



# **St. Xavier's College (Autonomous)**

(Recognized as "College with Potential for Excellence" by UGC & Accredited at A<sup>++</sup> grade with CGPA of 3.66/4 in IV Cycle by NAAC)

**Palayamkottai – 627 002**

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## **ANNUAL REPORT 2023-2024**

### **PLANT MOLECULAR BIOLOGY RESEARCH UNIT**

The Plant Molecular Biology Research Unit (PMRU) was established in 2001 with the aim of promoting Plant molecular biology research. PMRU conducts diverse research across multiple areas of Plant Science, including:

1. Molecular characterization and assessment of aquatic and terrestrial plants using advanced techniques like marker-assisted selection, gene cloning, and genetic engineering.
2. Microbial-based drug synthesis involves harnessing plant-associated microbes to produce pharmaceutical compounds.
3. Crop improvement via microbe interactions, focusing on plant growth-promoting rhizobacteria and mycorrhizal fungi.
4. Culture and characterization of microalgae for applications in biotechnology.
5. Bioinformatics and statistical analysis to interpret large-scale genomics and metabolomics data.

Currently, studies are underway to screen azo-degrading bacteria and evaluate their additional plant growth promoting effects on food crops under contained greenhouse conditions. Importance is given to monitoring any genetic variability induced in treated plants and their associated microbiomes when supplements are applied. Two scholars submitted their theses and are awaiting viva voce examination. Three research articles were published in reputed national and international journals. Research scholars participated in two e-conferences and training programs. Presently, two full-time scholars have registered for doctoral research. Two articles have been accepted in renowned journals for publication after peer review. Our facilities, including Microscopes, Centrifuges, and Molecular Biology Equipment are routinely maintained and shared among researchers.