CURRICULUM VITAE

1. Basic Information

Full Name in Arabic:	**Full name in English:**
محمود مختار عبد القادر مصطفي	**Mahmoud Mokhtar Abd El Kader Moustafa**
Date of Birth:	22-01-1978
National ID	Egyptian

Last University Degree	Faculty, University, Country	Graduation Date
Ph. D. Genetic studies on salt- tolerant Bacteria	Faculty of Agriculture, Benha University, Egypt	2011

Position: Professor

Field of specialization:
Molecular Cell Biology, Plant biotechnology, Molecular Genetics Bioinformatics

Affiliation:
Genetics and Genetic engineering Dept.,
Faculty of Agriculture, 13736, Benha University, Egypt.

Contact Information: **Mobile Phone: 00201208448003** **E. mail:** Mahmoud.mustafa@fagr.bu.edu.eg

h index (SCOPUS only)	Citations (SCOPUS only)	Total no. of Int. publications in SCOPUS
15	**539**	**33**
h index (Google scholar)	Citations (Google scholar)	Total no. of Int. publications in Google scholar
16	**720**	**50**
ResearchGate score	ResearchGate Citations	Total no. of Int. publications in ResearchGate
16	**615**	**50**

Skills

- Advanced Molecular genetics and cell biology in animals
- Palm tissue culture and Nucleic acids extractions manual or Kits
- Biotic and Abiotic stress, Drought, Salt tolerance, Heat stress, Climate changes in Plants.
- Marker assisted selection applications and DNA markers DArT, CAPS, SSR, ISSR, AFLP, RAIP, SNP, SCAR, EST, Scot etc…
- Antioxidants
- Herbal medicine in focusing molecular pathways
- Nutrition Genetics
- Diabetes and Ornamental medicine
- Pathogen-host relationships
- Bioremediation
- Teaching Biology and Biochemistry
- Labs accreditation's
- Labs management
- PCR applications
- Real-time PCR applications
- ELISA applications
- Next generation sequencing applications
- High quality training methods for trainee in field of Biotechnology

- Linux, Ubuntu 24.04 lts system
- Molecular modeling (single and multi- docking) with different free software and online tools
- RNASeq NGS data analysis
- Basic and advanced different bioinformatics tools & software
- Microbiome data analysis
- Molecular dynamics simulation
- Quantitative structure-stability relationships (QSSR)
- Whole genome sequencing analysis for small genome sizes
- English very good listening, writing, reading and speaking

Publications	
1	Amin, Safia Ahmed, Mohamed EA Dawood, Mohamed Mahmoud, Dina M. Bassiouny, **Mahmoud MA Moustafa**, and Khalid Abd El Ghany. "Innovative synthesis and molecular modeling of actinomycetes-derived silver nanoparticles for biomedical applications." *Microbial Pathogenesis* 196 (2024): 106990.
2	Al Saihati, Hajer A., Arigue A. Dessouky, Rabab F. Salim, Islam Elgohary, Mohamed El-Sherbiny, Fares EM Ali, **Mahmoud MA Moustafa** et al. "MSC–extracellular vesicle microRNAs target host cell-entry receptors in COVID-19: in silico modeling for in vivo validation." *Stem cell research & therapy* 15, no. 1 (2024): 316.
3	Al-Malki, Esam S., Omar A. Ahmed-Farid, **Mahmoud MA Moustafa**, Shimaa A. Haredy, Omnia A. Badr, Nesreen Nabil Omar, Robert J. Linhardt, and Mohamad Warda. "A combined administration of GABA agonist and L-histidine synergistically alleviates obesity-induced neuro-lipotoxicity and distorted metabolic transcriptome." *Scientific African* 24 (2024): e02177.
4	Ayyat, Mohamed S., Usama M. Abd El-Monem, **Mahmoud MA Moustafa**, Adham A. Al-Sagheer, Mohamed D. Mahran, and Mahmoud M. El-Attrouny. "Genetic assessment of litter size, body weight, carcass traits and gene expression profiles in exotic and indigenous rabbit breeds: a study on New Zealand White, Californian, and Gabali rabbits in Egypt." *Tropical Animal Health and Production* 56, no. 7 (2024): 244.
5	El-Garhy, H.A.S.; Abdel-Rahman, F.A.; Shams, A.S.; Osman, G.H.; **Moustafa, M.M.A.** Comparative Analyses of Four Chemicals Used to Control Black Mold Disease in Tomato and Its Effects on Defense Signaling Pathways, Productivity and Quality Traits. Plants 2020, 9, 808. https://doi.org/10.3390/plants9070808, Impact factor: 2.762
6	Omnia A.M.Badr, Ibrahim I.S.EL-Shawaf, Hoda A.S.El-Garhy, **Mahmoud M.A.Moustafa** and Omar A.Ahmed-Farid (2019). Antioxidant activity and phycoremediation ability of four cyanobacterial isolates obtained from a stressed aquatic system. Molecular Phylogenetics and Evolution, 134: 300- 310. https://doi.org/10.1016/j.ympev.2019.01.018. Impact factor: 4.4
7	Hoda A.S.El-Garhy, SalahKhattab, **Mahmoud M.A.Moustafa**, Rania Abou Ali, Ahmed Z. Abdel Azeiz , Abeer El halwagi and Fadia El Sherif. Silybin content and overexpression of chalcone synthase genes in Silybum marianum L. plants under abiotic elicitation. Plant Physiology and Biochemistry, Volume 108, November 2016, Pages 191-202, https://doi.org/10.1016/j.plaphy.2016.07.011 Impact factor: 3.404
8	Hoda A.S. El-Garhy, Ismail A.S. Rashid, Rania M. Abou-Ali and **Mahmoud M.A.**

	Moustafaa. Field application of safe chemical elicitors induced the expression of some resistance genes against grey mold and cottony rot diseases during snap bean pods storage. https://doi.org/10.1016/j.gene.2015.10.048 , Impact factor 2.638
9	Omnia A.M.Badr, Ibrahim I.S.EL-Shawaf, Hoda A.S.El-Garhy, **Mahmoud M.A.Moustafa**. Isolation and molecular identification of two novel cyanobacterial isolates obtained from a stressed aquatic system. Gene reports, https://doi.org/10.1016/j.genrep.2018.09.005 cite score: 0.6.
10	Reham N. Abdel Azim, M. M. M. 1Bekhit, M. Hasan Refaat, F. A. **Moustafa, M. M. A.** and El- ramah (2016). Effect of salinity and the genetic variation on olive cultivars grown in Sinai based on ISSR, Isozyme and protein markers., 3rd International Conference on Biotechnology Applications in Agriculture (ICBAA), Benha University, Moshtohor and Sharm El-Sheikh, 5-9 April 2016 , Egypt, Volume2, Issue, special issues, Pages 1-11, Publisher, Annals of Agric. Science, Moshtohor ISSN: 0419-1110.
11	Sedhom, S.A., El-Badawy, M.E.M., Hosary, A.A.E., Abd El-Latif, M.S., Rady, A.M., **Moustafa, M.M.**, Mohamed, S.A., Badr, O.A., Abo-Marzoka, S.A., Baiumy, K.A. and El-Nahas, M.M., 2021. Molecular markers and GGE biplot analysis for selecting higher-yield and drought-tolerant maize hybrids. *Agronomy Journal*, *113*(5), pp.3871-3885.
12	Khalifa, K.A., Ibrahim, S.D., El-Garhy, H.A., **Moustafa, M.M.,** Maalouf, F., Alsamman, A.M., Hamwieh, A. and El Allali, A., 2021. Developing a new genic SSR primer database in faba bean (Vicia faba L.). *Journal of Applied Genetics*, *62*, pp.373-387.
13	AlGeffari, M.A., Mansour, D., Ahmed-Farid, O., Mohamed Yousef, E., Mohamed, S.A., **Moustafa, M.M.,** Barakat, H. and Abd El Ghany, K., 2023. Lactiplantibacillus plantarum and Saussurea costus as Therapeutic Agents against a Diabetic Rat Model—Approaches to Investigate Pharmacophore Modeling of Human IkB Kinase and Molecular Interaction with Dehydrocostus Lactone of Saussurea costus. Metabolites, 13(6), p.764.
14	Aljutaily, T.; Barakat, H.; **Moustafa, M.M.A**.; Rehan, M. Incorporation of Sukkari Date in Probiotic-Enriched Fermented Camel Milk Improves the Nutritional, Physicochemical, and Organoleptical Characteristics. Fermentation 2022, 8, 5. https://doi.org/10.3390/fermentation8010005 IF: 5.123 Q2
15	Aljutaily, T.; Rehan, M.; **Moustafa, M.M.A**.; Barakat, H. Effect of Intermittent Fasting, Probiotic-Fermented Camel Milk, and Probiotic-Fermented Camel Milk Incorporating Sukkari Date on Diet-Induced Obesity in Rats. Fermentation 2022, 8, 619. https://doi.org/10.3390/fermentation8110619 IF: 5.123 Q2
16	Asmaa Elsawaf; Hoda A. S. El-Garhy; **Mahmoud M. A. Moustafa*** and Makhlouf Bekhit, 2022. Molecular, Morphophysiological, Multidrug Resistance and Ultrastructural Analysis of Emerging Bacteria In Drinking Water. Annals of Agricultural Science, Moshtohor, 60(1), pp.95-112.
17	Mahmoud, S.Y., Atallah, A.A., Badr, O.A., **Moustafa, M.M**., Esmael, A., Ebrahim, N.,Aljeldah, M., Al Shammari, B., Alsafari, I.A. and Mohamed, S.A., 2022. Bioprospecting for Novel Probiotic Strains from Human Milk and Infants: Molecular, Biochemical, and Ultrastructural Evidence. Biology, 11(10), p.1405. impact factor: 5.166
18	Esmael, Ahmed and Azab, Ehab and Gobouri, Adil A. and Nasr-Eldin, Mohamed A. and **Moustafa, Mahmoud M. A.** and Mohamed, Shereen A. and Badr, Omnia A. M. and Abdelatty, Alzahraa M

	(2021). Isolation and Characterization of Two Lytic Bacteriophages Infecting a Multi-Drug Resistant Salmonella Typhimurium and Their Efficacy to Combat Salmonellosis in Ready-to-Use Foods, Microorganisms, 9(2) 423; https://doi.org/10.3390/microorganisms9020423. Impact factor: 4.152
19	Mohamed S. Hassaan, Eman Y. Mohammady, Mohamed R. Soaudy, Mohamed A. Elashry, **Mahmoud M.A. Moustafa**, Mai A. Wassel, Hoda A.S. El-Garhy, Ehab R. El-Haroun, Hosam E. Elsaied (2021). Synergistic effects of Bacillus pumilus and exogenous protease on Nile tilapia (Oreochromis niloticus) growth, gut microbes, immune response and gene expression fed plant protein diet, Animal Feed Science and Technology, 275, 114892., https://doi.org/10.1016/j.anifeedsci.2021.114892. Impact factor: 2.582
20	Mahmoud M. El-Attrouny Mahmoud M. Iraqi, Islam I. Sabike, Alzahraa M. Abdelatty **Mahmoud M. Moustafa**, Omnia A. Badr (2020). Comparative evaluation of growth performance, carcass characteristics and timed series gene expression profile of GH and IGF- 1 in two Egyptian indigenous chicken breeds versus Rhode Island Red. Impact factor:1.822 https://doi.org/10.1111/jbg.12517
21	Sabry Mohamed El-Bahr, Saad Shousha, Ibrahim Albokhadaim, Ahmed Shehab, Wassem Khattab, Omar Ahmed-Farid, Osama El-Garhy, Abdelrahman Abdelgawad, Mehrez El-Naggar, **Mahmoud Moustafa**, Omnia Badr & Mohammad Shathele. Impact of dietary zinc oxide nanoparticles on selected serum biomarkers, lipid peroxidation and tissue gene expression of antioxidant enzymes and cytokines in Japanese quail. BMC Vet Res 16, 349 (2020). Impact factor: 2.179. https://doi.org/10.1186/s12917-020-02482-5
22	Samah Mohamed Abd El-Gawad, **Mahmoud M. A. Moustafa**, Nagwa Eid Ahmed, Lubna Mohamed Al–Akabway and Mohamed Yousef Ramadan (2017). Serological and PCR- sequencing assays for diagnosis of oxoplasma gondii and Neospora caninum infecting camels in Egypt, Benha Veterinary Medical Journal,33(2): 200-210.
23	Omar Ahmed, Reda Salem, Hoda El-Garhy and Mahmoud **M. A. Moustafa** (2019). Establishment and Optimization of Expression Synthetic Gene Using Recombinant 1B Capsid Protein of FMDV, DOI:10.21608/assjm.2019.44300.
24	Halla El Bahagy and **Mahmoud M. A. Moustafa** (2018). ELISA, RT-PCR, semi- quantitative RT- PCR and sequencing methods for investigating an epidemic FMD virus serotype O outbreaks, African Journal of Biotechnology, DOI:10.5897/AJB2018.16457.
25	Afaf. AbdEl Megid, Mohammad E. Abd Al Fatah, Amel El Asely, Yakout El Senosi, **Mahmoud M. A. Moustafa** and Mahmoud A.O.Dawood (2019). Impact of pyrethroids and organochlorine pesticides residue on IGF-1 and CYP1A genes expression and muscle protein patterns of cultured Mugil capito. https://doi.org/10.1016/j.ecoenv.2019.109876. Impact factor 4.527
26	Massimo Bionaz, A.M. Abdelatty, Shereen A. Mohamed, **Mahmoud M. A. Moustafa**, Asmaa K. Al-Mokaddem, M. R. Baker, Ahmed A. Elolimy, Shawky A. Elmedany, Shaymaa Hussein, Omar A. A. Farid, Osama G. Sakr, Mohamed A. Elhady. Nutrigenomic effect of conjugated linoleic acid on growth and meat quality indices of growing rabbit. PLoS One. 2019; 14(10):e0222404. https://dx.doi.org/10.1371%2Fjournal.pone.0222404, impact factor: 2.776
27	Mohamed S.Hassaan, Eman Y. Mohammady, Mohamed R.Soaudy, Hoda A.S.El- Garhy, **Mahmoud M.A.Moustafa**, Shereen A.Mohamed, Ehab R.El-Haroun (2019). Effect of Silybum

	marianum seeds as a feed additive on growth performance, serum biochemical indices, antioxidant status, and gene expression of Nile tilapia, Oreochromis niloticus (L.) fingerlings. Aquaculture, Volume 509, 15 July 2019, Pages 178-187, https://doi.org/10.1016/j.aquaculture.2019.05.006 impact factor: 2.7
28	Badr OAM, El-Shawaf IIS, El-Garhy HAS, **Moustafa MMA**, Ahmed-Farid OA (2019). The potent therapeutic effect of novel cyanobacterial isolates against oxidative stress damage in redox rats. J Appl Microbiol. 126(4):1278-1289. doi: 10.1111/jam.14200. Impact factor: 2.2
29	Barakat, H., El-Garhy, H.A.S. & **Moustafa, M.M.A**. Detection of pork adulteration in processed meat by species-specific PCR-QIAxcel procedure based on D-loop and cytb genes Appl Microbiol Biotechnol (2014) 98: 9805. https://doi.org/10.1007/s00253-014-6084-x Impact factor: 3.67.
30	HM Abdel-Rahman, AA Salem, **MMA Moustafa**. A novice Achromobacter sp. EMCC1936 strain acts as a plant-growth-promoting agent, Acta physiologiae plantarum, 2017, https://doi.org/10.1007/s11738-017-2360-6 , Impact factor 1.608.
31	Shimaa R. T. Tolba, Mariella M. Finetti Sialer, Laura C. Rosso, **Mahmoud M. A. Moustafa**, Chiara RuggeriIbrahim I. S. El-Shawaf and Aurelio Ciancio. Real-time assays for detection of Phytophthora spp. and identification of an avr3a gene variant. Journal of Plant Diseases and Protection, June 2018, Volume 125, Issue 3, pp 331–337. Impact Factor: 0.946.
32	Z. Tóth and A. Bahieldin A.M. Alzohairy, G. Gyulai, **M.M. Moustafa**, S. Edris, J.S.M. Sabir, R.K. Jansen (2015). Retrotransposon based Plant DNA Barcoding, Book, Plant DNA Barcoding and Phylogenetics, Publisher, Lambert Academic Publishing, Germany
33	Hosam Easa Elsaied and **Mahmoud M. A. Moustafa** (2014). Integron/gene cassette metagenome in marine environments, exploring and applications, Conference: http://www.biotech-agric-conf.com/
34	M.M. A.M. Nada, M.H. Refaat, M.S. Abdel Sabour, A.M. G.Hassan and **Mahmoud M. A. Moustafa** (2011). Molecular studies on EctC gene (Ectoine) in some halophilic Bacterial Isolates. Researcher, 2011;3(2):34-42. Researcher, Publisher http://www.sciencepub.net/researcher
35	Surendra K Chikara, Toral Joshi and **Mahmoud M. A. Moustafa** (2018). Functional Genomics, chapter, DOI: 10.1201/9780429506987-14 In book: Fermentation Microbiology and Biotechnology, Fourth Edition

My Interest:

My interests span a wide range of topics in the fields of microbiology, plant biology, and animal science. I am particularly interested in the therapeutic applications of probiotics, such as *Lactiplantibacillus plantarum*, and natural compounds, like *Saussurea costus*, in treating diabetes and obesity. I am also fascinated by the potential health benefits of incorporating Sukkari dates into fermented camel milk. Additionally, I have a strong interest in studying emerging bacteria in drinking water and their molecular, morphophysiological, and ultrastructural characteristics. Furthermore, I am intrigued by the bioprospecting of novel probiotic strains from human milk and infants, as well as the applications of lytic bacteriophages in combating multi-drug resistant Salmonella infections. Lastly, I have a keen interest in the impact of dietary interventions, such as the inclusion of *Bacillus pumilus* and exogenous protease, on the growth, gut microbes, immune response, and gene expression of aquatic animals, specifically Nile tilapia.

My strong passion lies in the field of biotechnology and molecular biology, driven by an insatiable curiosity for understanding the intricate workings of life at a cellular level. I am particularly fascinated by the complex world of advanced molecular genetics and cell biology, delving into the mechanisms that govern our genetic makeup and how it influences our health. Exploring the potential of antioxidants and herbal medicine in targeting molecular pathways has always enthralled me, as I believe in the synergy between nature and science. With a keen interest in nutrition genetics, I actively seek to uncover the connections between our diet and genetic predispositions, especially in relation to diseases like diabetes. Understanding pathogen-host relationships is crucial in my quest to contribute to the field of bioremediation, where I aim to find innovative solutions to environmental challenges. Alongside this, I am also deeply passionate about teaching biology and biochemistry, utilizing high-quality training methods to inspire and educate future generations of biotechnologists. In my journey, I have honed my skills in a plethora of techniques, ranging from PCR applications to real-time PCR, ELISA, and next-generation sequencing. Leveraging my expertise in Linux and molecular modeling, I have pursued molecular dynamics simulations and quantitative structure-stability relationships (QSSR), pushing the boundaries of scientific exploration. I am also well-versed in microbiome data analysis, bioinformatics tools and software, and whole genome sequencing analysis for small genome sizes. With a strong command of the English language, I am proficient in both written and verbal communication, enabling me to effectively convey scientific concepts and findings. From isolating and identifying microorganisms to protein extraction, DNA sequencing, and plasmid DNA extraction, my experience spans a wide range of laboratory techniques. I am thorough in my pursuit of knowledge, constantly aligning target sequences with the vast database of NCBI and employing various DNA analysis methods. Additionally, my proficiency in computer skills, such as Excel, Windows, PowerPoint, and internet research, coupled with my expertise in bioinformatics tools and packages, allows me to effortlessly navigate the realm of modern laboratory practices. My diverse skill set, coupled with an unyielding passion for discovery, positions me as an invaluable asset in pushing the boundaries of scientific understanding and innovation.

Moreover, my research interests lie at the intersection of **molecular genetics, plant biology, and biotechnology**, with a particular emphasis on understanding and mitigating the effects of **biotic and abiotic stresses in plants**. I am deeply fascinated by the intricate molecular pathways that plants deploy to cope with environmental challenges, including **drought, salinity, heat stress**, and pathogen attacks.

My work focuses on exploring genetic and molecular mechanisms that drive plant resilience, including:

- **Abiotic stress responses**: Investigating gene expression profiles, molecular signaling pathways, and epigenetic modifications under conditions like drought, salinity, and extreme temperatures.
- **Biotic stress interactions**: Studying pathogen-host relationships and plant defense mechanisms, including the role of **resistance genes** and molecular elicitors in combating diseases.
- **Marker-assisted selection (MAS)**: Leveraging DNA markers such as **SSR, ISSR, AFLP, SCAR, SNP**, and **SCOT** for breeding programs aimed at enhancing stress tolerance.
- **Gene-editing technologies**: Applying CRISPR and other advanced tools to modify stress-related genes and improve plant adaptability.

In addition, I am passionate about applying biotechnological methods, such as **RNA-Seq, real-time PCR, and next-generation sequencing (NGS)**, to unravel the molecular complexity of plant stress responses. My expertise extends to bioinformatics, enabling me to analyze large datasets and model interactions that enhance our understanding of stress physiology.

Through my research, I aim to contribute to sustainable agricultural practices by developing **stress-tolerant crop varieties** that can withstand the dual pressures of climate change and global food demand.

Scientific achievements:

The best M.Sc. thesis from Benha University 2005 Award.
The awards for international publication many times from Benha Universitytill 2021.
*Registration a new Achromobacter sp. strain act as a plant growth- promoting agent on MERCIN under accession number: EMCC1936 and NCBI under Accession number: GenBank: KM491552.1. in MERCIN, Ain shams University, Egypt.
* Scientific publishing award in classified indexed journals years 2014-tell now.

Previous Projects:

- Applications of molecular genetics in exploring and evaluation of microalgae for utilizing in wastewater treatment and biodiesel production (Egyptian STDF fund, no. 5476). PI – Grant holder.
- "Establish A New Joint Master's Degree in Biotechnology Applied to Agri-Science, Environment And Pharmacology, Project No. 543865"(European Union TEMPUS fund). Coordinator of Benha University (One of Egyptian Partners).
- Updating the Biotechnology Capacity Building in a biosafety unit to be applicable on some animal products in Qalyubia Governorate, STDF Project ID 21772, Grant's holder, PI, Budget 3507000 LE, 2016.
- Screening and selecting of some indigenous Egyptian algae for agricultural wastewater treatment, biodiesel and animal food production using some biotechnological methods (Scientific Research Fund Account, Benha University fund) PI-Grant's holder, 2015-2017.

****Useful links:**
https://www.researchgate.net/profile/Mahmoud-Moustafa-3.
https://scholar.google.com.eg/citations?hl=en&user=OdFeemUAAAAJ&view_op=list_works&sortby=title.
https://orcid.org/my-orcid?orcid=0000-0001-5392-052X
https://www.scopus.com/authid/detail.uri?authorId=56421655900.

Other skills:

- Isolation and identification of bacterial isolates by biochemical kits and modern biotechnological methods (16s rRNA gene method).
- Isolation and identification of prokaryotic and Eukaryotic microorganisms by 16s rRNA gene, Its-5.8s-Its regions sequencing and 18s rRNA gene respectively.
- Cloning and transformation of bacteria
- Design of specific primers
- Transformation methods
- Protein extraction methods and sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE)
- Two-dimension sodium dodecyl sulfate polyacrylamide gel electrophoresis (2D- SDS-PAGE)
- Isozymes assay on polyacrylamide gel electrophoresis and calorimetric methods i- Plasmid DNA extraction methods (miniprep and large scale)

- DNA extraction methods and RNA extractions methods
- Marker assisted selection applications in plants, animals
- Reverse transcriptase (RT-PCR) methods (one step – two steps)
- DNA analysis methods (Southern blotting – Northern Blotting – Western blotting –qRT-PCR).
- DNA Sequencing and next generation sequencing methods.
- Aligning, registering, analysing the target sequences with DATA of NCBI and DNA Analysis's
- Computer skills excel, windows, PowerPoint, internet access, word, etc…
- Bioinformatics tools and packages.
- NGS analysis tools and software om Ubuntu or Windows
- Molecular Docking analysis
- Omics analysis

Positions:

- Demonstrator 2000-2005
- Associate lecturer 2005-2011
- Lecturer 2011-2017
- Associate professor cell biology, molecular genetics, microbial genetics, and biotechnology 2017-2022
- Professor cell biology, molecular genetics, microbial genetics, and biotechnology 2022-till now
- Labs Manager Salam Vet. Hospital, Buraydah, Qassim, Saudi Arabia.
- Genetics lab Head
- Histopathology lab head (Slee pathology system, Germany). Doping control lab Head (GC mas/mas, Q-tof Mas/mas, HPLC Agilent system).
- automated hematology analysis
- Chromatography analysis of doping control, GC/MS/MS, LC-q-tof MS/MS and HPLC for different serum and plasma analysis
- Molecular diagnosis of PCR and real time PCR (qPCR).
- ELISA analysis enzymes and hormones (immunoassays).
- LEAR of Benha University for European commission Union
- Reviewer of Egyptian Pharmaceutical Journal
- Reviewer of Different High Q1 and Q2 journals

Courses:

I am sharing on teaching the following courses:

- Developmental Genetics
- Advanced DNA techniques
- Germplasm preservation techniques.
- Cell and tissue culture
- Plant biotechnology
- Microbial genetics and viruses
- Molecular genetics
- Cytogenetics
- Cell biology
- Gene technology and Environment

- Genetic engineering
- Animal genetics
- Basic Bioinformatics
- Advanced Bioinformatics and genomes
- AI and Molecular Modeling