Curriculum Vitae

Emad A.M. Farahat

PERSONAL INFORMATION	Professor of Plant Ecology and the former Head of Botany and Microbiology Department, Faculty of Science, Helwan University

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RESEARCH INTERESTS

I am a Professor of Plant Ecology at Helwan University. My research interests are plant ecology, forest ecology, biodiversity, restoration ecology, dendroecology, population dynamics, and vegetation analysis. My current projects concentrate on the population ecology of some Egyptian plants and their conservation, contribution remotely in some research projects in Saudi Arabia, contribution in writing projects for some Environmental Saudi companies for restoration of natural vegetation in degraded areas in Northern region. Besides, I am interested in the evaluation of air and water pollutants on the eco-physiological performance of wild plants and crops, phytoremediation, and Quantitative anatomy of Egyptian desert plants and its dendrochronological potentialities. In our laboratory, we are in collaboration with some colleagues in Egypt, Sweden, Switzerland, China, and Saudi Arabia. We welcome collaboration with colleagues from all over the world.

WORK EXPERIENCE

- Writing an international project as PI of research work for **Saudi Arabia** Environmental company called "**RASHIDOON**" entitled: **study and design protection and rehabilitation areas, and to develop and implement experimental agriculture studies for the development of wild vegetation cover"**. This project presented to National Center for Environmental Compliance in Saudi Arabia. The sites of the project are located between the eastern region and the northern border region. Results not announced until now.
- Applying through The Environmental Balance Foundation for Environmental Consulting (**Saudi Arabia**) to a project for combating the invasive species in a number of protectorates in Southern Saudi Arabia 2023

- Visiting Professor at Swiss Federal Institute (www.wsl.ch) during 2018, 2020, and 2022/2023 through funded projects from Egyptian Science and Technology Development Fund (STDF), and Swiss National Science Foundation (SNSF), cooperated with Prof. Holger Gaertner.
- Working with my students and colleagues in Sweden and Egypt on many topics concerning the biodiversity in natural and man-made forests and natural habitats and the impact of climate change on it.
- Head of Botany and Microbiology Department from November 2018 until now.
- Professor of Plant Ecology in Helwan University, Faculty of Science, Botany and Microbiology Department
- Project director and Vice-director for "Re-innovation and modernization of Laboratory of Ecology in Botany and Microbiology Department, Faculty of Science, Helwan University (2017-present)
- Researcher in "Swedish Clean Air Climate" Project, managed by Swedish Environmental Institute from July 2014 for six months
- Researcher at Laboratory of dendrochronology in Gothenburg University, Sweden, in collaboration with Prof. Hans W. Linderholm, (from October 2012 for eight months).
- Principal investigator for Swedish research project (2009- 2012) on assessment and evaluation of the impacts of the treated wastewater on the trees in Egyptian artificial forests. The project was funded by the Swedish Research Council for 3 years with Dr. Hans Linderholm as the Swedish principal investigator partner.
- Postdoctoral fellow in McGill university, Biology department, Evolution, and Conservation Ecology Unit, Prof. M.J. Lechowicz, 10/April/2007 – 09/January/2008.
- Lecturer of Plant Ecology, Faculty of Science, Botany & Microbiology Dept., Helwan University from 30/4/2006- present
- Assistant Lecturer, Botany & Microbiology Dept, Faculty of Science, Helwan University: 2001–30/03/2006
- Demonstrator, Botany & Microbiology Dept, Faculty of Science, Helwan University: 01/01/1997 – 28/01/2001.

EDUCATION

- Ph.D. in Plant Ecology 2006, Helwan University
- MSc. in Plant Ecology 2001, Helwan University
- B. Sc. In Botany 1995, Cairo University

AWARDS, PROJECTS, and FELLOWSHIPS

- Awarded Research visit for five months (2020 & 2022) from the Swiss National Science Foundation (SNSF) to work at the Swiss Research Federal Institute (WSL), Zurich, Switzerland.

- Awarded the Superior Scientific Prize in basic Sciences from Helwan University 2018.
- Awarded project (14 months) including short-term Fellowship at WSL, Switzerland for four months, funded by The Egyptian STDF (Science and Technology Development Fund, WWW.stdf.org.eg) 07/2018-11/2018 (Grant no. 25431)
- Awarded fund from Helwan University for updating the plant ecology laboratory (2250000 Egyptian pounds) during 2017-2018
- Working as a Researcher at Swedish Environmental Institute 2014
- Postdoctoral fellowship at Gothenburg University, Sweden starts in October 2012/2013 for six months and is funded by the Ministry of Higher Education in Egypt (Parown Initiative)
- Awarded research project from the Swedish research council for four years including extended financial year (Sweden) 2010-2012
- Postdoctoral fellowship at McGill University, Quebec, Canada 2007/2008 for 9 months.

ADMINISTRATIVE TASKS

- Quality assurance unit coordinator at the department
- Member of the University technical office for research projects and technical support
- Member of many faculty committees (Environmental and cultural)
- Head of Exam control units for many years
- Member of organizing team for all departmental Scientific conferences
- A representative for the department, faculty, and university in many official meetings
- Supervisor for Ph.D., M.Sc., and Bachelor students

EXPERT EVALUATOR

- Reviewer Member for the Egyptian Permanent Scientific committee for Professorship and assistant-professorship promotion.
- Reviewers for Egyptian Science and Technology Development Fund

REVIEWER FOR INTERNATIONAL and NATIONAL JOURNALS

Ecological Indicators, Ecological Engineering, International Journal of Phytoremediation, Environmental Sciences and Pollution Research, Frontiers in Plant Science, Frontiers in Ecology and Evolution, Flora, Archives of agronomy and Soil Science, Science of the Total Environments, Egyptian Journal of Botany, Taeckholmia, Nutrient Cycling in Agroecosystems, Biodiversitas, Soil Science Society of America Journal.

EDITORIAL ACTIVITY

- Review Editor for Frontiers in Ecology and Evolution and Frontiers in Plant Science

(My Frontiers (frontiersin.org)

- Editorial Advisory Board of Asian journal of Forestry (Editorial Team | Asian Journal of Forestry (smujo.id))
- Associate Editor in Advances in Basic and Applied Science journal (Advances in Basic and Applied Sciences - Editorial Board (ekb.eg))
- Reviewer in the Egyptian Permanent Scientific Committee for the Professorship and Associate Professorship promotion
- Reviewer for the Egyptian Science and Technology Development fund (STDF)

TEACHING COURSES

Advanced Plant Anatomy, General Biology, Ecological Indicators, Plant Ecology, Economic Botany, Environment and Pollution, Flora of Egypt, Ecological Methods, Functional Plant Ecology, Plant morphology, Community Ecology, Plant micro-techniques, dendrochronology and forest ecology

PUBLICATIONS

1- Awad, H.E.A., Mohammad, A.M., Farahat, E.A. 2023. Potential use of dry powder of *Vossia cuspidata* (Roxb.) Griff. rhizomes and leaves in methylene blue dye remediation. Scientific Reports 13, 11073 (2023). https://doi.org/10.1038/s41598-023-37987-0.

2- El-Barougy, R. F., Dakhil, M. A., Halmy, M. W. A., Cadotte, M., Dias, S., **Farahat, E.** A., ... & Bersier, L. F. (2023). Potential Extinction Risk of Juniperus phoenicea under Global Climate Change: Towards Conservation Planning. Global Ecology and Conservation, e02541.

3- **Farahat, E. A.,** & Gärtner, H. Wood anatomy and dendrochronological potentiality of some woody shrubs from the southern Mediterranean coast in Egypt. Frontiers in Plant Science, 14, 1183918.

4- Shedeed Z.A. and **Farahat E.A.** (2023) Alleviating the toxic effects of Cd and Co on the seed germination and seedling biochemistry of wheat (*Triticum aestivum* L.) using *Azolla pinnata*. Environmental Sciences and pollution Research. https://doi.org/10.1007/s11356-023-27566-1.

5- Abd El-Aziz, S.M., Farahat, E.A. 2023. The Activity of *Vossia cuspidata* Polysaccharides-Derived Monometallic CuO, Ag, Au, and Trimetallic CuO-Ag-Au Nanoparticles Against Cancer, Inflammation, and Wound Healing. J Inorg Organomet Polym (2023). https://doi.org/10.1007/s10904-023-02542-x

6- Ali, E.F.; Al-Yasi, H.M.; Majrashi, A.M.; **Farahat, E.A.**; Eid, E.M.; Galal, T.M. 2022. Chemical and Nutritional Characterization of the Different Organs of Taif's Rose (*Rosa damascena* Mill. var. *trigintipetala*) and Possible Recycling of the Solid Distillation Wastes in Taif City, Saudi Arabia. ***Agriculture***, 12, 1925. https://doi.org/10.3390/agriculture12111925

7- Galal, T. M.; Ali, E.F.; Eid, E.M.; Al-Yasi, H.M.; Magrashi, A.; Althobaiti, F.; **Farahat, E.A**. 2022. Evaluating the Nutrient Contents and Nutritive Value of Taif's Rose (*Rosa damascena Mill var. trigintipetala*) Waste to Be Used as Animal Forage or Soil Organic Fertilizers. ***Agriculture***, 12, 1481. https://doi.org/10.3390/agriculture12091481

8- Galal, T.M.; Majrashi, A.; Al-Yasi, H.M.; **Farahat, E.A.**; Eid, E.M.; Ali, E.F. (2022). Taif's Rose (*Rosa damascena* Mill var. *trigentipetala*) Wastes Are a Potential

Candidate for Heavy Metals Remediation from Agricultural Soil. ***Agriculture***, 12(9), 1-14. https://doi.org/10.3390/ agriculture12091319

9- Dakhil, M. A., El-Barougy, R. F., El-Keblawy, A., **Farahat, E. A.** (2022). Clay and climatic variability explain the global potential distribution of *Juniperus phoenicea* toward restoration planning. ***Scientific Reports***, 12(1), 1-8.

10- **Farahat et al.** 2022. Determination of the critical period of weed control (CPWC) to increase the yield of barley (*Hordeum vulgare* L.) crop in Egypt. 20(5):4321-4338. ***Applied Ecology and Environmental Research,*** 20(5):4321-4338.

11- Elawa, O. I., Abdellatif, N., Galal, T. M., **Farahat, E. A.** (2022). Assessment of Ambient Air Quality Level at 21 sites in cement sector, ***Egypt. Egyptian Journal of Chemistry***, 65(9), 1-2.

12- Elawa, O., Galal, T. M., Abdelatif, N. M., **Farahat, E. A.** (2022). Evaluating the Potential Use of Four Tree Species in the Greenbelts to Mitigate the Cement Air Pollution in Egypt. ***Egyptian Journal of Botany***, 62(1), 177-196.

13- Gärtner H. and **Farahat E.** (2021) Cambial Activity of *Moringa peregrina* (Forssk.) Fiori in Arid Environments. ***Frontiers in Plant Science***, 12, 2484. doi: 10.3389/fpls.2021.760002.

14- **Farahat, E.,** Fahmy, G., Farrag, H., Mahmoud, W., Awad, H. (2021). Potential Nutritional Value of the Macrophyte *Vossia cuspidata* (Roxb.) Griff. (Poaceae) in a River Nile System, Egypt. ***Egyptian Journal of Botany***, **6**(3), doi: 10.21608/ejbo.2021.98322.1796

15- **Farahat E.A.**, Cherubini, P, Saurer, M, Gärtner, H (2021) Wood anatomy and tree-ring stable isotopes indicate a recent decline in water-use efficiency in the desert tree *Moringa peregrina*. ***International Journal of Biometeorology*** (Doi: 10.1007/s00484-021-02198-7).

16- **Farahat, E.A.**, Mahmoud, W.F., Awad, H.E.A., Farrag, H.F., Arshad, M., Eid, E.M.; Fahmy, G.M. (2021). Prediction Models for Evaluating the Uptake of Heavy Metals by the Invasive Grass *Vossia cuspidata* (Roxb.) Griff. in the River Nile, Egypt: A Biomonitoring Approach. ***Sustainability***, 13, 10558.

17- Mahmoud, W.F., **Farahat**, **E.A.,** Fahmy, G.M., Farrag, H.F., Awad, H.E. (2021) Monthly and seasonal variations of biomass partitioning and macronutrients in the invasive grass *Vossia cuspidata* (Roxb.) Griff. ***Aquatic Botany*** 172, 103399

18- **Farahat E.A.**, Refaat AM (2021) Predicting the impacts of climate change on the distribution of *Moringa peregrina* (Forssk.) Fiori - A conservation approach. ***Journal of Mountain Science*** 18(5). https://doi.org/10.1007/s11629-020-6560-y

19- **Farahat E.A.**; Holger Gärtner H. (2021) Ring-forming plants in the Egyptian deserts. Flora, 279, 151812. doi:10.1016/j. ***Flora***.2021.151812

20- Mahmoud, W.F., **Farahat**, **E.A.,** Fahmy, G.M., Farrag, H.F., Awad, H.E.A. (2021) Impact of the invasive species *Vossia cuspidata* (Roxb.) Griff. on the diversity and temporal changes of the native flora of the River Nile in Egypt. ***Taeckholmia*** 41: 1-17

21- **Farahat, E.A.,** W.F. Mahmoud and G.M. Fahmy (2021) Seasonal variations of heavy metals in water, sediment, and organs of *Vossia cuspidata* (Roxb.) Griff. in River Nile ecosystem: implication for phytoremediation. ***Environmental Science and Pollution Research,*** 28(25), 32626-32633. https://doi.org/10.1007/s11356-021-13033-2

22- **Farahat E.A.** (2020) Age structure and static life tables of the endangered *Juniperus phoenicea* L. in North Sinai Mountains, Egypt: implication for conservation. ***Journal of Mountain Science*** 17(9). https://doi.org/10.1007/s11629-020-6123-2

23- Abdallah, S. M., **Farahat, E.A.**, Shaltout, K.H. and Eid, E.M. (2020) Assessing macro-nutrient removal potential of nine native plant species grown at a sewage sludge dumpsite. ***Applied Ecology and Environmental Research*** 18(1):1799-1817.

24- **Farahat E.A**., El-Midany M., Galal T. and Hassan L.M. (2019). Allelopathic effect of aqueous extracts of the common associated species on the germination of rainfed barely grains. ***Assuit Journal for Environmental Studies***, in press.

25- El-Midany M, Galal T., **Farahat E.A**. and Hassan L.M. (2019). Phytosociology of rainfed barely along the western Mediterranean Coast, Egypt. ***Taeckholmia*** 39 (2019): 18-33.

26- Dakhil M.A., Xionga Q., **Farahat E.A.**, Zhanga L., Pan K., Pandey B., Olatunjia O.A, Tariqa A., Wua X., Zhang A., Tana X., Huang D. (2019). Past and future climatic indicators for distribution patterns and conservation planning of temperate coniferous forests in southwestern China. ***Ecological Indicators*** 107, 105559.

27- **Farahat E.A.** and Gaertner H. (2019). Anatomy and dendrochronological potential of *Moringa peregrina* from the hyper-arid desert in Egypt. ***Dendrochronologia***, 56, 125606. (https://doi.org/10.1016/j.dendro.2019.125606).

28- Eid E.M, Alrumman S.A., **Farahat, E.A.** and El-Bebany A. F. (2018). Prediction models for evaluating the uptake of heavy metals by cucumbers (*Cucumis sativus* L.) grown in agricultural soils amended with sewage sludge. ***Environmental Monitoring and Assessment,*** 190:501

29- **Farahat, E.A.;** Linderholm, H.W (2018) Growth–climate relationship of European beech at its northern distribution limit. ***European Journal of Forest Research***. https://doi.org/10.1007/s10342-018-1129-9

30- **Farahat, E.A and** Galal T.G. (2018) Trace metal accumulation by *Ranunculus sceleratus*: implications for phytostabilization. ***Environmental Science and Pollution Research***, https://doi.org/10.1007/s11356-017-0808-2.

31- **Farahat**, **E.A.,** Galal, T.M, Elawa, O.E., Hassan, L.M. 2017. Health risk assessment and growth characteristics of wheat and maize crops irrigated with contaminated wastewater. ***Environmental Monitoring and Assessment,*** 189:535. DOI 10.1007/s10661-017-6259-x.

32- **Farahat, E.A.**, Zhang, P., Gunnarson, B.E., Fuentes, M., Stridbeck, P. and Linderholm, H.W. (2017) Are standing dead trees (snags) suitable as climate proxies? A case study from the central Scandinavian Mountains. ***Scandinavian Journal of Forest Research***, 33(2), 114-124. https://doi.org/10.1080/02827581.2017.1341547.

33- Shaltout K.H., **Farahat, E.A.** and Shalapy H.I. (2016) Effect of a desert planted forest on the understory plant diversity: implication to conservation. ***Rend. Fis. Acc. lincei,*** DOI 10.1007/s12210-016-0553-3.

34- Galal T.M, **Farahat E.A.**, El-Midany M.M. and Hassan L.M. (2016) Demography and size structure of the giant milkweed shrub *Calotropis procera* (Aiton) W.T. Aiton. ***Rend. Fis. Acc. lincei,*** 27 (2), 341-349, (DOI) 10.1007/s12210-015-0487-1.

35- Galal, T; **Farahat, E.A.** (2015) The invasive macrophyte *Pistia stratiotes* L. as a bioindicator and a biomonitor for water pollution in Lake Mariut, Egypt. ***Environmental Monitoring and Assessment,*** 187(11), 701. DOI:10.1007/s10661-015-4941-4

36- **Farahat, E.A.;** Linderholm, H.W.; Lechowicz, M.J. (2015) Influence of dust deposition and climate on the radial growth of *Tsuga canadensis* near its northern range limit. ***European Journal of Forest Research,*** 135 (1), 69-76. DOI 10.1007/s10342-015-0917-8

37- Galal T.M, **Farahat, E.A.**, El-Midany M.M. and Hassan L.M. (2015) Nutrients and heavy metals accumulation by the giant milkweed *Calotropis procera* (Aiton) W.T. Aiton in urbanized areas, Egypt. ***Rend. Fis. Acc. lincei,*** 27 (2), 241-250, DOI 10.1007/s12210-015-0468-4

38- **Farahat, E.A,** Galal T.G., El-Midany M. and Hassan L.M. (2015) Phenology, biomass and reproductive characteristics of *Calotropis procera* (Aiton) W.T. Aiton in South Cairo, Egypt. ***Rend. Fis. Acc. lincei,*** 27 (2), 197-204. http://link.springer.com/article/10.1007/s12210-015-0450-1.

39- Galal T.M, **Farahat E.A.**, El-Midany M.M. and Hassan L.M. (2015) Effect of temperature, salinity, light and time of dehiscence on seed germination and seedling morphology of *Calotropis procera* from urban habitats. ***African Journal of Biotechnology,*** 14 (15), 1275-1282. DOI:10.5897/AJB2014.14305

40- **Farahat, E.A.** and Linderholm H.W. (2015) Nutrient resorption efficiency and proficiency in economic wood trees irrigated by treated wastewater in desert planted forests. ***Agriculture Water Management,*** 155, 67–75.

41- **Farahat, E.A.,** Galal T.G., El-Midany M. and Hassan L.M. (2015) Effect of urban habitat heterogeneity on functional traits plasticity of the invasive species *Calotropis procera* (Aiton) W.T. Aiton. ***Rend. Fis. Acc. lincei.***, 26 (2), 193-201.

42- Hassan L.M., Galal T.M., **Farahat E.** and El-Midany M. (2015) The Biology of *Calotropis procera* (Aiton) W.T. ***Trees*****:** 29(2), 311-320. DOI: 10.1007/s00468-015-1158-7

43- **Farahat, E.A.** and Linderholm H.W. (2015) The effect of long-term wastewater irrigation on accumulation and transfer of heavy metals in *Cupressus sempervirens* leaves and adjacent soils. ***Science of the Total Environment,*** 512–513, 1–7.

44- Linderholm HW, Zhang P, Gunnarson BE, Björklund J, **Farahat E.A.**, Fuentes M, Rocha E, Salo R, Seftigen K, Stridbeck P and Liu Y (2014) Growth dynamics of tree-line and lake-shore Scots pine (*Pinus sylvestris* L.) in the central Scandinavian Mountains during the Medieval Climate Anomaly and the early Little Ice Age. ***Frontiers in Ecology and Evolution* 2, 1-11.** DOI: 10.3389/fevo.2014.00020

45- **Farahat, E.A.** and Linderholm H.W. (2013) Effects of treated wastewater irrigation on size-structure, biochemical products and mineral content of native medicinal shrubs. ***Ecological Engineering,*** 60, 235– 241.

46- **Farahat, E.A.** and Lechowicz M.J. (2012) Functional ecology of growth in seedlings versus root sprouts of *Fagus grandifolia* Ehrh. ***Trees,*** 27, 337–340.

47- **Farahat, E.A.,** Shaltout K.H., Hassan Elkady H.F. and Shalapy H.I. (2012) Allometric equations to predict the total aboveground biomass of tree species in a planted forest in Egypt. ***Feddes Repertorium***, 123, 1-10.

48- **Farahat, E.A.,** Eid E. and Sewelam N. (2012) Assessment of airborne trace metal pollution by *Ipomoea carnea* jacq. leaves and its potential use as environmental indicator. ***Egyptian Journal of Experimental Biology,*** 8(1), 93 – 98.

49- **Farahat, E.A.** and Linderholm H.W. (2012) Ecological impacts of desert plantation forests on biodiversity. ***African Journal of Ecology,*** 50, 308–318. DOI*: 10.1111/j.1365-2028.2012. 01325.x*

50- **Farahat, E.A.** and Linderholm H.W. (2012) Growth performance of four irrigated plantations in Egypt. ***Egyptian Journal of Botany,*** 51 (1), 213-235.

51- **Farahat, E.A.** (2011) Growth dynamics and biomass of *Eucalyptus camaldulensis* Dehnh. in the desert plantation forests of *Egypt*. ***Egyptian Journal of Botany***, 52 (1): 199-212.

52- **Farahat, E.A.** (2011) Biomonitoring of airborne heavy metals pollution by *Delonix regia* (Boj. ex Hook.) Raf. in Greater Cairo, Egypt. ***Taeckholmia***, 31, 18-27.

53- Galal, T.M., **Farahat, E.A** and Fawzy, M. (2008) Submerged macrophytes as bioindicators for pollution in Lake Mariut along the Mediterranean coast of Egypt, ***Ecologia Mediterranea,*** 34, 83-91.

54- **Farahat, E.A.** and Galal, T.M. (2006) Species composition and community structure of Edfina Public Park, Egypt. Proc. 4th Int. Con. Biol. Sci. (Botany), 11-21.

55- Shaltout, K.H. **and Farahat, E.A**. (2005) *Ornamental Vegetation of Qanatir Public Park*. ***Assuit University Journal of Botany,*** 34 (2), *219-244.*

56- Shaltout, K.H., Hassan, L.M., **Farahat, E.A.** (2005) Vegetation-environment relationships in south Nile Delta. ***Taeckholmia,*** 25, 15-46.

57- Fahmy, G.M., Zeid, I.M., Hassan, L.M. and **Farahat, E.A.** (2004) Impacts of Fuel Oil (Mazot) Combustion Products of Brick-Kilns on Air Quality and on Two Economic Plants. *Proceedings of the third international conference on biological sciences*, Faculty of Science, Tanta University (28-29 April 2004), 3, 25-39.

58- Zeid, I.M., Fahmy, G.M., Hassan, L.M. and **Farahat, E.A.** (2004): Effect of Fuel Oil (Mazot) Combustion Products on Spinach. *Proceedings of the third international conference on biological sciences*, Faculty of Science, Tanta University (28-29 April, 2004), 3, 11-24.

BOOKS and DATABASES

1- Encyclopedia of Egyptian medicinal plants, 2017-2018, as co-author in two monographs. Issues by the Egyptian Academy of Science and Technology. (28-29 April 2004), 3, 11-24.

2- Participation of establishment of International biodiversity database: PREDICTS | Natural History Museum (nhm.ac.uk), names of primary contributors are mentioned here: Release of data added to the PREDICTS database (November 2022) - Data - Data Portal (nhm.ac.uk).

3- Farahat E.A. and Gärtner H. Anatomy of ring-forming plants in Egyptian deserts. 266p. https://www.buchhandel.de/buch/Anatomy-of-ring-forming-plants-in-Egyptian-deserts-9783910611061.
In addition it is presented on both homepages:
in german: **www.forstbuch.de**
in english: **www.forestrybooks.com**