Major Instruments in Lab No. 7 of Botany Department

Name of Instruments	Brief Description of Instruments	Image of Instruments
Lab No. 7		
UV visible Spectrophotometer, Shimadzu, UV-1900i	**Introduction:** The Shimadzu UV-1900i is a high-performance UV-Visible spectrophotometer that measures the absorbance or transmittance of light across the ultraviolet and visible spectra. It features advanced optics and software for precise and reliable results. **Applications:** Used in Quantitative analysis of biomolecules such as proteins and nucleic acids in biological samples. Analysis of chemical compounds in pharmaceuticals, food, and environmental samples. Very useful in Kinetic studies, including enzyme assays and reaction monitoring.	
Micro volume Spectrophotometer (Nanodrop), Thermo Scientific, Model-Nanodrop One C	**Introduction:** The Nanodrop One C by Thermo Scientific is a compact and highly sensitive micro-volume spectrophotometer. It measures the concentration and purity of nucleic acids, proteins, and other biomolecules using as little as 1-2 microliters of sample. **Applications:** It used for **r**apid quantification of DNA, RNA, and protein samples in molecular biology and biochemistry labs. Quality control of nucleic acids and proteins before PCR, sequencing, or cloning. It is ideal for research labs working with small sample volumes and requiring high precision.	

Gel Documentation System, Bio-Rad	**Introduction:** The Gel Documentation System by Bio-Rad is an advanced imaging system designed to capture, analyze, and document gel electrophoresis results. It is equipped with high-resolution cameras, specialized filters, and software for the detection and quantification of nucleic acids and proteins. **Applications:** It applies for visualization and analysis of DNA, RNA, and protein bands in agarose and polyacrylamide gels. Also use in quantification of nucleic acids and proteins for downstream applications such as cloning, sequencing, or proteomics. Used in academic and industrial research labs for routine molecular biology workflows	
Water Double distillation unit, Merck Millipore, Direct-Q3	**Introduction:** The Merck Millipore Direct-Q3 Double Distillation Unit provides ultrapure water for laboratory applications. It removes impurities, ions, and organic contaminants, ensuring high-purity water for sensitive experiments. **Applications**: It used for preparation of solutions and buffers for molecular biology, cell culture, and analytical chemistry. Provides ultrapure water for use in instruments like spectrophotometers, HPLC, and PCR systems. Critical in research, pharmaceutical, and quality control laboratories where contaminant-free water is essential	

Deep Freezers (-80° C) Eppendrof (CryoCube F101h ULT)	**Introduction:** The -80°C Deep Freezer by Whatman Technologies provides ultra-low temperature storage for sensitive biological and chemical samples. Designed with advanced insulation and reliable temperature control, it ensures sample integrity over extended periods. **Applications:** Commonly used in research labs, for storing DNA, RNA, proteins, enzymes, and vaccines.