Zeinab El-Desouki

Ain shams, Cairo, Egypt

College of Resources and Environment, Huazhong Agricultural University, Wuhan, Hubei, China

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Google Scholar Profile

RESEARCH INTERESTS

Sustainable soil fertility management with focus on biochar modifications, Nutrient cycling, soil–microbe–plant interactions, soil amendments, soil health, Plant Fertilization and crop productivity

EDUCATIONAL BACKGROUND

PhD. in Soil science and Plant Nutrition

College of Resources and Environment, Huazhong Agricultural University,

Wuhan, Hubei, China. (it will be finish in December)

M.Sc in Soil Fertility and Plant Nutrition

Thesis title: "Studies on Interactions among Heavy Metals and Their Reflection on Nutritional Status of Plant", Department of Soil and Water Science, Faculty of Agriculture, Ain Shams University, Cairo, Egypt. 2011 – 2015

B.Sc. in Agricultural Sciences

Major subject: Soil and Water Science, with final grade very good with the honour degree, Faculty of Agriculture, Ain Shams University, Cairo, Egypt. 2006 – 2010

EXPERIENCES

Assistant lecturer, Soil and Water Science Department, Faculty of Agriculture,

Ain Shams University, Cairo, Egypt. 2015 – Present

Demonstrator, Soil and Water Science Department, Faculty of Agriculture,

Ain Shams University, Cairo, Egypt. 2011 – 2015

PUBLICATIONS

1) **Zeinab El-Desouki**, Yuxuan Li, Ali M. Abd-Elkader, Muhammad Riaz, Jiyuan Wang, Saba Babar, Xiangling Wang, Xiaoyang Xia, Cuncang Jiang. 2024. Alterations of bacterial community related C cycle by affecting soil carbon fractions under aged biochar application. Soil Use and Management, ISSN: 1475-2743. https://doi.org/10.1111/sum.13075
2) **El-Desouki, Z.,** Abouseif, Y., Lu, K. et al. 2025. Phosphorus-Laden Biochar Mitigates Soil Aluminum Toxicity and Promotes Pakchoi (Brassica chinensis) Growth in Acidic Conditions. J Soil Sci Plant Nutr. https://doi.org/10.1007/s42729-025-02323-0
3) **El-Desouki, Z.**, Abouseif, Y., Riaz, M. et al. 2025. Changes in Phosphorus Bioavailability and Bacterial Community Structure Enhance Pakchoi (Brassica Chinensis) Growth Following the Application of Aged Biochar in Acidic Soil. J Soil Sci Plant Nutr. https://doi.org/10.1007/s42729-025-02271-9
4) **Zeinab El-Desouki**, Hao Xia, Yehia Abouseif, Ming Cong, Mengyang Zhang, Muhammad Riaz, Mohamed Moustafa-Farag, Cuncang Jiang, 2024. Improved chlorophyll fluorescence, photosynthetic rate, and plant growth of Brassica napus L. after co-application of biochar and phosphorus fertilizer in acidic soil. Journal of Plant Nutrition and Soil Science. https://doi.org/10.1002/jpln.202300052
5) **Zeinab A. El- Desouki**, A. E. El-Leboudi, A. S. Ismail and Manal M. Mohamed., 2015. Interactions between cadmium and zinc along with reflection on growth and nitrogen content of bean (Vicia faba L.) plants under both sand culture and clay soil condition. J. Biol. Chem. Environ. Sci., Vol. 7(3): 159-171.
6) Yuxuan Li, **Zeinab El-Desouki**, Muhammad Riaz, Ali M. Abd-Elkader, Saba Babar, Xiangling Wang, JiYuan Wang, Xiaoyang Xia, Cuncang Jiang. 2025. Ammonia-oxidizing microorganisms and microbial respiration: Biochar ammonium/nitrate-based fertilizer effects on soil nitrification and crop performance. Soil Use and Management, 41, e70019. https://doi.org/10.1111/sum.70019
7) Jin Cheng, Zijun Zeng, Riaz Muhammad, **Zeinab El-Desouki** and Cuncang Jiang.2024. Protective Effect of Proline Against Boron Deficiency on Photosynthesis and Proline Metabolites in Cotton (Gossypium hirsutum L.) at Different Growth Stages. Journal of Plant Growth Regulation. https://doi.org/10.1007/s00344-024-11403-x
8) Xiangling Wang, Xiaoyang Xia, Muhammad Riaz, Saba Babar, **Zeinab El-Desouki,**

Muhammad Qasim, Jiyuan Wang, Cuncang Jiang. 2025. amendment modulate microbial community assembly to mitigate saline-alkaline stress across soil depths, J E M, 385,125574, 0301-4797, https://doi.org/10.1016/j.jenvman.2025.125574.

9) Wang, J., Riaz, M., Babar, S. **El-Desouki Z.,** et al. 2025. Iron-modified biochar enhances cotton growth and iron uptake in saline-alkali soil by reducing salinity and facilitating root colonization of beneficial bacteria. Plant Soil. https://doi.org/10.1007/s11104-025-07415-5
10) Kesong Lu, Jiayu Hou, Muhammad Riaz, Saba Babar, Ali M. Abd-Elkader, **Zeinab El-Desouki** and Cuncang Jiang. 2024. Calcium l-aspartate nanoparticles modify the root ultrastructure and improve plant yield in Brassica napus L. Environmental Science: Nano, https://doi.org/10.1039/D3EN00989K
11) Xiangling Wang; Muhammad Riaz; Xiaoyang Xia; Saba Babar; **Zeinab El-Desouki**; Yuxuan Li; Jiyuan Wang; Cuncang Jiang.2024. Alleviation of cotton growth suppression caused by salinity through biochar is strongly linked to the microbial metabolic potential in saline-alkali soil. Science of The Total Environment, 922, 171407 https://doi.org/10.1016/j.scitotenv.2024.171407
12) Xiangling Wang; Muhammad Riaz; Saba Babar; **Zeinab El-Desouki**; Bo Liu; Hao Xia; Yuxuan Li; Jiyuan Wang; Xiaoyang Xia; Cuncang Jiang.2024. Alterations in the composition and metabolite profiles of the saline-alkali soil microbial community through biochar application. Journal of Environmental Management, 352, 120033. https://doi.org/10.1016/j.jenvman.2024.120033
13) Jiyuan Wang; Riaz Muhammad; Saba Babar; **Zeinab El-Desouki**; Yuxuan Li; Xiangling Wang; Xiaoyang Xia; Jiang cuncang.2023. Unveiling Soil Depth-Dependent Changes in Soil Chemical Properties and Bacterial Communities in Saline-Alkali Soil: Enhancing Amelioration of Saline-Alkali Soil with Iron-Modified Biochar. Preprint https://doi.org/10.2139/ssrn.4601744
14) Hao Xia, Muhammad Riaz, Xiufeng Tang, Lei Yan, **Zeinab El-Desouki**, Yuxuan Li, Xiangling Wang, Jiang Cuncang, 2023. Insight into mechanisms of biochar-fertilizer induced of microbial community and microbiology of nitrogen cycle in acidic soil. Journal of Environmental Management, 336, 117602 https://doi.org/10.1016/j.jenvman.2023.117602
15) M.Y. Zhang, H. Xia, M. Riaz, B. Liu, **El-Desouki Z**, C. Jiang. 2023. Various beneficial microorganisms colonizing on the surface of biochar primarily originatefrom the storage environment rather than soil environment. Appl. Soil Ecol., 182, https://doi.org/10.1016/j.apsoil.2022.104700
16) Xia, H., M. Riaz, B. Liu, Y. Li, **El-Desouki Z.**, C. Jiang. 2022. Over two years study: Peanut biochar promoted potassium availability by mediating the relationship between bacterial community and soil properties. Appl. Soil Ecol., 176, Article 104485 https://doi.org/10.1016/j.apsoil.2022.104485
17) Xia, H., Riaz, M., Liu, B. **El-Desouki, Z.**; Jiang, C. 2023. Peanut shell biochar in acidic soil increases nitrogen absorption and photosynthesis characteristics of maize under different nitrogen levels. Environ Dev Sustain 25, 8957–8974. https://doi.org/10.1007/s10668-022-02493-2

18) H. Xia, M. Riaz, M. Zhang, B. Liu, Y. Li, **El-Desouki Z.**, C. Jiang. 2022. Biochar-N fertilizer interaction increases N utilization efficiency by modifying soil C/N components under N fertilizer deep placement modes. Chemosphere, 286, Article https://doi.org/131594,10.1016/j.chemosphere.2021.131594
19) Xia, H.; Riaz, M.; Zhang, M.; Liu B.; **El-Desouki, Z**.; Jiang, C. 2020. Biochar increases nitrogen use efficiency of maize by relieving aluminum toxicity and improving soil quality in acidic soil. Ecotoxicology and Environmental Safety,196, 15 June 2020, 110531 https://doi.org/10.1016/j.ecoenv.2020.110531
20) Zhang M, Riaz M, Liu B., Xia, H., **El-desouki Z.** and Jiang C.2020. Two-year study of biochar: Achieving excellent capability of potassium supply via alter clay mineral composition and potassium-dissolving bacteria activity. The Science of The Total Environment 717:137286. https://doi.org/10.1016/j.scitotenv.2020.137286
21) Xia, H.; Riaz, M.; Zhang, M.; Zhang L.; **El-desouki, Z**.; and.; Jiang, C. 2019. Investigating the Effects of Biochar on Soil Properties and Alleviating Aluminum Toxicity for Improving Cabbage (Brassica oleracea var. Capitata) Productivity while Reducing Potash Fertilizer. International Journal of Agriculture and Biology. https://doi.org/10.17957/IJAB/15.1216
22) Zhang M, Riaz M, Zhang L, **El-desouki Z** and Jiang C., 2019. Biochar Induces Changes to Basic Soil Properties and Bacterial Communities of Different Soils to Varying Degrees at 25 mm Rainfall: More Effective on Acidic Soils. Front. Microbiol. 10:1321. doi: 10.3389/fmicb.2019.01321
23) Zhang, M.; Riaz, M.; Zhang, L. **El-Desouki Z.** et al., 2019. Response of fungal communities in different soils to biochar and chemical fertilizers under simulated rainfall conditions. Science of the Total Environment. DOI: 10.1016/j.scitotenv.2019.07.151
24) Riaz, M.,Yan, L.,Wu, X., **El-Desouki, Z**., Jiang, C. , 2019. Excess boron inhibited the trifoliate orange growth by inducing oxidative stress, alterations in cell wall structure, and accumulation of free boron. Plant Physiology and Biochemistry.141, 105–113
25) El-Leboudi, A. E., A. S. Ismail and Manal Mubark, **Zeinab A. El- Desouki** (2017). Effect of cadmium and zinc along with their interaction on growth and nitrogen status of barley (Hordeum vulgareL.) plants under sand culture conditions. 13th Scientific Conference for Agricultural Development Research "Towards an optimal utilization of available resources", Ain Shams University, 7-8 March 2017, abstract book; 10.

PROJECTS

1) Biochar-Based Fertilizers to Enhance Plant Growth in Acidic Soils
2) Enhancing Phosphorus Availability and Soil Fertility through Modified Biochar Amendments in Acidic Soils

RESEARCH SKILLS

1) Study soil nutrient dynamics, biochar-based amendments, and plant–microbe interactions
2) Writing research proposals and conducting studies for plants in open fields and under greenhouse.
3) Estimate the fertility of soil and measuring nutrient concentrations in water and plant samples using advanced analytical instruments.
4) Conduct statistical analysis and tabulation of results and scientific writing for manuscripts.
5) High communication skills and aptitude to work in team.

MEMBERSHIPS OF PROFESSIONAL ASSOCIATIONS

1) Member of Social Agricultural Society of Egypt.
2) Member of the club of Ain Shams Univ. members.
3) Member of the Guild of Agricultural.
4) Member of the Egyptian Society for Soils Science.

CONFERENCES

1) The 13th Scientific Conference for Agricultural Development Research "Towards an optimal utilization of available resources", Faculty of Agriculture, Ain Shams University, Cairo, Egypt, From 7 to 8 March 2017.
2) International Egyptian Czech Conference on "Nanotechnology Applications", Cairo University, Egypt, from 10 to 11 October 2017.
3) The 9th Annual Conference of the Association of Agricultural Chemistry and protect the environment "Agricultural development and environmental protection", Cairo, Egypt, from 19 to 20 October 2016.
4) International Conference of "Healthy soils For A Healthy Life ", Soil, Water and Environment Research Institute, ARC, Giza Egypt, from 12 to 13 October 2015.

TRAINING COURSES AND WORKSHOPS

1) The international workshop about “Climate Change and Combat Desertification for Agriculture Production in Egypt and China“, National Research Centre, Cairo, Egypt, 27 April 2016.
2) Workshop about "Soilless Farming and Food Challenges", Academy of Scientific Research, Cairo, Egypt, 21 November 2017.

3) Workshop about "Pollution of Soil with Pesticides and Fertilizers and How to Resist Them", Faculty of Science, Ain shams university, Cairo, Egypt, 26 November 2017.
4) Workshop about "Egyptian Female Scientists in Leadership" DAAD office cairo 11 El-Salah Ayoub, Zamalek, Cairo, Egtpt on 10 October 2017.
5) Event about "GERLS/ GERSS Information Day for Doctoral Candidates" DAAD office cairo 11 El-Salah Ayoub, Zamalek, 13th November 2017.
6) Workshop about "The future and the challenges of growing quinoa", Faculty of Agriculture, Ain Shams University, from 12 to 13 October, 2016.
7) Workshop about "Uses of Modern Breeding Techniques in Agriculture", National Research Centre, Cairo, Egypt, 10 October 2016.
8) Workshop about "Agricultural Applications without Soil", Faculty of Agriculture, Alexandria University, Egypt, 25 September, 2015.
9) Workshop about "Time Management and Meetings", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 6 to 7 September 2015.
10) Event about "German Science Day" DAAD office cairo, 11 El- Salah Ayoub, Zamalek, Cairo, Egtpt on 17th July 2017.
11) Training course of " Soil and Water Management, Fertigation and Irrigation ", Soil, Water and Environment Research Institute, ARC, Giza Egypt, from 29 September to 3 October 2013.
12) Training course of "The Climate Change and Agriculture", organized jointly by FAO - Food & Agriculture Organization of The United Nation and Central Laboratory for Agricultural Climate, ARC, Egypt, from 8 to 12 July 2012.
13) Workshop about "Credit Hour System", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 8 to10 September 2012.
14) Workshop about "Organizing Scientific Conferences", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 15 to 17 September 2012.
15) Training Course of " Human Development " managed by Ain shams university from 30 September to 18 October 2012.
16) Workshop about "Effective Presentation Skills", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 18-20 June 2011.
17) Workshop about "Literature and Behaviors of The Profession", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 27-29 September 2011.
18) Certificate of completion for successful completion of "Communication Skill" Ain shams university in 16 November 2011.
19) Workshop about "Communication Skills in Various Modes of Education", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 9 to 11 February 2013.
20) Workshop about "The Quality of the Performance Standards of Educational Institutions", Quality Assurance and Accreditation Center, Ain Shams University, Cairo, Egypt, from 2 to 3 August 2015.

PEER REVIEWS

1) Review activity for Journal of cleaner production.
2) Review activity for science of the total environment.
3) Review activities for Journal of Plant Nutrition.
4) Review activity for Heliyon

IMPORTANT LINKS

1) http://research.asu.edu.eg/cris/rp/rp11169
2) https://loop.frontiersin.org/people/710821/overview
3) https://orcid.org/my-orcid?orcid=0000-0001-5607-4066
4) https://www.researchgate.net/profile/Zeinab-El-Desouki
5) https://www.scopus.com/authid/detail.uri?authorId=57208924689
6) https://webofscience.clarivate.cn/wos/author/record/C-9577-2019
7) https://scholar.google.ca/citations?user=pxK3YuQAAAAJ&hl=en

LANGUAGES

English (very good),

Chinese (good)

Arabic (native)

REFERENCES

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Dep. of Soil and Water Science, Faculty of Agriculture, Ain Shams University.Cairo, Egypt.