Department of Botany & Department of Nutrition

Faculty Development Programme (FDP) on Protein and Nucleic Acid Analysis

Dr. **Purna Sudha Bindu Ambaru** (Assistant Professor, Department of Botany), Ms. **Muskan Banu** (Assistant Professor, Department of Nutrition), and **G. Rajeev Singh** (B.Sc. BZC III Year) attended a **three-day Faculty Development Programme (FDP)** on **"Protein and Nucleic Acid Analysis"** held on **28th, 29th, and 30th October2024**.

The workshop was organized by the **Department of Biochemistry and Nutrition, Bhavans Vivekananda College, Sainikpuri,Secunderabad**.

Sessions were conducted by **Dr. GSVRK Chowdhary (Principal)** and **Dr. Sai Padma (HoD, Biochemistry & Nutrition)**.

Objective of the Workshop

The primary aim of the workshop was to provide **hands-on training** and enhance knowledge related to various methods of **protein and nucleic acid analysis**. Participants performed experiments, discussed results, and attended an assessment to evaluate their learning. All participants received certificates.

Experiments Conducted

1. SDS-PAGE – Separation of Proteins

A technique used to separate proteins based on size using detergent (SDS) and polyacrylamide gel. It helps determine protein purity and molecular weight.

2. Western Blotting

A method used to identify specific proteins. After separation by SDS-PAGE, proteins were transferred to a membrane and detected using antibodies.

3. Ion-Exchange Chromatography

A technique that separates molecules based on charge. Proteins bind to charged resin and are later eluted by changing pH or ionic strength.

4. Gel Filtration Chromatography

Also known as size-exclusion chromatography. Molecules are separated based on size using porous beads—larger molecules elute first.

5. Affinity Chromatography

A separation method based on specific binding between a molecule and a ligand. Only the molecule of interest binds and is later eluted.

6. PCR – Polymerase Chain Reaction

An in-vitro DNA amplification technique involving three steps: **Denaturation**, **Annealing**, and **Extension**. Used to amplify target DNA sequences.

7. ELISA – Enzyme-Linked Immunosorbent Assay

A competitive assay used to measure antigen concentration. Color intensity produced is **inversely proportional** to the amount of antigen in the sample.