycation End (Rib-AGE) products to D. melanogaster to study the aging mechanism in different body parts. The RibAGE-induced aging will be checked in Drosophila's gut, ovary, muscle, and taste. In this study, the effect of Rib-AGE on aging is checked in the gut. Reactive oxygen species (ROS) and Nitric oxide species (NOS) were higher in the Rib-AGE-fed flies, and the antioxidant level was lower. The intestinal permeability was altered. The microorganism load and faecal discharge were higher. The structural shape of the gut's microfilament seemed to be damaged, and the nuclear shape was found to be irregular. Cell death was elevated in comparison to control. The feeding intake was found to be reduced. In the larva, the 3rd instar larva size was comparatively more petite in control than in the Rib-AGE-fed. The expression of the Sirtuin 2 gene of D. melanogaster was lower in Rib-AGE-fed flies than the control. All these initial findings strongly suggest that Rib-AGE causes aging and age-related disorders within the gut of Drosophila. As there is a very elusive report on diet-derived AGE and its effect on aging, this study will provide a strong base for a more in-depth understanding of this topic.