



Vaidyaratnam P. S. Varier's  
**ARYA VAIDYA SALA, KOTTAKKAL**  
CENTRE FOR MEDICINAL PLANTS RESEARCH  
Kottakkal, Malappuram, Kerala-676503, India

**Kottakkal**  
ayurveda

## CERTIFICATE

This is to certify that **Smt. Abidha E.K.** Research Scholar, Providence Womens College, Kozhikode has successfully completed 15 days hands on Training in ***Molecular Biology*** in the Crop Improvement & Biotechnology Division on the 31<sup>st</sup> December 2021.

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Dr. Geetha S Pillai  
Addnl. Project Director  
Head, Crop Improvement &  
Biotechnology Division

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Dr. Indira Balachandran  
Project Director

REG.NO:2022CIB02  
DT:28/01/2022

## **Internship Training**

**Date: 31 December 2021**

**Topic: Basic Techniques in Molecular Biology**

### **Objectives:**

- DNA Barcoding techniques.
- Hands on training with PCR, Gel Electrophoresis etc.
- Phylogenetic tree construction using NTSYS & ntEDIT.

### **Outcome**

- Completed detailed study on different plant DNA barcodes and barcoding loci (matK, rbcL, ITS, trnH etc).
- DNA isolation of different plants like Curcuma, Vanilla, vitex etc.
- Polymerase Chain reaction (PCR), Gel electrophoresis and Gel documentation.
- Selection of specific primers and DNA sequencing techniques.
- Sequence data submission using Sequin tool.
- Genetic diversity analysis using Molecular markers.
- Phylogenetic tree construction using so

We attended a lovely workshop on the subject of Basic tools in Molecular Biology at the Division of Crop Improvement and Biotechnology, Center for Medicinal Plant Research (CMPR), Kottakkal. There, we received instruction in fundamental methods like DNA isolation, PCR, Gel documentation, and molecular phylogenetic tools. Dr. Rahul P.R. gave us advice on this subject. It was a highly instructive educational experience.

## **Field Work - Plant Collection**

**Date: 21 December 2020, 22 January 2022**

### **Objectives:**

- Collection of Vanilla species from different germplasms.
- Collection of Wild grown Vanilla species.

### **Outcome:**

- *V.aphylla* and *V.weightii* are collected from Tropical Botanic Garden and Research Institute (TBJRI) Trivandrum.
- *V.weightii* Collected from Botanic Survey of India.
- *V.walkeriae*.collected from Karamadai range forest,Tamil Nadu.

On December 21, 2020, we travelled to TBJRI in Trivandrum to collect two vanilla species. *V. aphylla* and *V. weightii* were collected from there with the help of Dr. Salim. After that We visited the TBGRI garden and germplasm collection It was amazing to go through many types of germplasm.

On January 22, 2022, we traveled to BSI and the Karamadai Range Forest in Tamil Nadu. About 56 miles separate Coimbatore from the Karamadai Range Forest. It was located in the Western Ghats, a dry deciduous forest. Mr. Sulaiman helped us with the forest visit there. From there, we collected two significant vanilla species, *V.walkeriae* and *V.weightii*.