

Hands on Training on DNA Isolation

The Department of Zoology arranged for a hands-on training of DNA Isolation under DBT STAR College scheme on 9.08.2019. Dr.S. Muhilvannan, PAR Life sciences and Research Private Ltd. Trichy-3 explained that conventional genomic DNA extraction protocols need expensive and hazardous reagents for decontamination of phenolic compounds from the extracts and are only suitable for certain types of tissue. Thirty student participants were given training in various aspects like Sample/Tissue extraction, incubation of sample/tissue, centrifugation of sample, DNA extraction, DNA isolation and run the GEL. He introduced to the students a simple, time-saving and cost-efficient method for genomic DNA extraction from various types of organisms, using relatively innocuous reagents. The protocol employed a single purification step to remove contaminating compounds, using a silica column and a non-hazardous buffer, and a chaotropic-detergent lysing solution that hydrolyzes RNA and allows the selective precipitation of DNA from cell lysates. He used this system to extract genomic DNA from different tissues of various organisms, including algae (*Dunaliella salina*), human peripheral blood, mouse liver, *Escherichia coli*, and Chinese hamster ovary cells. Mean DNA yields were 20-30 $\mu\text{g}/\text{cm}^3$ from fresh tissues (comparable to yields given by commercial extraction kits), and the 260/280 nm absorbance ratio was 1.8-2.0, demonstrating a good degree of purity. The extracted DNA was successfully used in PCR, restriction enzyme digestion and for recombinant selection studies. Students had useful hands on training session.