DELTA UNIVERSITY
FOR SCIENCE AND TECHNOLOGY





List of equipment in Microbiology and Biotechnology Research Unit

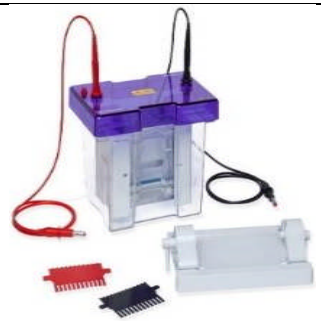
Facilities of Microbiology and Biotechnology Research Unit

Instrument	Model	Uses	Images
MEDICAL trading Autoclave	**PHOENIX BLU made in Italy**	It serves different means for sterilizations of different types of media that used for microbial culture. Sterilizations of different glass wears and some plastic materials (e.g. micropipette tips). Destruction of bacterial residues and biological hazardous.	
Refrigerated Centrifuge	**Centurion scientific**	It is used for separating particles from a solution according to their size, shape, density viscosity of the medium and rotor speed. Refrigerated centrifuge works on the concept of sedimentation principle by holding up the sample tubes with a capacity of 1.5 ml, 15 ml and 50 ml in rotation around a fixed axis. In this, the centripetal force causes the denser substances to separate out along the radial direction in the bottom of the centrifuge tube. This equipment is extensively used in chemistry, biology, and biochemistry for isolating and separating suspensions. It additionally provides the cooling mechanism to maintain the uniform temperature throughout the operation of the sample.	

Heavy-duty Shaking Incubator	**GFL**	▪ Shaking incubators are often used for cell culturing, cell aeration, and solubility studies. ▪ Eliminating the need of placing a separate shaker inside an incubator, the instruments incorporate oxygen and evenly distribute nutrients throughout the culture media.	
micro plate reader	**Biotek made in USA**	▪ It is used to detect biological, chemical or physical events of samples in microtiter plates. ▪ They are widely used in research, drug discovery, bioassay validation, quality control and manufacturing processes. Sample reactions can be assayed in 1-96 well format microtiter plates with a typical reaction volume between 100 and 200 µL per well.	
shakers and mixers for micro titer plates	**Heidolph**	for mixing microtitre plates and microtubes for a variety of assays. Applications may include immunoassays, ELISA, cell cultures, denaturation of nucleic acids and proteins, stains and blots. Microplate shakers can vary in capacity and may offer a variety of microplates and microtube racks depending on application.	

homogenizer	**IKA**	▪ It is frequently used for particle size reduction or cell lysis. Although a myriad of other mixing machines exist, the homogenizer is superior for multiple reasons. Not only is it easily scalable, but it also uses multiple mechanical forces (as opposed to one, which is the case for most mixing equipment); this results in a stable, uniform, and consistent product.	
Microbiological Safety Cabinet Class II **BIOHAZARD for handling of low Microprocessor Automatic Control**	**EURO CLONE BIOAIR DEVISION**	▪ Provide suitable sterile area for different experiments that need aseptic conditions. ▪ Provide highly safe tools that prevent contaminations as well as prevent pathogenic dissemination for the researcher. Provide stable running, low noise, and small power consumption. Provide sample preparation, laminar flow clean bench, fume hood.	
Digital Colony counter		▪ It is used for viable count of different microbial colonies that cultured on different media. ▪ Suitable for determination of initial concentration for microbial culture. Suitable for research and education purposes.	

UV single spectrophoto-meter	**JENWAY**	▪ It has wide wavelength range (200 -1000 nm). ▪ Suitable for optimum selection of λ_{max} ▪ Suitable for construction of calibration curve and quantitative analysis with moderate sensitivity and reliability Suitable for education purposes	
Ultra Low Temp Freezer	**Binder**	86□ Ultra low temperature freezer preservation of viruses, bacteria, vaccines, biological tissues, drugs, special materials, etc. Used in the fields of biomedicine, scientific research, electronics, chemical industry	
PCR Gradient thermal cycler		▪ it is used for DNA sequencing, cloning, generation of probes, quantification of DNA and RNA, studying patterns of gene expression, detection of sequence-tagged sites, and many more techniques. ▪ Thermocycler use extends beyond simple PCR and the amplification of nucleic acids to include both random and site-directed mutagenesis as well as the in vitro construction of recombinant DNA sequences.	

Gel Document-ation system	**Ingenius UVP**	Qualitative detection of different genes after amplification by polymerase chain reaction. ▪ Suitable for research and education purposes.	
vertical electrophoresis	**Cleaver scientific**	▪ For protein and DNA separation ▪ omnipage mini, 10 x 10cm incl. Glass plates with bonded 1mm thick spacers, 2x 12 sample combs, cooling pack, dummy plate and casting base	
Bench top PH/MV	**Jenway**	For pH, mV and temperature measurements	

Sensitive Analytical balance	**Entris®** **Sartorius**	▪ For sensitive weighing of chemicals ▪ 0.1 mg to 220 gm	
Sensitive Analytical balance	**Entris®** **Sartorius**	▪ For sensitive weighing of chemicals 1 mg to 220 gm	
vibrating stirrer	**Velp Scientific (Italy)**	▪ It was used to mix small vials of liquids in a quickly oscillating circular motion. When the motion of the rubber cup holder on the mixer is transmitted to the liquid sample, a vortex is created	
vertical laminar flow hood sliding the sash window Fully open	**BIOAIR Aura**	▪ Provide suitable sterile area for different experiments that need aseptic conditions	

Rotary Evaporator with chemical resistant pump	**Heidolph and Buchi**	For evaporation and concentration of chemical solution and herbal products	