Services provided by the laboratory

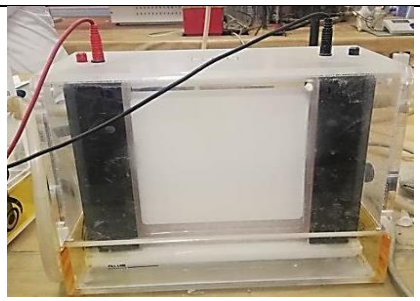
- Micropropagation of different plant species.
- Production of synthetic seeds and microtubers.
- Selection of stress tolerant plants.
- Induction of somatic embryogenesis in plants
- Treatment of vitrification phenomenon in plants.
- Extraction of isoenzymes, proteins and DNA from plants.
- Amplification of plant genome by PCR and RAPD, ISSR or SSR primers.
- Resolving of isoenzymes, proteins and DNA by electrophoresis methods.
- Analysis of bands on different types of gels and determining of polymorphism.

Lab instruments

autoclave 20 l		Sterilization of media, solutions, tips and glass jars. Execution of polluted cultures.
autoclave MC-40		Sterilization of media, solutions, tips and glass jars. Execution of polluted cultures.

microwave oven		Melting agar and agarose solutions
pH meter AD1030		Measuring the pH of media and solutions
balance		weigh different chemical substances that used during different studies of tissue culture technique
Dry oven		Sterilization of petri dishes, sterilization of glassware, drying of plant samples

Laminar flow model 914		In laminar flow, Plant tissue culture, media preparation, artificial seed are made
Flourecent lighter		Investigation gel electrophoreses
UV lighter		Investigation PCR gel
Power point		Turn on the electrophoresis device

Electrophoreses		Electrophoreses of polypeptides and isoenzymes
Thermal unite		DNA replication
Deep freezer		Preservation of electrophoresis and PCR chemicals
Microscope		Examination of the different parts of the plant samples

Staff members

Name	Scientific degree	e-mail	Specializations
Ahmed Mohamed Hassanein	Prof.	hassaneinam@yahoo.com	Plant Biotechnology
Jehan Mohamed Salem	Prof.		Plant Biotechnology
Deya Mohamed sultan	Assistant. Prof		Plant Biotechnology
Huda Ali Abd al-aleem	Lecturer		Molecular Biology
Abdulla Abdelrhaem	Assistant. lecture		Plant Biotechnology
Ghada Ragab	Demonstrator		Plant Biotechnology

- **Institutions and entities benefiting from the laboratory**
- **Faculty of Agriculture**
- **faculty of science**

- Bacteriology

Research plan for Bacteriology Laboratory

- Isolation, antimicrobial resistance profile and molecular characterization of bacteria
- Studies on endophytic microorganisms of some medicinal plants.
- Incidence of plasmids in bacteria isolated from agriculture soil and their roles in bioremediation
- Comparative study for removal of some heavy metals from liquid wastes using natural resources and bacteria

Research activities:

- Study of the endophytic microorganisms of some economic plant roots in Egypt with clear aspect to some physiological considerations.
- Study of biodegradation ability of some bacteria isolated from Sohag soil on insecticide lanate
- Bacteriological and physiological studies of the effect of some heavy metals and the herbicide 2, 4- D on growth and nitrogenase activity of *Azotobacter* spp. isolated from wastewater irrigated soil at Sohag district

Device name		Description /use
Laminar flow Beach Clean		**Laminar airflow is used to separate volumes of air, or prevent airborne contaminants from entering an area. Laminar flow hoods are used to exclude contaminants from sensitive processes in science, electronics and medicine.**

	**Shaker & Warm Incubator**	**The incubator shaker is a temperature controlled biochemical instrument combining incubation and shaking functions. It is used in cell cultrure, fermentation, hybridization, biochemistry and research of enzyme and cell tissues which require a high quality of temperature control and shaking speed.**
	**Hot plate**	**Heating plates are professional heating devices used in temperature control technology to heat a wide variety of laboratory vessels, such as heating baths, Erlenmeyer flasks, beakers, distillation flasks or round flasks.**
	**Refrigerator**	**The refrigerator in a laboratory is one of the most important equipment. Its function is to maintain, in a controlled environment (refrigerated space), various fluids and substances, so that they are kept in good condition the lower the temperature, the lower chemical and biological activity .**
	**Electronic Microscope**	**Electron microscopes are used to investigate the ultra-structure of a wide range of biological and inorganic specimens including microorganisms, cells, large molecules, biopsy samples, metals, and crystals. Industrially, electron microscopes are often used for quality control and failure analysis.**

	**Electronic Oven**	**Laboratory ovens, also referred to as laboratory furnaces, are used to sterilize biohazard waste, dissecting instruments or media/reagents for aseptic assays. They are also used for drying, heating, testing environmental stresses, such as changes in temperature, light and humidity.**
	**Autoclave**	**The autoclave is a sealed device (similar to a pressure cooker) that kills microorganisms using saturated steam under pressure. The usual procedure is to heat at 1.1 kilograms/square centimeter (kg/cm2) [15 pounds/square inch (lb/in2)] steam pressure, which yields a temperature of 121°C.**
		**Spectrophotometer is used to measure the intensity of a light beam at different wavelengths.**
		**Electric balance NUL-TEC: Weight of different chemicals and others**

Services provided by the laboratory

- Antibiotic Resistant Genes in Multidrug-Resistant Extended-Spectrum β-lactamase-Producing *E. coli* Isolated from Children's Samples
- Isolation, antimicrobial resistance profile and molecular characterization of bacteria from broiler

- Isolation of Bdellovibrio sp. from Wastewater and Their Potential Application in Control of Salmonella paratyphi in Water
- Optimization of bacteriocin production by Lactobacillus acidophilus AA11, a strain isolated from Egyptian cheese.

Staff members

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Institutions and entities benefiting from the laboratory

- Faculty of medicine
- Faculty of pharmacy
- Faculty of science
- Food factories

Phycology

Research plan for Phycology Laboratory

- Cyanobacterial toxins in water sources and their impacts on human health
- Algal flora, cyanotoxins and potential health hazards in fish farms
- Study the Effect of Extremely low Frequency Electromagnetic waves on Growth and Metabolic Activities of Harmful cyanobacteria

Research activities:

- Algal flora, cyanotoxins and potential health hazards in fish farms in sohag province
- Ecological and Physiological studies on some Algal Flora Isolated from Sewage water in Sohag Governorate
- Physiological response to heavy metals in some algae isolated from the soil in Sohag province
- Seasonal variation of toxic cyanobacteria and their toxins in the Nile river and irrigation canals in Sohag provinc

o Services provided by the laboratory

- Algal flora, cyanotoxins and potential health hazards in fish farms in Sohag province.
- Ecological studies on the algal flora of Egyptian soils at Sohag district

Lab instruments

Instruments Description

Device image	Description /use
	**(ELISA Reader)** **ELISA stands for enzyme linked immunosorbent assay, it is an antibody test or a test for immune response to things attacking the body such as virus, bacteria and allergens. The test is done in an ELISA plate, also known as a 96-well plate or microplate. The ELISA reader reads the plate.**
	**(A centrifuge)** **It is a device that uses centrifugal force to separate various components of a fluid. This is achieved by spinning the fluid at high speed within a container, thereby separating fluids of different densities (e.g. liquids from solids). It works by causing denser substances and particles to move outward in the radial direction. At the same time, objects that are less dense are displaced and move to the centre. A centrifuge can be a very effective filter that separates contaminants from the main body of fluid.**
	**(Microscope with a digital camera)** **Microscope digital cameras allow you to** view a live image from your microscope directly onto an LCD projector or a computer**. This useful tool allows us to share specimens through a computer screen without having to actually look down less and stare at the specimens for ourselves.**

	**(Algal Incubator)** **It is a device used to grow and maintain algal cultures due to the ability to adjust both temperature and light.**
	**(An autoclave)** **It is used to perform sterilization of algal media**
	**(Electric oven)** **It is used for drying, heating, and to sterilize a large piece of equipment.**
	**(Vortex mixer)** **It is used for mixing laboratory samples in test tubes**
	**(The hot plate stirrer or hot plate magnetic stirrer) It is used for mixing and heating aqueous solutions for a great variety of chemical reactions such as synthesis.**

	**(Electric balance)** **It is used for precise measurement of chemicals which are used in various experiments. It provides digital result of measurement.**

Staff members

Name	Scientific degree	E-mail	specializations
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Institutions and entities benefiting from the laboratory

- **Faculty of medicine**
- **Faculty of pharmacy**
- **Faculty of science**
- **Food factories**