



Curriculum Vitae

Name: Professor. Dr. Salwan Mohammed Jasim AL-Maliki

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Education

Doctorate degree (PhD) in Soil Microbiology. Institute of Biological, Environmental & Rural Sciences. Wales University, United Kingdom 2012

Thesis title: The effect of earthworms, litter quality and atmospheric CO₂ on soil aggregation and associated microbial indices.

The PhD work involved with:

- Studying the relationship between microbial respiration, fungi, microbial biomass and aggregate stability over a period of time.
- Studying the fungal hyphal length in soil.
- Monitoring the Microbial biomass (bacteria and fungi) in soil.
- Recording the metabolic quotient of fungi and bacteria.
- Perusing the effect of CO₂ on microbial respiration, microbial biomass, fungi and bacteria.
- Following the effect of CO₂ on plant composition (cellulose, lignin, nitrogen, phosphorous, carbon and carbon/ nitrogen ratio).
- Effect of CO₂ on carbon cycle and pollution.
- Relationship between earthworms and fungi and bacteria.
- Relationship between earthworms and microbial respiration and soil stability.
- Stabilization of organic fractions on illite and kaolinite.
- Covering the microbial decomposition for plant materials by mineralization process.
- Improvements of the cultivated and degraded soils by adding different litter quality and earthworms.

- Mechanisms of soil aggregation, earthworm casts and microbial indices.
- Effects of elevated CO₂ and climate change on litter quality, soil aggregation, organic carbon and microbial indices.

Measurements that were taken: plant composition, aggregate stability, clay dispersability, microbial biomass carbon (MBC), fungal hyphal length, organic carbon, soluble carbon, microbial respiration, mineralization, metabolic quotient and Fourier transform infrared spectroscopy (FT-IR) for aliphatic carbon, aromatic carboxylic acid and polysaccharides.

Master degree in soil and water science (MSC), University of Baghdad, college of Agriculture 2005.

Thesis title: Effect of fuel oil and urea fertilizer on some physical properties of a Gypsiferous soil and growth of corn plant (*Zea mays L.*)

The master work involved with:

- Addition of different concentrations of fuel oil with nitrogen and phosphorous based on the percentage of carbon in the fuel oil to the soil throughout mathematical equations in order to follow their effects on soil properties and productivity by using the pollution factor as an indicator.

Measurements were undertaken: aggregate stability, bulk density, soil porosity, soil moisture content under different moisture tension, water conductivity, modulus of rupture (soil compaction), organic carbon, nitrogen content, carbon:nitrogen ratio, height and dry weight of plant.

Bachelor degree (BSC) in soil and water science University of Baghdad, college of Agriculture 2002.

Research interests

- 1- Phytoremediation and polluted saline soils using halophytes plants.
- 2- The effect of elevated CO₂ on fungi, bacteria, microbial respiration, different types of soils, plant composition, carbon sequestration after short and long-term periods.
- 3- Relationships between metabolic quotient, mineralization process, organic and soluble carbon and various aged soil aggregates.
- 4- Effect of fuel oil (pollution) on fungi, bacteria, microbial respiration and plant.
- 5- Measuring CO₂ flux from different types of forests and woody lands.
- 6- The effect of different earthworm species and litter quality on soil aggregate stability and microbial indices in different types of soils.
- 7- Effect of microbial composition on microbial respiration and metabolic quotient in aggregates and soils through short and long term scales.
- 8- The effect of tillage, cultivation, on aggregate stability and microbial indices.

- 9- The effect of soil biodiversity and its role in ecosystem services on different soils, climate types and land uses.
- 10- Developing standardization of methods and procedures for characterizing soil biodiversity and functioning.
- 11- Effect of polysaccharides and aliphatic components on soil properties and plant.
- 12- Effect of various concentration of Salinization on microbial activity in soil.
- 13- Effect of various moisture content and irrigation on microbial activity.
- 14- Effect of cropping rotation on microbial activity in soil.
- 15- Effect of soil compaction on microbial activity and productivity.
- 16- Effect of mycorrhizal fungi and trichoderma on plant productivity.
- 17- Effect of mycorrhizea on plant nutrient and microbial activity.
- 18- Effect of algae on plant nutrient and microbial activity.

Conference papers

- 1- Dynamics of aggregate stability and biological binding agents on restored opencast coal soil. Hamboldt University, Germany. 15-3-2010.
- 2- Interactions between earthworms and residues of differing quality affecting aggregate stability and microbial dynamics. Wales University, United Kingdom 1-4-2009

Publications

- 3- AL-Maliki, S.M., Scullion, J., 2013. Interactions between earthworms and residues of differing quality affecting aggregate stability and microbial dynamics. *Applied Soil Ecology* 64, 56-62.
- 4- Al-Maliki, S. M., Jones, D. L., Godbold, D. L., Gwynn-Jones, D., & Scullion, J. (2017). Elevated CO₂ and Tree Species Affect Microbial Activity and Associated Aggregate Stability in Soil Amended with Litter. *Forests*, 8(3), 70.
- 5- **Al-Maliki, S., AL-Mammory, H., Scullion, J., 2018.** Interactions between humic substances and organic amendments affecting soil biological properties and growth of *Zea mays* L. in the arid land region. *Arid Land Research and Management*, 1-16.
- 6- **Al-Maliki, S., AL-Masoudi, M., 2018.** Interactions between Mycorrhizal Fungi, Tea Wastes, and Algal Biomass Affecting the Microbial Community, Soil Structure, and Alleviating of Salinity Stress in Corn Yield (*Zea mays* L.). *Plants* 7, 63.
- 7- Al-Maliki, S., & Ebreesum, H. (2020). Changes in soil carbon mineralization, soil microbes, roots density and soil structure following the application of the arbuscular mycorrhizal fungi and green algae in the arid saline soil. *Rhizosphere*, 14, 100203.
- 8- Al-Maliki, S., Al-Amery, A., Sallal, M., Radhi, A., & Al-Taey, D. K. (2021). Effects of arbuscular mycorrhiza and organic wastes on soil carbon mineralisation, actinomycete and nutrient content in maize plants (*Zea mays* L.). *Malaysian Journal of Soil Science*, 25, 107-124.

- 9- Al-Maliki, S., Al-Taey, D. K., & Al-Mammori, H. Z. (2021). Earworms and eco-consequences: Considerations to soil biological indicators and plant function: A review. *Acta Ecologica Sinica*.
- 10- Salwan Al-Maliki, A. A., AL-Mammory, K. A. A. H., & ALmoslimawi, A. A. (2019). Effect of Ascophyllum Extract and Water Stress on Soil Biological Properties and Growth of Onion (*Allium Cepa* L.). *Indian Journal of Ecology*, 46(4), 796-802.
- 11- AL-Sheikhly, A.H., AL-Maliki, S.M., 2008. Effect of fuel oil and urea fertilizer on some physical properties of a Gypsiferous soil and growth of corn plant (*Zea mays* L.). *Journal of Soil Science* 8, 90-98.
- 12- AL-Maliki, S.M., H. A., AL-Watefi, A. S., Abdulabbas, A.A 2014. changes in organic matter content, aggregate stability and microbial activity under tillage and No-tillage system in Babylon province. *Euphrates Journal of Agriculture Science* 6: 19-33.
- 13- Al-Maliki, S. 2015. Abundance of bacterial and fungal community after amendments of organic residues in some soils from Babylon province. *Journal of Kerbala for Agricultural Science*. 2:63-76.
- 14- Al-Maliki, S. 2016. Response of microbial community in the arid land to wheat residues and soil compaction. *Scientific Journal of Karbala* 14:114-123.
- 15- AL-Zabee, M. R., & AL-Maliki, S. M. (2019). EFFECT OF BIOFERTILIZERS AND CHEMICAL FERTILIZERS ON SOIL BIOLOGICAL PROPERTIES AND POTATO YIELD. *Euphrates Journal of Agriculture Science*, 11(1).
- 16- AL-MALIKI, S. A. L. W. A. N., AL-ZABEE, M. O. H. A. M. M. E. D., MUTER, D. M., JABBAR, M. K., AL-MAMMORI, H. Z., & SALLAL, M. (2020). MYCORRHIZAL FUNGI AND FOLIAR FE FERTILIZATION IMPROVED SOIL MICROBIAL INDICATORS AND EGGPLANT YIELD IN THE ARID LAND SOILS. *PLANT CELL BIOTECHNOLOGY AND MOLECULAR BIOLOGY*, 139-154.
- 17- Al-Maliki, S., & Al-Helou, H. (2020). RESPONSE OF TOMATO LYCOPERSICON ESCULENTUM MILL. AND SOIL MICROBIAL ACTIVITY TO GLOMUS MOSSEAE, TRICHODERMA HARZIANUM AND CHEMICAL FERTILIZATION. *Plant Archives*, 20(2), 292-296.

Teaching, administrative experience and teaching interest

- 1- An expert in measuring plant composition, aggregate stability, clay dispersability, microbial biomass carbon (MBC), fungal hyphal length, organic carbon, soluble carbon, microbial respiration, mineralization, metabolic quotient and Fourier transform infrared spectroscopy (FT-IR) for aliphatic carbon, aromatic, carboxylic acid and polysaccharides, bulk density, soil porosity, soil moisture content under different moisture tension, water conductivity, modulus of rupture (soil compaction),

organic carbon, nitrogen content, carbon:nitrogen ratio, height and dry weight of plant.

- 2- Working at Aberystwyth University in UK as a researcher 2007-2012.
- 3- The teaching interest is in microbiology, soil pollution, relationships between plant and soils, soil physics, soil chemistry, soil fertility, soil ecology and soil management.
- 4- The administrative involvement was with examinations and tutorial works and exams invigilation plus management and safety of the scientific laboratories.
- 5- Specialist in using the academic statistic programme Minitab and Excel.
- 6- Endnote programme for using references.
- 7- English certificates from London colleges.
- 8- UK driving licence

Supervision

I supervised on 7 master students and 1 PhD students at the Al-Qasim green university.