

Research Lab Sheet

Lab Name	Plant tissue culture (Central laboratory of the genetic engineering)
Academic Year	2021-2022

Basic Information	
Department	Botany and microbiology
Location	Fourth floor
Total area (m²)	57 m²

Lab Members				
No. of Prof.	No. of Ass. Prof.	No. of Lect.	No. of Ass. Lect. & Demonstr.	No. of lab specialist
1	1	0	0	1

Staff members					
#	Name	Scientific degree	e-mail	Specializations	C.V
1	Ahmed Mohamed Hassanein	Prof.	hassaneinam@yahoo.com	Plant Biotechnology	Link of homepage
2	Jehan Mohamed Salem	Ass. prof		Plant Biotechnology	

Theses produced by the Lab		
M. Sc Thesis		
#	Title	Approval date
1	Molecular studies on organogenesis of cultured <i>Solanum nigrum</i> cells and tissues under the influence of different culture condition.	2000
2	Peroxidase expression under the influence of stress conditions.	2010
3	Evaluation of fresh water in Sohag governorate.	2013
4	Jojoba propagation under Egyptian conditions.	2014
5	Determination of chemical and physical conditions stimulated organogenesis on cultured explant of moringa tree.	2018
6	Cytogenetic studies and chromosome abbreviation as influenced by aluminum stress.	2018
7	Molecular and physiological studies on several cultivars of beans.	2019
8	Growth and genome stability of three medicinal plants as influenced by different in vitro culture conditions(Master thesis under preparation	
PhD Thesis		
1	Genetic engineering of maize and sorghum for salt and drought tolerance.	2002
2	Molecular studies on induction of genetic variation under the influence of in vitro-long term culture.	2007
3	Micro-propagation factors essential for mass production of synthetic seeds in banana	2009
4	Factors affecting seed germination and in vitro shoot multiplication of jojoba (<i>Simmondsia chinensis</i>)	2016

Articles produced by the Lab	
	Title
1	Hassanein, A. M. & Soltan D. M. 2000: <i>Solanum nigrum</i> is a model plant in tissue and protoplast culture. <i>Biologia plantarum</i> 43: 501- 509.



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2	Hassanein, A. M.; Ahmed, A. M. & Soltan D. M. 2000: The interaction between phytohormones and salinity on organogenesis of <i>Solanum nigrum</i> . Xth International Colloquium for Optimization of Plant Nutrition. Cairo, Egypt.
3	Hassanein A. M., Hamad Ahmed, Abed-Elmaksood Ibrahiem , Galal Abed-Elnaser, Soltan Dia El-Deen, Salem Jehan. 2007. Some necessary aspects during mass in vitro multiplication to produce artificial seeds in banana and sorghum. 19th IPGSA meeting, Puerto Vallarta, Mexico.
4	Hassanein A. M., Ahmed A.M., Soltan D. M. 2008a. Study of somaclonal variation and gene expression as influenced by long term culture in sorghum. Current Opinion In Biotechnology 4: 13- 20.
5	Hassanein A. M., Ahmed A.M., Soltan D. M. 2009c. Effect of storage conditions on conservation of storage shoot tips in calcium alginate beads. Journal of Environmental Studies 1: 1-7.
6	Hassanein A. M. Galal A., Saad G. K. 2010. Shoot culture as plant material to study gene expression under the influence of different regeneration pathways and stress conditions in <i>Lycopersicon esculentum</i> Mill. Journal of Environmental Studies 4: 23-34.
7	Hassanein A. M., Ibrahim A. I., Galal1 A., Salem A. 2011. Conversion of Banana Synseed Influenced by the Bead Type and Seed Coat. American Journal of Plant Sciences, 2, 467-475.
8	Hassanein A.M., Galal El-Sherbeeney, Abdel Saboor G, Dia Eldeen M. Soltan, Ghada Saad, Gameel Gaboor, 2012a. Germination of jojoba (<i>Simmondsia chinensis</i> L) seeds under the influence of several conditions. Journal of Environmental Studies, 8:10-16.
9	Hassanein A. M., Galal1 A., Saad G. 2012b. Effect of NaCl and mannitol on protein and esterase expression of <i>Simmondsia chinensis</i> L. 2 nd International Conference on Advanced basic and Applied sciences ABAS Bani suif University, Egypt.



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10	Salem Jehan and Hassanein A M. 2013. Hormonal requirements trigger different organogenic pathways on tomato nodal explants. American Journal of Plant Science. 4, 2118-2125, 2013.
11	Hassanein A. M. 2014. Plant Biotechnology in Egypt: Techniques and Application. In The First International Workshop on Nanotechnology from Lab to Industry. South Valley University, 1-3 Sept., 2014.
12	Khalid A. A. Abdel Rahim, Ahmed M. Hassanein, Heikal A Abd El Aziez. 2015a. Prevalence, plasmid and antibiotic resistance correlation of enteric bacteria in different drinking water resources in Sohag- Egypt. Jundishapur J. of Microbiology. 2015, 8 (1):e 18648. DOI: 10. 5812/jim. 18648.
13	Hassanein A. M., Galal Risk El-Sherbeeney, Abdel-Sabour Gamal Kalid, Gameel Mohamadeen Gaboor1. 2015. Seed propagation increases genetic variation and micropropagation to multiply selected shrub with desirable characters. Journal of International Scientific Publications, 3: 325-339.
14	Hassanein A. M.; Galal D.M.; Soltan D. M.; Saad G.K. 2015. Effect of medium strength and activated charcoal on in vitro shoot multiplication and growth of jojoba. Journal of Environmental Studies 14: 81-90.
15	Hassanein A.M., Salem J. M., Galal A. A, Soltan D.M., Saad G. K. (2016). Improvement of in vitro propagation of jojoba by low concentrations of NaCl or mannitol. Assiut University Journal of Botany, 45(1): 1-22.
16	Hassanein A. M. and Salem J. M. (2017). Rise potassium content of the medium improved survival, multiplication, growth and scavenging system of in vitro grown potato under salt stress. Egyptian Journal of Botany. DOI: 10.21608/EJBO.2017.642.1030.
17	Salem J.M. and Hassanein A.M. (2017). In vitro propagation, microtuberization, and molecular characterization of three potato cultivars. Biologia Plantarum. 61(3): 427- 437.
18	Salem J. M., Hassanein1 A. M., Faheed F. A., El-nagish A.A. (2018). Shoot regeneration and isoenzyme expression of <i>Moringa oleifera</i> under the influence of salt stress. Phytion (Horn, Austria) 57 (1–2): 69–78.



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	DOI: 10.12905/0380.phyton57-2018-0069.
19	Hassanein A. M., Salem J. M., F.A. Faheed; El-nagish A. A. (2018). Effect of anti-ethylene compounds on isoenzyme patterns and genome stability during long term culture of <i>Moringa oliefera</i> . Plant Cell Tiss Organ Cult. 132:201–212.
20	Hassanein A. M.; Fayza A. Faheed F. A., Salem J. M. and El-nagish A. A. (2018). Gene expression and adventitious root formation on auxin containing medium as influenced by cytokinin type during multiplication stage in moringa. – Phytion, Annales Rei Botanicae, Horn – 58_2: 175 - 184.
21	Hassanein A. M. ; Fayza A. Faheed F. A., Salem J. M. and El-nagish A. A. (2019). Some important aspects in moringa micropropagation. Acta agriculturae Slovenica; 113(1): 13 – 27. doi:10.14720/aas.2019.113.1.02
22	Hssanein A. M., Azoz M. M., Mohamed A. H., Salem J. M., Loutfy N., Zaki H., Hassan R. A., Soltan, D. M., El-nagish A. A., Aba alla H. A., Basiony A. (2019). Molecular analysis to determine natural and induced genetic variation in different plant species. 9th international conference of plant and microbial biotechnology. Sohag University, Sohag, Egypt.
23	Hassanein A. M. , Jehan M. Salem1, Rania A. Hassan2 & Dia M. Soltan 2020. Morpho-molecular characterization and differential totipotency of three Solanum taxa. – Phytion (Horn, Austria) 60: 145–159.
24	HassaneinA. M., Hoida Zaki, Ahmed H. Mohamed, Heba Ahmed Abd Allah. 2020. Seed germination, seedling growth, protein expression and chromosomal abnormalities in relation to aluminum tolerance of faba bean (<i>Vicia faba</i>) cultivars. – Phytion (Horn, Austria) 60: 49–60
25	Hassanein A. M., Hoida Zaki, Ahmed H. Mohamed, Heba Ahmed Abd Allah. 2020. Cytological and molecular studies on two faba bean cultivars differ in their aluminum tolerance to assess its effect on their genomes. Acta agriculturae Slovenica, 116/2, doi:10.14720/aas.2020.116.2.1346



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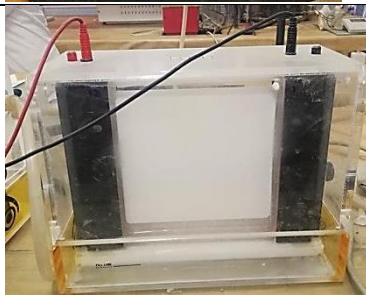
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Salem J. M., Soltan D. M. and Hassanein A. M. (2021). Study of antioxidant enzymes associated with different abiotic stresses during seed germination of four Sorghum cultivars and their genetic relationship using RAPD and ISSR. *Phyton*: 60: 145-159.

Lab instruments						
#	Device	quantity	Quality			
			Good	Poor	Need maintenance	malfunction
1	autoclave 20 l	1	✓			
2	autoclave MC-40	1	✓			
3	microwave oven	1	✓			
4	pH meter AD1030	1	✓			
5	Sentthetic balance	1	✓			
6	Light incubator	2		✓		
7	Ice maker	1		✓		
8	Dry oven	1	✓			
9	Laminar flow model 914	1	✓			
10	Flourecent lighter	1	✓			
11	UV lighter	2	✓			
12	Power point	1	✓			
13	Electrophoreses	2	✓			
14	Colora	1		✓		
15	Refregerator	1	✓			
16	Deep frezer	1	✓			
17	Computer	2	✓			
18	Thermal unite	1	✓			
19	Microscobe	2	✓			
20	Printer	2	✓			
21	Water purification system	1		✓		

Instruments Description		
Device name	Device image	Description /use
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

Computer		Through software we can: • Enhance image resolutions. • Analyzing specimen images. • Make statistical analyses. • Write & read scientific articles. • analysis electrophoreses and PCR PAGE
Thermal unite		DNA replication
Deep freezer		Preservation of electrophoresis and PCR chemicals
Microscope		Examination of the different parts of the plant samples

printer		Printing lab paper
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Evaluate the fulfillment of lab to appropriateness of areas, building installations, facilities and human resources standards

Areas of assessment		Indicators	Yes	Somewh at	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.	✓		

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Security and Safety	11	Existence of firefighting equipment near the hall (5).	✓		
	12	Cleanliness of the room.	✓		