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Environmental Biotechnology and Nanotechnology

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Personal data: - **Date of birth:** August 1st, 1981.
- **Nationality:** Egyptian.
- **Marital status:** Married. (Two sons and one daughter)
- **Gender:** Male.
- **Military status:** exempt

Education:

- **Bachelor of Agricultural Sciences**, Soil science, Faculty of Agriculture, Cairo University, Cairo, Egypt, 2002.

- **Master of Agricultural Microbiology**, Faculty of Agriculture, Cairo University, Cairo, Egypt, 2008. The title of the thesis is Protection of Agricultural Soil near Textile Industry Plants by Bioremediation of Textile Dyes Residues.

- **PhD of Agricultural Microbiology**, Faculty of Agriculture, Cairo University, Cairo, Egypt, 2014. The title of the thesis is Application of nanostructured microbial catalysts for bioremediation of some organic wastes.

PROFESSIONAL CAREER

- Researcher Assistant, NRC, 2003-2008.
- Assistant Researcher, NRC, 2008- 2014.
- Researcher, NRC, 2014 - 2019.
- Associate professor, NRC, 3/2019 – till now.
- Associate professor, Hebei University of technology (China), 7/2019- 2/2020.

Scientific and research experience:

- Microbiology and Enzymology.
- Molecular biology.
- Nanotechnology and Nanobiotechnology
- Water and wastewater treatment
- Microbial Biochemistry
- Microbial Physiology
- Biological Nitrogen Fixation
- Biological Farming
- Bioremediation

COMPUTER SKILLS:

- Working knowledge of MS Windows, MS Word, MS Excel, MS Access, and MS PowerPoint.
- Internet research skills.
- International Computer Driving Licence (ICDL)

PATENTS:

1. **Patent number: 29428- 17-10-2016 to ASRT Patent office.** The title is **Unit for treatment contaminated wastewater with dyes of the textile industry by immobilized enzymes onto magnetic nanoparticles.**
2. Submitted patent application number **439/2009- 31-3-2009 to ASRT Patent office.** The title is **Continuous Eco-Friendly Bioprocess for Acceleration of Biodegradation of Textile Dye Residues.**
3. Submitted patent application number **83/2016- 18-1-2016 to ASRT Patent office.** The title is **Natural Nano Filter for Complete Remediation of Textile Plants Wastewater.**
4. Submitted patent application number **1593/2016- 28-9-2016 to ASRT Patent office.** The title is **Modified Method for Maximizing of Microalgae Harvesting Using Natural Polymers.**
5. Submitted patent application number **123/2018- to ASRT Patent office.** The title is **Innovated Ecofriendly method to the preparation of nano-cellulose via biological treatment to be used in bio-application.**
6. Submitted patent application number **8822/2018- to ASRT Patent office.** The title is **An innovative method for rapid separation of high purity enzymes based on magnetic nanotechnology.**

AWARDS and PRIZES:

1. Award of the National Research Center for the best Ph.D. Thesis in the Environmental researches, **2014.**
2. Award of the National Research Center for the best research production ratio, **2014.**
3. Award of the National Research Center for Scientific Encouragement awards, **2016.**
4. Diploma and Gold medal at the International Exhibition of Invention and Innovation, **2017.**
5. Award of Bodies and Individuals of the Academy of Scientific Research and Technology (Environmental Research), **2017.**
6. Encouraging State Prize in Advanced Technological Sciences that Serve Agricultural Sciences, Academy of Scientific Research and Technology, **2018.**

HONORARY MEMBERSHIPS:

1. Member of the Egyptian Society for Environmental Sciences.
2. Member of the Applied Microbiology Society.
3. Member of the Saudi Biological Society.
4. Member of the Syndicate of Agricultural engineers.
5. Member of the Egyptian Inventors Syndicate (EIS).
6. Member of the Development Association for Cleaning Agriculture Systems.
7. Member of the African Society for Nile Basin Studies.

Teaching Experiences:

- Teaching of the International Computer Driving Licence (**ICDL**) course in El Maady Applied institute (Egypt) 2009.
- Tester of ICDL in UNISCO.
- Teaching of Microbiology, **Biotechnology, Nanotechnology and Molecular Biology** courses for undergraduates from Universities of Ain Shams, Hilwan, Asyout, South Valley, Menofia, Aswan, Cairo and Al Azhar (Egypt) 2005 to 2016.
- Teaching in training courses in **Molecular Biology and Nanotechnology** for graduates from Universities (Scientists for Future Generation), Egypt, 2015, 2016.

Language skills:

- Mother Tongue Arabic.
- Good command of writing and reading English.
- Good command of spoken English.
- TOFEL (score: 550).

Attending and participating in training courses:

- **Isolation of protein using electrophoresis method**, NRC, (October, 2003).
- **Enzyme separation from microbial sources**, NRC, (January, 2004).
- **High Performance Liquid Chromatography (HPLC)**, NRC, (June, 2004).
- Training on **using Freeze dryer**, Scientific trade institution (STCO), (2011).
- **Training of the Trainers (TOT)**, within the DAAD Kairo Akademie on 04 & 05 October 2015.
- **Training program of molecular biology experimental technology** at Yangzhou university, Yangzhou, Jiangsu Province, P.R. CHINA (15 November to 5 December 2015).
- **The 4th seminar on Climate change and green low-carbon development**, National Development and Reform Commission (NDRC), Beijing, China (12 October to 1 November 2016).
- Module entitled "**Research Management**" of the further domain "**Institutional Capacity Building**" within the DAAD Kairo Akademie on 1st November 2017.

Scientific Conferences and Workshops:

Attending and participating in the following meetings as SPEAKER:

1. INOGEb workshop on the development of biotechnology in member countries: sharing experience on issues and challenges, Cairo, **2006, Egypt**.
2. Annual International Conference "Toward Safe Environment", Ain Shams University, Cairo, **2006, Egypt**.
3. International workshop on the Role of Biotechnology in the Development, Michigan University in US and AGERI, Egypt, **2007, Egypt**.
4. The first International Conference for the Role of Genetics and Biotechnology in Protection of Natural Resources, Ismailia, **2007, Egypt**.
5. The first International Conference for applications of biotechnology, MSA University of Egypt and Greenwich University of England, 18-19th October 2008, Egypt.

6. The international Egypt-Denmark workshop entitled “Nanoscience and Nanotechnology at a Glance”, January 14-15, 2009, at National Research Center, Cairo, Egypt and Pharos University, Alexandria. Egypt.
7. The first International Conference in Biotechnology (Towards Knowledge-Based Economy), 16-18 February, 2009, Riyadh, Kingdom of Saudi Arabia.
8. The Third conference on Healthy Water in Arab World, 21-22 April 2009, Cairo, Egypt.
9. The international conference on water conservation in arid regions, 12-14 October 2009, King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia.
10. The Second International Conference for Applications of Biotechnology, MSA University of Egypt and Greenwich University of England, 17-18th October 2009, Egypt.
11. The fourth conference on Advanced Technologies in Agriculture, 3-5th November 2009, Faculty of Agriculture, Cairo University, Cairo, Egypt.
12. The first Euro-Med Conference on "Plant Natural Products: from Biodiversity to Bioindustry", 8-10 December 2009, National Research Centre, Cairo, Egypt.
13. The symposium entitled: Towards a Sustainable Agriculture Environment (2), 24th May 2010, National Research Centre, Cairo, Egypt.
14. The international symposium entitled: Towards a Sustainable Agriculture Environment (3), 29th June 2010, National Research Centre, Cairo, Egypt.
15. The 25th meeting of the Saudi biological society titled: Nanotechnology in life sciences, 11- 13 May 2010, king faisal university, Al-Ihsaa, Kingdom of Saudi Arabia.
16. Workshop entitled: Designing and Statistical Analysis of Biological Experiments, 22th May 2011, National Research Centre, Cairo, Egypt.
17. The National Conference on "Agricultural Development in Sinai", 10-11 December 2012, National Research Centre, Cairo, Egypt.
18. Workshop entitled: Data Statistical Analysis Using SPSS program “Statistical Basis and Practical Application”, 10th March 2013, National Research Centre, Cairo, Egypt.
19. Workshop on: Bioremediation of Sewaged Soil, 22th September 2013, National Research Centre, Cairo, Egypt.
20. The First International Conference “Food and Agriculture: New Approaches”, 2-4 December 2013, National Research Centre, Cairo, Egypt.
21. Workshop entitled: Sustainable Development and Food Security 22th January 2014, National Research Centre, Cairo, Egypt.
22. The workshop entitled: Applications of Biotechnology in Agriculture, 23th February 2014, National Research Centre, Cairo, Egypt.
23. The workshop entitled: Applications of Nanotechnology in Agriculture, 3th March 2014, National Research Centre, Cairo, Egypt.
24. The Second International Conference “Biotechnology and Environmental Safety”, 6- 8th May 2014, National Research Centre, Cairo, Egypt.
25. The workshop entitled: The role of Biotechnology in Egyptian Economic Development, 16th June 2014, National Research Centre, Cairo, Egypt.
26. 6th International Conference on Water Resources and Arid Environments (ICWRAE 6): 16-17 December, 2014, Riyadh, Saudi Arabia.
27. The workshop entitled: Innovations in Agriculture, 27th January 2015, National Research Centre, Cairo, Egypt.

28. The workshop entitled: Chemical Lab Safety and Security-Symposium, 28th January 2015, National Research Centre, Cairo, Egypt.
29. The workshop entitled: Modern Strategies to Reduce Food Contamination, 25th February 2015, National Research Centre, Cairo, Egypt.
30. The workshop entitled: Evaluation of patent applications and the best protection methods, 8th March 2015, National Research Centre, Cairo, Egypt.
31. The workshop entitled: Utilization of algae for the production of biodiesel and nutraceuticals, 18th May 2015, National Research Centre, Cairo, Egypt.
32. The international conference on the “Agriculture and Environment for Sustainable Development” (ICAESD 2015), 25- 27 May 2015, National Research Centre, Cairo, Egypt.
33. The workshop entitled: Nanotechnology and Bioremediation, 5th May 2016, Academic of science and technology, Alexandria, Egypt.
34. The workshop entitled: Nanotechnology and certain application in agriculture, 24th July 2016, National Research Centre, Cairo, Egypt.
35. The workshop entitled: Nanotechnology and the future, 15th November 2016, National Research Centre, Cairo, Egypt.
36. The first international conference of the Egyptian society of food safety (food safety “science, health and behavior”), Sharm el sheikh, Egypt, 15- 18 February 2018.

Participating as ORGANIZER in the following meetings

1. Workshop entitled: **Designing and Statistical Analysis of Biological Experiments**, 22th May **2011**, National Research Centre, Cairo, **Egypt**.
2. The National Conference on "**Agricultural Development in Sinai**", 10-11 December **2012**, National Research Centre, Cairo, **Egypt**.
3. Workshop entitled: **Data Statistical Analysis Using SPSS program “Statistical Basis and Practical Application”**, 10th March **2013**, National Research Centre, Cairo, **Egypt**.
4. The First International Conference “**Food and Agriculture: New Approaches**”, 2-4 December **2013**, National Research Centre, Cairo, **Egypt**.
5. The workshop entitled: **Innovations in Agriculture**, 27- 28 January **2015**, National Research Centre, Cairo, Egypt.
6. The international conference on the “**Agriculture and Environment for Sustainable Development**” (ICAESD 2015), 25- 27 May **2015**, National Research Centre, Cairo, Egypt.

Participating in the following scientific projects:

- Bioremediation of textile dyes. National Research Center, (2003-2005). As member of research team.
- Development of Integrated Biotechnological Approach for Remediation of Textile Dye Wastes. Carried out under the program of the National Strategy for Biotechnology and Genetic Engineering, administered by the Science and Technology Center at the Academy of Scientific Research and Technology (2004 -2008). As member of research team.
- Protection of Water Environment and Soil from Pollution. Funded by Academy of scientific Research and Technology (2004 -2009). As member of research team.
- The sufficient Production of butanol by membrane technique. Funded by Arab science and

Technology Foundation (ASTF) (2007 –2009). As member of research team.

- Discovery of new anticancer natural products from Egyptian biodiversity plants project. Egypt-France grant, Science and Technology Development Fund, (2013-2014). As member of research team.
- Developing of Enzymatic Bioremediation Technology for Textile Dye Bioremoval Project. Egypt-US grant, Science and Technology Development Fund, (2012- 2015). As member of research team.
- Carbohydrates materials as high water absorption, funded by Science and Technology Development Fund (STDF), (2013- 2015). As member of research team.
- Process development of high cell density cultivation of three fungal strains used in bioremediation of textile azo dyes residues, administered by the Science and Technology Center at the Academy of Scientific Research and Technology (2014- 2016). As member of research team.
- Microbial Synthesis of Nanoparticles as potential new generation of broad spectrum antimicrobial agents, funded by National Research Centre, (2016- 2019), as **Principal Investigator**.
- Application of Nanobiotechnology and Microbial Genetics Techniques for Eradication of the Biofilms of Dairy industry, funded by National Research Centre, (2016- 2019), as **Principal Investigator**.

List of Publication

Publication in Refereed Journals

1. Osama M. Darwesh, Wafaa M. Abd El-Rahim, Olfat S. Barakat, Mohamed Z. Sedik, and Hassan Moawad (2008). Degradation of synthetic aromatic textile dyes by native bacteria isolated from textile mill sites. *International Journal of Environmental Sciences CATRINA*, 3 (1): 71-80.
2. Hassan Moawad, Osama M. Darwesh, Wafaa M. Abd El-Rahim, Olfat S. Barakat and Mohamed Z. Sedik (2010). Evidence of biodegradation of Reactive Red textile azo dye in anoxic/aerobic bioremediation system. *Dynamic Biochemistry, Process Biotechnology and Molecular Biology*, 4(1): 85-90.
3. Hassan Moawad, Osama M. Darwesh, Wafaa M. Abd El-Rahim, Olfat S. Barakat and Mohamed Z. Sedik (2013). Microbial Biodegradation of Reactive Blue (RB) Textile azo dye in Sequential Anoxic/Aerobic Bioreactor. *International Journal of Advanced Research*, 1(7): 272-284.
4. El-Naggar, N. E.; Abdelwahed, N. A.; Darwesh, O. M. (2014). Fabrication of biogenic antimicrobial silver nanoparticles by *Streptomyces aegyptia* NEAE 102 as eco-friendly nanofactory. *Journal of Microbiology and Biotechnology*, 24(4): 453–464.
5. Darwesh, O. M., Moawad, H., Abd El-Rahim, W. M., Barakat, O. S., Sedik, M. Z. (2014). Bioremediation of textile Reactive Blue (RB) Azo Dye Residues in Wastewater using Experimental Prototype Bioreactor. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 5(4): 1203-1219.
6. Khalid M. Abed, Wasan O. Noori, and Osama M. Darwesh (2014). Extraction of Bio-Active Compounds Extracted from *Inula Helenium* Roots by Leaching Process. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 5(6): 254-261.
7. Wisam M. Abd, Reda R. Shahin and Osama M. Darwesh (2014). Fungal diversity in different three Egyptian soils under heavy metals stress. *International Journal of Scientific & Engineering Research*,

- 5(11): 1321-1328.
8. Darwesh, O. M.; Moawad, H.; Barakat, O. S.; Abd El- Rahim, W. M. (2015). Bioremediation of Textile Reactive Blue Azo Dye Residues using Nanobiotechnology Approaches. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 6(1): 1202-1211.
 9. Yasser M. R. Madbouly, Mohamed I. Desouky, Mohamed A. Aly, Mohamed S. Khater and Osama Darwesh (2015). Remediation of Sanitary Wastewater containing Pb and Cd for Reuse in Irrigation. *Elixir Pollution* 88 (2015) 35863- 35866.
 10. Mohamed M. Ghariieb; Sabha M. El-Sabbagh, Marwa A. Shalaby and Osama M. Darwesh (2015). Production of chitosan from different species of zygomycetes and its antimicrobial activity. *International Journal of Scientific & Engineering Research*, 6(4): 123- 130.
 11. El-Baz, F. K.; Mahmoud, K.; El-Senousy, W. M.; Darwesh, O. M.; El Gohary, A. E. (2015). Antiviral – Antimicrobial and Schistosomicidal Activities of *Eucalyptus camaldulensis* Essential Oils. *International Journal of Pharmaceutical Sciences Review and Research*, 31(1): 262-268.
 12. Wafaa M. Abd El-Rahim, Hassan Moawad, Fatma H. Abd El Zaher and Osama M. Darwesh (2015). Optimization of Growth and Ligninolytic Enzyme Production by Seven Fungal Strains Promising for Bioremediation of Green Azo Textile Dye Residues. *AASCIT Journal of Environment*, 1(3): 58-70.
 13. Mohamed, A. A.; Ali, S. I.; Darwesh, O. M.; El-Hallouty, S. M.; Sameeh, M. Y. (2015). Chemical Compositions, Potential Cytotoxic and Antimicrobial Activities of *Nitraria retusa* Methanolic Extract Sub-fractions. *International Journal of Toxicological and Pharmacological Research*; 7(4); 204-212.
 14. Khoulood M. Barakat, Magdy Z. Mattar, Shawky Z. Sabae, Osama M. Darwesh, and Sahar H. Hassan (2015). Production and Characterization of Bioactive Pyocyanin Pigment by Marine *Pseudomonas aeruginosa* OSh1. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 6(5): 933-943.
 15. Ali, S. I.; Mohamed, A. A.; Sameeh, M.Y.; Darwesh, O. M.; Abd El-Razik, T. M. (2016). Gamma-Irradiation Affects Volatile Oil Constituents, Fatty Acid Composition and Antimicrobial Activity of Fennel (*Foeniculum vulgare*) Seeds Extract. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 7(1): 524-532.
 16. Sultan, Y. Y.; Ali, M. A.; Darwesh, O. M.; Embaby, M. A.; Marrez, D. A. (2016). Influence of Nitrogen Source in Culture Media on Antimicrobial Activity of *Microcoleus lacustris* and *Oscillatoria rubescens*. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 7(2): 1444-1452.
 17. Matter, I. A.; Darwesh, O. M.; El-Baz, F. K. (2016). Using the Natural Polymer Chitosan in Harvesting *Scenedesmus* Species under Different Concentrations and Cultural pH Values. *International Journal of Pharma and Bio Sciences*, 7(4): (B) 254 – 260.
 18. Kheiralla, Z. H.; Hewedy, M. A.; Mohammed, H. R.; Darwesh, O. M. (2016). Isolation of Pigment Producing Actinomycetes from Rhizosphere Soil and Application It in Textiles Dyeing. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 7(5): 2128- 2136.
 19. Khalil, A. M.; Abdel-Monem, R. A.; Darwesh, O. M.; Hashim, A. I.; Nada, A. A.; Rabie, S. T. (2017). Synthesis, Characterization, and Evaluation of Antimicrobial Activities of Chitosan and Carboxymethyl Chitosan Schiff-Base/Silver Nanoparticles. *Journal of Chemistry*, Volume 2017, Article ID 1434320, 11 pages <https://doi.org/10.1155/2017/1434320>.
 20. Gamal M. El-Sherbiny, Osama M. Darwesh and Ahmad S El-Hawary (2017). Screening for Alkaline Proteases Produced by Thermophilic Actinomycetes Isolated from Egyptian Localities. *Al Azhar Bulletin of Science*, vol. 9th, Conf., March 2017, 289- 299.

21. Barakat, K. M.; Hassan, S. W.; Darwesh, O. M. (2017). Biosurfactant production by haloalkaliphilic *Bacillus* strains isolated from Red Sea, Egypt. Egyptian Journal of Aquatic Research, 43 (2017) 205–211 <http://dx.doi.org/10.1016/j.ejar.2017.09.001>.
22. Gamal M. El-Sherbiny, Osama M. Darwesh and Ahmad S. El-Hawary (2017). Taxonomic characterization of the chitinolytic actinomycete *Cellulomonas chitinilytica* strain HwAC11. Int. J. Adv. Res. Biol. Sci. 4(12): 292-299. DOI: <http://dx.doi.org/10.22192/ijarbs.2017.04.12.032>.
23. Emam, H. E. Darwesh, O. M.; Abdelhameed, R. M. (2018). In-Growth Metal Organic Framework/Synthetic Hybrids as Antimicrobial Fabrics and Its Toxicity, Colloids and Surfaces B: Biointerfaces. 165: 219–228. <https://doi.org/10.1016/j.colsurfb.2018.02.028>.
24. Darwesh, O. M.; Sultan, Y. Y.; Seif, M. M.; Marrez, D. A. (2018). Bio-evaluation of crustacean and fungal nano-chitosan for applying as food ingredient, Toxicology Reports, 5: 348–356. <https://doi.org/10.1016/j.toxrep.2018.03.002>.
25. Abdelhameed, R. M.; El-Sayed, H. A.; El-Shahat, M.; El-Sayed, A. A.; Darwesh, O. M. (2018). Novel Triazolothiadiazole and Triazolothiadiazine Derivatives Containing Pyridine Moiety: Design, Synthesis, Bactericidal and Fungicidal Activities. Current Bioactive Compounds, 14(2):169-179. <https://doi.org/10.2174/1573407213666170127095158>.
26. Matter, I. A.; Darwesh, O. M.; Eida, M. F. (2018). Harvesting of microalgae *Scenedesmus obliquus* using chitosan-alginate dual flocculation system. Bioscience Research, 15(1): 540-548.
27. Elshahawy, I.; Abouelnasr, H. M.; Lashin, S. M.; Darwesh, O. M. (2018). First report of *Pythium aphanidermatum* infecting tomato in Egypt and its control using biogenic silver nanoparticles. Journal of Plant Protection Research, 15(2): 137–151. DOI: [110.24425/122929](https://doi.org/10.24425/122929).
28. Eida, M. F.; Darwesh, O. M.; Matter, I. A. (2018). Cultivation of Oleaginous Microalgae *Scenedesmus obliquus* on Secondary Treated Municipal Wastewater as Growth Medium for Biodiesel Production. Journal of Ecological Engineering, 19(5): 38-51. <https://doi.org/10.12911/22998993/91274>.
29. Zeinab I. Sadek, Mohamed A. Abdel-Rahman, Mohamed S. Azab, Osama M. Darwesh and Mahmoud S. Hassan (2018). Microbiological evaluation of infant foods quality and molecular detection of *Bacillus cereus* toxins relating genes. Toxicology Reports, 5: 871-877. DOI: [10.1016/j.toxrep.2018.08.013](https://doi.org/10.1016/j.toxrep.2018.08.013).
30. Hasanin, M. S.; Mostafa, A. M.; Mwafy, E. A.; Darwesh, O. M. (2018). Eco-friendly cellulose nano fibers via first reported Egyptian *Humicola fuscoatra* Egyptia X4: Isolation and characterization. Environmental Nanotechnology, Monitoring & Management, 10: 409–418. <https://doi.org/10.1016/j.enmm.2018.10.004>.
31. Ibrahim A. Matter, Osama M. Darwesh and Mohamed F. Eida. (2018). Harvesting of *Scenedesmus obliquus* by Bioflocculation: Appropriate Chitosan Concentrations with Various pH Values at Different Growth Stages. Jordan Journal of Biological Sciences, 11(5): 475 – 481.
32. Darwesh, O. M.; Eida, M. F.; Matter, I. A. (2018). Isolation, screening and optimization of L-asparaginase producing bacterial strains inhabiting agricultural soils. Bioscience Research, 15(3): 2802-2812.
33. Hasanin, M. S.; Darwesh, O. M.; Matter, I. A.; El-Saied H. (2019). Isolation and characterization of non-cellulolytic *Aspergillus flavus* EGYPTA5 exhibiting selective ligninolytic potential, Biocatalysis and Agricultural Biotechnology, 17: 160–167. <https://doi.org/10.1016/j.bcab.2018.11.012>.
34. Darwesh, O. M.; Matter, I. A.; Eida, M. F. (2019). Development of peroxidase enzyme immobilized

- magnetic nanoparticles for bioremediation of textile wastewater dye. *Journal of Environmental Chemical Engineering*, 7(1): 102805, 1-7. <https://doi.org/10.1016/j.jece.2018.11.049>.
35. Marrez, D. A.; Abdelhamid, A. E.; Darwesh, O. M. (2019). Eco- friendly cellulose acetate green synthesized silver nano-composite as antibacterial packaging system for food safety. *Food Packaging and Shelf Life*, 20: 100302: 1-8. <https://doi.org/10.1016/j.fpsl.2019.100302>.
 36. Abdel-Rahman, M. A.; Sadek, Z. I.; Azab, M. S.; Darwesh, O. M.; Hassan, M. S. (2019). Incorporation of microencapsulated *Lactobacillus rhamnosus* into infant foods inhibit proliferation of toxicogenic *Bacillus cereus* strains. *Biocatalysis and Agricultural Biotechnology*, 18: 101013, 1-9. <https://doi.org/10.1016/j.bcab.2019.01.051>.
 37. Abdelhameed, R. M.; Darwesh, O. M.; Rocha, J.; Silva, A. M. IRMOF-3 Biological Activity Enhancement by Post-Synthetic Modification. *European Journal of Inorganic Chemistry*, 2019: 1243-1249. <https://doi.org/10.1002/ejic.201801442>.
 38. Youssef, A. M.; Hasanin, M. S.; Abd El-Aziz, M. E.; Darwesh, O. M. (2019). Green, economic, and partially biodegradable wood plastic composites via enzymatic surface modification of lignocellulosic fibers. *Heliyon* 5: e01332, 1-22. <https://doi.org/10.1016/j.heliyon.2019.e01332>.
 39. Hussein, H. A.; Darwesh, O. M.; Mekki, B.B. (2019). Environmentally friendly nano-selenium to improve antioxidant system and growth of groundnut cultivars under sandy soil conditions. *Biocatalysis and Agricultural Biotechnology*, 18: 101080, <https://doi.org/10.1016/j.bcab.2019.101080>.
 40. Darwesh, O. M.; Matter, I. A.; Eida, M. F.; Moawad, H.; Oh, Y. (2019). Influence of Nitrogen Source and Growth Phase on Extracellular Biosynthesis of Silver Nanoparticles Using Cultural Filtrates of *Scenedesmus obliquus*. *Applied Sciences*, 9, 1465, 1-13; [doi:10.3390/app9071465](https://doi.org/10.3390/app9071465).
 41. Mona G. Dawood, Mervat Sh. Sadak, Maha Mohamed Shater Abdallah, Bakry A. Bakry and Osama M. Darwesh (2019). Influence of biofertilizers on growth and some biochemical aspects of flax cultivars grown under sandy soil conditions. *Bulletin of the National Research Centre*, 43:81. <https://doi.org/10.1186/s42269-019-0122-x>.
 42. Mourad, R., Helaly, F., Darwesh, O.M., Sawy, S.E. (2019). Antimicrobial and physicomechanical natures of silver nanoparticles incorporated into silicone- hydrogel films. *Contact Lens and Anterior Eye*, 42: 325–333. [DOI:10.1016/j.clae.2019.02.007](https://doi.org/10.1016/j.clae.2019.02.007).
 43. Hussein, H.A.; Darwesh, O.M.; Mekki B.B.; El-Hallouty, S.M.; 2019. Evaluation of cytotoxicity, biochemical profile and yield components of groundnut plants treated with nano-selenium. *Biotechnology Reports*, 24, e00377, <https://doi.org/10.1016/j.btre.2019.e00377>.
 44. Darwesh, O. M.; Barakat, K. M.; Mattar, M. Z.; Sabae, S. Z.; Hassan, S. H. 2019. Production of antimicrobial blue green pigment Pyocyanin by marine *Pseudomonas aeruginosa*. *Biointerface Research in Applied Chemistry*, 9(5): 4334 - 4339. <https://doi.org/10.33263/BRIAC95.334339>.
 45. Darwesh, O.M.; El-Hawary, A.S.; El Kelany, U.S.; El-Sherbiny, G.M. 2019. Nematicidal Activity of Thermostable Alkaline Protease Produced by *Saccharomonospora viridis* strain Hw G550, *Biotechnology Reports*, 24: e00386, <https://doi.org/10.1016/j.btre.2019.e00386>.
 46. Abd El-Lateef, E.M.; Bakry, B.A.; Abd El-Salam, M.S.; Younis, A.S.M.; Darwesh, O.M. 2019. Effect of Integrated Organic Sources and Mineral N on Sugar Beet Yield, Quality and Bio Ethanol Production. *American-Eurasian Journal of Agronomy*, 12 (3): 43-49. [DOI: 10.5829/idosi.ajea.2019.43.49](https://doi.org/10.5829/idosi.ajea.2019.43.49).
 47. Darwesh, O.M.; Ali, S.S.; Matter, I.A.; Elsamahy, T.; Mahmoud, Y.A. 2020. Enzymes immobilization onto magnetic nanoparticles to improve industrial and environmental applications.

Methods in Enzymology, ISSN: 00766879, 630: 481-502.
<https://doi.org/10.1016/bs.mie.2019.11.006>.

48. Darwesh, O. M.; El-Maraghy, S. H.; Abdel-Rahman, H. M.; Zaghoul, R. A. 2020. Improvement of paper wastes conversion to bioethanol using novel cellulose degrading fungal isolate. *Fuel*, 262: 116518, <https://doi.org/10.1016/j.fuel.2019.116518>.
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