

## RESEARCH AND DEVELOPMENT ACTIVITIES IN THE PLANT TRANSFORMATION LABORATORY AT DBT-APSCS&T COE FOR BIORESOURCES AND SUSTAINABLE DEVELOPMENT, KIMIN, ARUNACHAL PRADESH

### SCOPE

The primary goal of the plant transformation laboratory is to carry on with the molecular activities involving plants (orchids, rice and medicinal plants). It will involve applying biotechnology tools approach towards molecular identification and conservation, understanding gene activities and mechanism for different properties of the plant. The laboratory also will have high end instrumentation facilities which will provide scope for carrying out research activities for the students, researchers across the state of Arunachal Pradesh. It will provide services, support and training in the various activities of the molecular biology for the students, researchers of the state.

### Current Activities

The current research activities of the plant transformation laboratory involves

- DNA -Barcoding of the Indigenous Orchids of the state

The current research activities involve DNA barcoding of the indigenous orchids for the biotechnological approach towards the conservation of the orchids of the state. Identifying the need for the molecular tools aiding the taxonomical methods of the identification of the orchids, the project has been undertaken and is currently being carried out at the centre.

Processes involved:

1. Field survey, collection and identification of the
2. Optimisation of the techniques/methodology for the isolation of genomic DNA from the orchids.
3. Identification and development of the primers for the barcode regions of the DNA.
4. PCR amplification of the barcode region of the plant DNA
5. Purification of the PCR amplified DNA

Further the DNA sequencing and bioinformatics tools will be applied to identify and develop the phylogenetic tree.

- Genetic fidelity testing of the plant tissue cultured plants using SSR, RAPD and SSR markers

