Research Lab Sheet

Lab Name	**Plant Physiology**
Academic Year	**2021/2022**

Basic Information	
Department	**Botany and Microbiology**
Location	**Sohag University, Faculty of Science, New building, Fourth fluor.**
Total area (m^2)	

Lab Members				
No. of Prof.	**No. of Ass. Prof.**	**No. of Lect.**	**No. of Ass. Lect. & Demonst.**	**No. of technicians**
3	**0**	**0**	**1**	**0**

Staff members					
	Name	**Scientific degree**	**e-mail**	**Specializations**	**C.V**
1	Khalaf Ali Fayez	Professor	khalaffayez@yahoo.com	Plant physiology	https://scholar.google.com.eg/citations?user=Yf8rPIIAAAAJ&hl=en
2	Fayza Ahmed Faheed	Professor	fayzafaheede@science.sohag.edu.eg	Plant physiology	
3	Deya El-Deen Radwan	Professor	Deya90@yahoo.com	Plant physiology	https://scholar.google.com.eg/citations?hl=en&user=uAFAfYoAAAAJ
Ass. Lecturers & Demonstrators					
	Name	**Scientific degree**	**e-mail**	**Specializations**	
1	Amany Edrees	BSc.		Plant physiology	

Theses produced by the Lab			
M Sc Thesis			
	Degree	**Title**	**Approval date**
1	MSc	Assessment of growth and physiological activities of pea and soybean plants due to application of derby and topik herbicides and role of antioxidant vitamins.	NA
2	MSc	Physiological, subcellular and molecular aspects of wheat due to herbicides treatments.	2001
3	MSc	Effect of organic, inorganic and bio fertilizers on growth yield and physiological activities of soybean crop	2009
4	MSc	Effects of basagran and fusilade herbicides on growth, physiological activities and metabolites of peanut plants and role of antioxidant compounds.	2010
5	MSc	Comparative effects of basagran and fusilade herbicides on growth, physiological activities and metabolites of clover and peanut plants and role of antioxidant compounds.	2010
6	MSc	Influence of cultivation date on growth and physiological activities of some wheat cultivars.	2016
Ph.D. Thesis			
1	Ph.D	Adaptive responses of olive leaves (Olea europaea L.) to cement dust pollution in east Tripoli, Libya.	2013
2	Ph.D	Changes in organization and metabolism of plant leaf cells associated with viral-infection and role of some compounds in the induction of plant systemic acquired resistance	2008

Articles produced by the Lab members

	Title
1	M. A. Shaddad, A. M. Ahmed and K. A. Fayez (1988) Alleviation of the Adverse Effects of Salinity by Nitrogen Fertilization. *Biologia Plantarum 30 (5): 343-350.*
2	Fayez, K. A. Gerken I., Kristen, U., (1994) Ultrastructure responses of root caps to herbicides chlorsulfuron and metsulfuron methyl. Plant and Soil 167:127-134.
3	K. A. Fayez and U. Kristen (1996). The influence of herbicides on the growth and proline content of primary roots and on the ultrastructure of roots caps. *Environmental and Experimental Botany 36: 71-81*
4	Hassanein, A. M.; Fayez, K. A. & Ahmed, A. M. (1998) Physiological studies on nuclear-organelles interaction of cybrid plants containing *Solanum nigrum* genome and *S. tuberosum* plastome. Phyton (Austria) 37: 167- 179.
5	El-Khatib, A. A., Fayez, K. A. & Hassanein, A. M. (1999) Adaptive responses of *Alhagi graecorum* under different habitat condition. Acta Agronomica Hungarica 47: 171-180.
6	K. A. Fayez (2000) Action of Photosynthetic diuron Herbicide on Cell Organelles and Biochemical Constituents of the leaves of Two Soybean cultivars. Pesticide Biochemistry and Physiology, 66: 105-115.
7	K. A. Fayez & A. M. Hassanein (2000) Chlorophyll synthesis retardation and ultrastructural alterations to *Solanum tuberosum* chloroplasts in *Solanum ingrum* cells. Photosynthetica 38 (1): 37-44.
8	K. A. Fayez (2000) response of physiological activities and cell ultrastructure of *lupinus termis* to saline water treatment. BULL. FAC. SCI. ASSUIT UNIV., 29(1-D), P-P. 271-283.
9	A. M. Hassanein and K. A. Fayez (2002) Effect of some tissue culture conditions on somatic embryogenesis of *Alhagi graecorum*. Bull. Fac. Sci., Assiut University 31(2-D), P-P 305-315.
10	K. A. Fayez, M. D.Radwam, A. Hamed (2003) Herbicides-induced alterations in leaf morphology and ultrastructure of mesophyll chloroplast of two wheat cultivars.. Bull. Fac. Sci., Assiut University 32(2-D), P-P 347-359.
11	K. A. Fayez (2004) Anatomy, Ultrastructure and Salt Secreting in the Leaf Salt Glands of *avicennia maria* (Forsk) Viere. Proc. 3rd Int. Conf. Biol. Sci. Fac. Sci. tanta Univ., 28- 29 april 2004 vol 3: 565-581.
12	D. M. Radwan, K. A. Fayez, S. Y. Mahmoud, A. Hamad, and G. Lu (2006) Salicylic acid alleviates growth inhibition and oxidative stress caused by zucchini yellow mosaic virus infection in *Cucurbita pepo* leaves. Physiological and Molecular Plant Pathology 69: 172–181.
13	D. M. Radwan, K. A. Fayez, S. Younis, A. Hamad and G. Lu. (2007) Physiological and metabolic changes of *Cucurbita pepo* leaves in response to Zucchini yellow mosaic virus (ZYMV) infection and salicylic acid treatments. Plant Physiology and Biochemistry 45: 480-489.
14	K. A. Fayez, Z. Abd-Elfattah (2007) Alteration in Growth and Physiological Activities in *Chlorella vulgaris* under the Effect of Photosynthetic Inhibitor Diuron International Journal of Agriculture & Biology. 9: 631–634.
15	D. M. Radwan, G. Lu, K. A. Fayez, S. Y. Mahmoud. (2008) Protective action of salicylic acid against bean yellow mosaic virus infection in *Vicia faba* leaves. Journal of Plant Physiology 165: 845–857.

16	K. A. Fayez, (2008) *Tamarix nilotica* exhibiting potential for phenolics production: the plant strategies for survival in saline and xeric soil stresses. Assiut University, Journal of Botany 37(1): 125-146.
17	D. M. Radwan, K. A. Fayez, S. Y. Mahmoud, A. Hamad and G. Lu (2010) Modifications of antioxidant activity and protein composition of bean leaf due to Bean yellow mosaic virus infection and salicylic acid treatments. Acta Physiol. Plant. 32:891–904.
18	K. A. Fayez, S. Y. Mahmoud (2011) Detection and partial characterization of a putative closterovirus affecting *Ficus carica*: molecular, ultrastructural and physiological aspects of infected leaves. Acta Physiol. Plant. 33: 2187-2198.
19	K .A. Fayez, A. K. Mohamed, D. M. Radwan, A M. Abdelrahman (2011) Herbicides and salicylic acid applications caused alterations in leaves total amino acids and proline contents of peanut cultivars. Journal of Environmental Studies [JES] 2011. 6:57-63.
20	Radwan, D.E.M., (2012) Salicylic acid induced alleviation of oxidative stress caused by clethodim in maize (Zea mays L.) leaves. Pesticide biochemistry and physiology. 102182-188.
21	Radwan, D.E.M. and Soltan D.M. The negative effects of clethodim in photosynthesis and gas exchange status of maize plants are ameliorated by salicylic acid pretreatment. Photosynthetica50 (2)2012 171-179.
22	Bahig El-Deep, K. A. Fayez, Youssuf Gherbawy (2013). Isolation and characterization of endophytic bacteria from *plectranthus tenuiflorus* medicinal plant in Saudi Arabia desert and their role as antimicrobial agents. Journal of Plant Interactions. 8: 56-64.
23	K.A. Fayez, DEM Radwan, AK Mohamed, AM Abdelrahman 2013. Alteration in protein contents and polypeptides of peanut plants due to herbicides and salicylic acid treatments. Journal of Environmental Studies [JES].11: 27-36.
24	Mazen, A.M., Radwan, D.E.M., Ahmed, A.F., 2013. Conditioning Effect of Different Absorbant Polymers on Physical and Chemical Properties of Sandy Soil. Journal of Functional and Environmental Botany 3(2), 82-93.
25	Sabry Y Mahmoud, H Zeidan El Sayed, K.A. Fayez, Rafat Shipat (2014) Occurrence of fig mosaic virus in Egypt. Journal of Agricultural Technology 10(2) 439-447.
26	Omran WM, Mansour MMF, Fayez, K.A. 2014. Magnetized water improved germination, growth and tolerance to salinity of cereal crops. International Journal of Advanced Research. 2 (5) 301-308.
27	K.A. Fayez, SA Bazaid (2014) Improving drought and salinity tolerance in barley by application of salicylic acid and potassium nitrate. Journal of the Saudi Society of Agricultural Science. 13:45-55.
28	K.A. Fayez, DEM. Radwan, A K Mohamed, and A M. Abdelrahman (2014) Fusilade herbicide causes alterations in chloroplast ultrastructure, pigment content and physiological activities of peanut leaves. Photosynthetica. 52 (4): 548-554.
29	Mohammad Salem Al-harbi, Munir Mustafa Al-Bashan and Khalaf Ali FAYEZ. (2014). Impacts of Feeding with *Lupinus albus* (White Lupin) and *Lupinus termis* (Egyptian Lupin) on Physiological Activities and Histological Structures of Some Rabbits' Organs, at Taif Governorate. World Journal of Zoology. 9 (3): 166-177.
30	Radwan, D.E.M. and Gaafar, A.E.S. (2015) Alleviation of Zinc Toxicity Consequences on Trigonella foenum-graecum

	Seedlings using Ammonium Sulphate. Journal of Functional and Environmental Botany 5, 11-23.
31	Alalehyany, K. S.; Darwesh, H. Y. and Fayez, K. A. (2016).Antimicrobial activity of *Origanum vulgare* and *Rosmarinus officinalis* callus extract on Gram (+) and (-) bacteria. Faculty of Science, Taif University, Saudi Arabia.
32	DEM Radwan and K.A. Fayez (2016).Photosynthesis, antioxidant status and gas-exchange are altered by glyphosate application in peanut leaves. Photosynthetica 54 (2): 307-316.
33	K .A. Fayez,Y. M. Al-Sodany and Al. Abouzaid (2016). Impact of greenhouse environmental factors and fungicide trinol (triadimend) treatment on berry leaves infected with powdery mildew (*Uncinula necator* (Schwein.) Burrill: Role of host antioxidant systems against pathogen infection. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 7 (5): 3058- 3071
34	O.M. El-Maghraby, K. A, Fayez, F. A-M. Abdo and H. M. Sabra (2016).Effect of sowing date on yield and yield components of bread wheat cultivars under environmental conditions of Sohag region. Has been accepted, Journal of Environmental Studies [JES].
35	Radwan D.E.M., Essa A. M. M. and Awad M. N. 2016 Bacterial Detoxification of Copper and its Impacts on Germination Indices of Barley and Mung Bean. Egyptian Journal of Botany, 56 (3) 817-835
36	K. A. Fayez (2017) Action of cadmium toxicity on growth, physiological activities and subcellular components of watercress (Eruca sativa L.) plant: The protective role of salicylic acid., Research Journal of Pharmaceutical, Biological and Chemical Sciences. 8(2): 1853-1865
37	K. A. Fayez, B. A. El-Deeb and N. Y. Mostafa (2017) Toxicity of biosynthetic silver nanoparticles on the growth, cell ultrastructure and physiological activities of barley plant. Acta Physiologia Plantarum. 39: 155.
38	K. A. Fayez, E. F. Ali (2017) Impact of Glyphosate Herbicide and Salicylic Acid on Seed Germination, Cell Structure and Physiological Activities of Faba Bean (*Vicia faba* L.) plant. Annual Research & Review in Biology. 17(4): 1-15, Article no.ARRB.36097.
39	Radwan D.E.M., Essa A.M. and Soltan D. M. 2017 Antioxidant and antimicrobial activities of the methanolic extracts of some edible seed spices. Journal of Environmental Studies. 2017. 17: 11-23
40	K.H. Alamer, K.A, Fayez (2020) Impact of salicylic acid on the growth and physiological activities of parsley plants under lead toxicity. Physiology and Molecular Biology of Plants 26 (7), 1361-1373.
41	Radwan D.E.M., Khatib Sayeed Ismail 2020. The Impact of Hydrogen Peroxide against Cucumber Green Mottle Mosaic Virus Infection in Watermelon Plants. Pol. J. Environ. Stud. Vol. 29, No. 5 (2020), 1-12
42	Radwan D.E.M. Ahmed E. El-shabasy 2020, Comparative Analysis of Five Heliotropium species in Phenotypic Correlations, Biochemical Constituents and Antioxidant Properties. CATRINA (2020), 21(1): 1-8.
43	Radwan D. E. M., A. Essa, S. Ghozwany, K. Hamzy and M. Hefzy 2020. Bioactive Compounds, Antioxidant and Antimicrobial Properties of Wild Plants Seed Extracts Used in Traditional Medicine. Research Journal of Medicinal Plants.14: 15-23.
44	K. A. Fayez (2000) Effect of salt shock and recovery on some mineral contents and organic osmolytes of *Lupinus*

	termis. X[th] International Colloquium for the Optimization of plant Nutrition, April 8-13, 2000. Cairo, Egypt.
45	K.A. Fayez, SA Bazaid. *Syngonium podophyllum* ornamental plant resistance to action of photosynthetic herbicide inhibitors: Ultrastructural and physiological alterations in leaves exposed to higher doses. The 24th Meeting of Saudi Biological Society, Biotechnology: Reality and Application, Madinah Almunawwarah, at Taibah University 14- 12 Rabia Althani, 1430 H (7-9 April, 2009)
46	K.A. Fayez, (2011) Changes in cell ultrastructure and metabolic activities of leaves in Datura plants due to herbicide treatments. The 26th Meeting of Saudi Biological Society, climatic change and biodiversity, 7-9 Jamada 2, 1432H (10-12 May 2011).
47	K.A. Fayez, S.A .Bazaid. MA Al-Sharif (2014) Alterations in the morphology, photosynthetic pigments and leaf cell ultrastructure of cucumber leaves exposed to linuron herbicide, ascorbic acid and salicylic acid"The 29th annual meeting of the Saudi Biological Society which will be held in Dammam, Saudi Arabia on February 25- 27, 2014.
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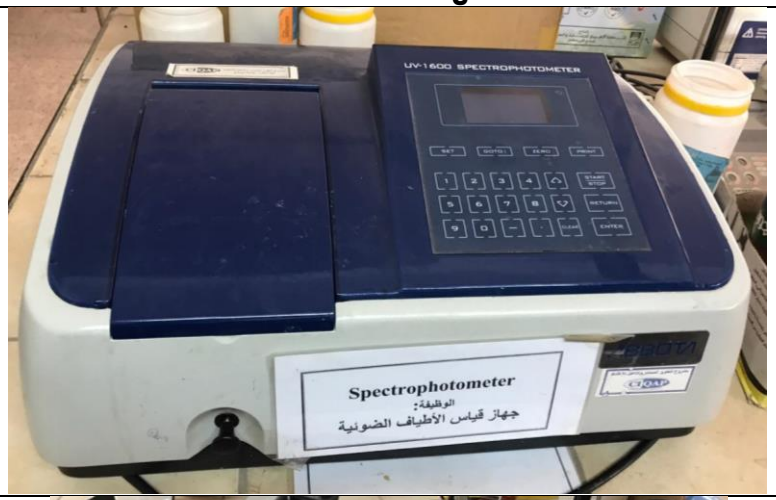
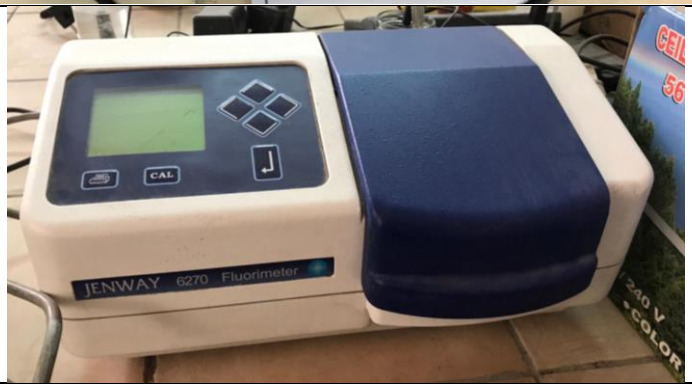
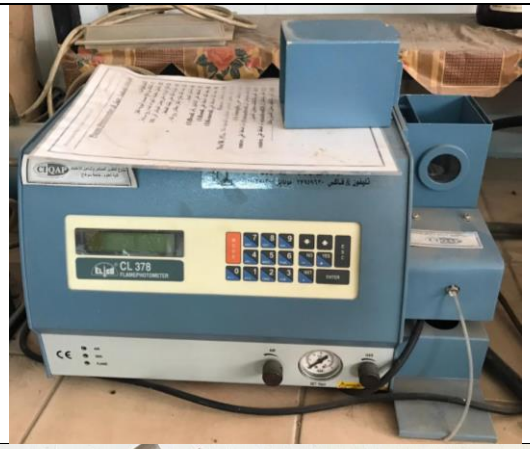
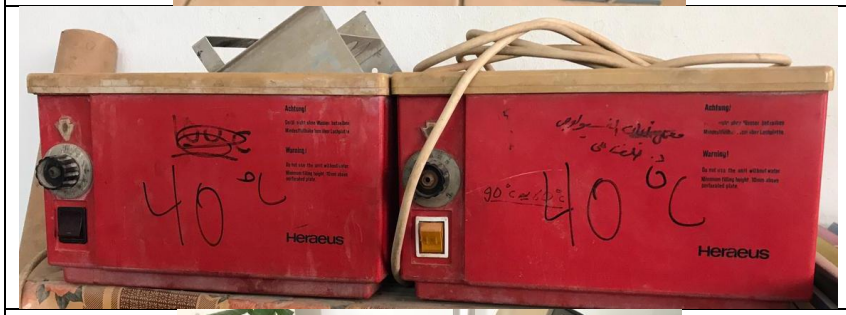
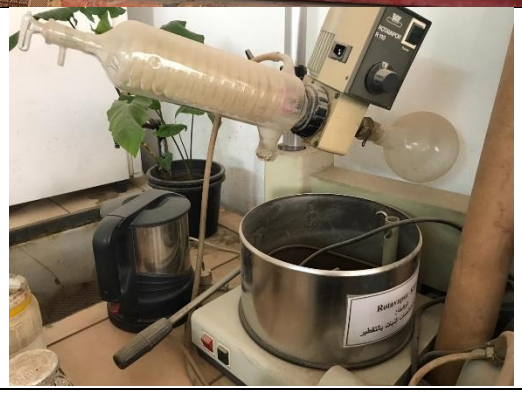
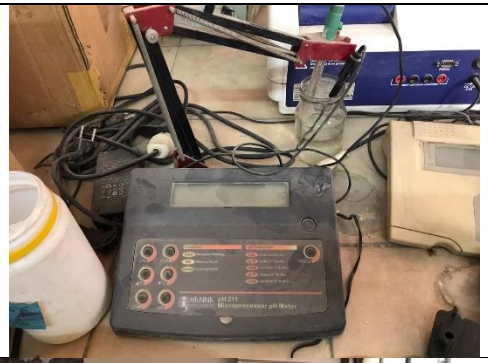
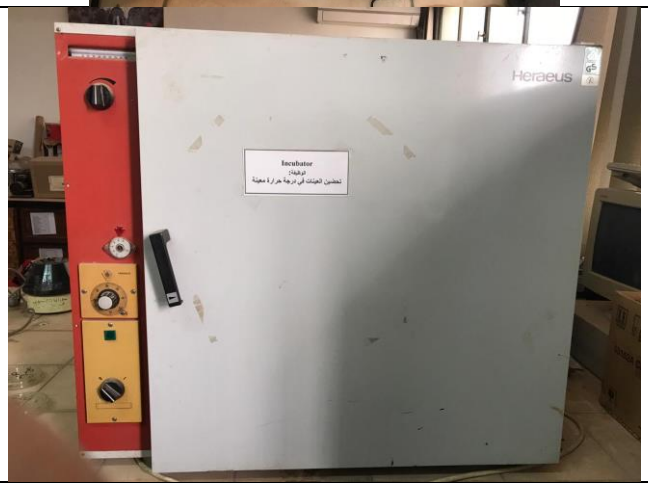
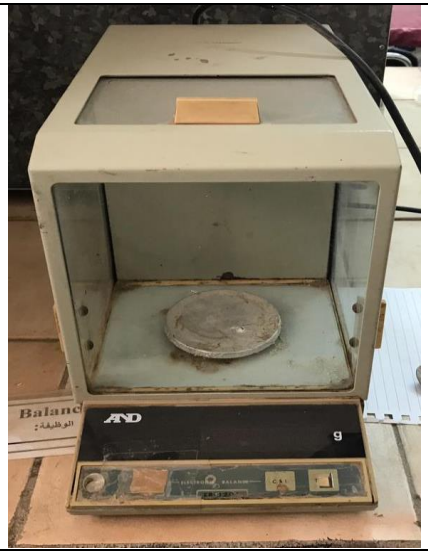
Lab instruments						
	Device	**quantity**	**Quality**			
			Good	**Poor**	**Need maintenance**	**malfunction**
1	**Spectrophotometer**	**1**	√			

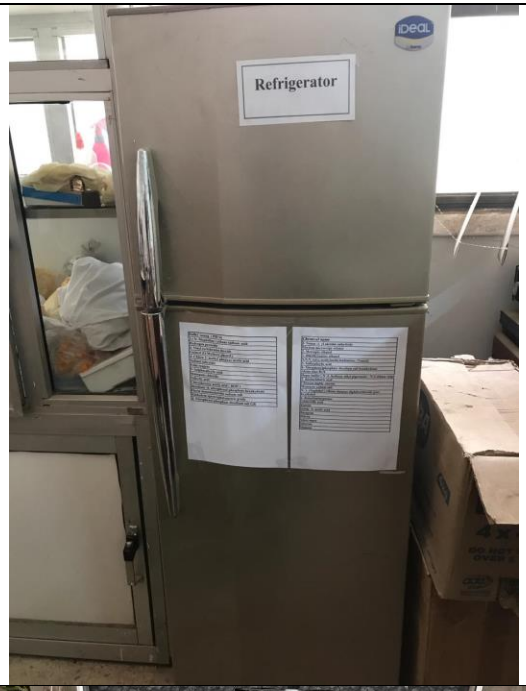
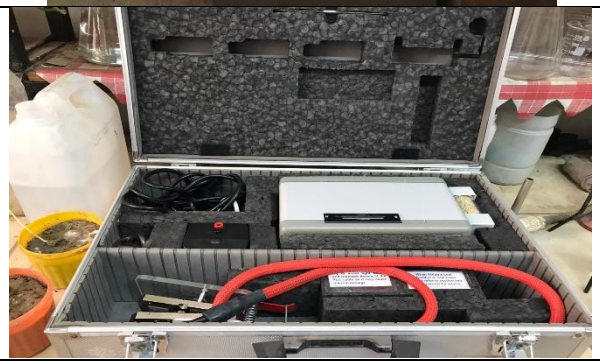
2	Fluorimeter	1	√			
3	Flame photometer	1	√			
4	Water bath	4	√			
5	Rota evaporator	1			√	
6	pH meter	1			√	
7	Incubator	1	√			
8	Electronic balance	1	√			
9	Refrigerator	2	√			
10	Centrifuge	1	√			
11	Photosynthesis meter	1	√			

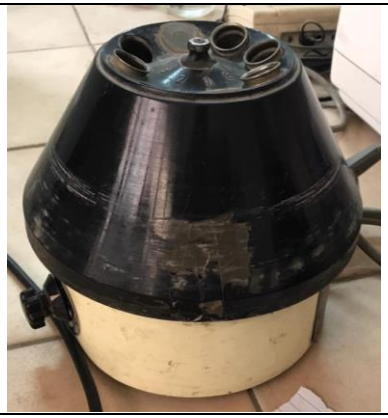
Instruments Description	
Device image	**Description /use**
	**Spectrophotometer** is used to measure the intensity of a light beam at different wavelengths.
	A **fluorometer** or **fluorimeter** is a device used to measure parameters of visible spectrum fluorescence

	**flame photometer** is used to determine the concentration of certain metal ions.
	**Water bath** is used to incubate samples at a constant temperature over a long period of time
	A **rotary evaporator** is a device used for the efficient and gentle removal of solvents from samples by evaporation.

	A **pH meter** is an instrument used to measure hydrogen ion activity in solutions
	**Incubator** is used to grow plant seeds in controlled conditions (e.g. temperature, humidity, light, …).

	**Electronic balance** is used in the accurate measurement of weight of materials.

	The **refrigerator** is used to maintain samples, in a controlled environment, various fluids and substances, so that they are kept in good condition the lower the temperature, the lower chemical and biological activity.
	A **photosynthetic system** was used to measure CO_2 assimilation rate (A), stomatal conductance (gs), transpiration rate (E), and internal CO2 concentration/ambient CO_2 ratio (Ci/Ca).

	A **centrifuge** is a device that uses centrifugal force to separate various components of a fluid.

Evaluate the

fulfillment of lab to appropriateness of areas, building installations, facilities and human resources standards

Areas of assessment		Indicators	Yes	Somewhat	No
Floor area and capacity	1	Adequacy of the total capacity of the lab for the number of researcher (1).	√		
Windows and doors	2	Availability of windows for adequate ventilations.	√		
	3	Ease of use of windows.	√		
	4	There are two exits (doors) at least (2).			√
	5	There are signs to locate directions of emergency exits		√	
Equipment	6	Appropriate temperature during the lectures (3).	√		
	7	Availability of good ventilation (4).	√		
	8	The existence of adequate lighting (4).	√		
	9	Lab is connected to the Internet	√		
	10	The existence of directions inside the Lab showing entrances and emergency exits.			√
Security and Safety	11	Existence of firefighting equipment near the hall (5).	√		
	12	Cleanliness of the room.	√		