
CURRICULUM VITAE

NIKOLAOS V PARANYCHIANAKIS

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EDUCATION

Ph. D. Dept of Natural Resources and Agricultural Engineering, Agricultural University of Athens, 2001.

Diploma Dept of Natural Resources and Agricultural Engineering, Agricultural University of Athens, 1994

EMPLOYMENT

02-2013- 08-2013 Kroto Research Institute, University of Sheffield (Sabbatical leave)
2008-today Technical University of Crete, School of Chemical and Environmental Engineering
2006-2007 Department of Agricultural Development, Region of Crete
2004-2006 Lab. Plant Physiology and Biochemistry, Dept of Biology, University of Crete
2002-2004: National Foundation for Agriculture Research, Institute of Iraklio
2000-2001: Army service
1995-2000: National Foundation for Agriculture Research, Institute of Iraklio

RESEARCH INTERESTS

Wastewater treatment; Effluent reuse; Nutrient Biogeochemical Cycles; Microbiomes; plant-microbe interactions; Irrigation demands

HONORS & AWARDS

2005-2006 Post Doctoral fellow by the Greek National Scholarships Foundation (IKY).

ORGANIZATION OF SCIENTIFIC MEETINGS

1. 2nd International Conference on Water Economics, Statistics, and Finance, International Water Association, Alexandroupolis, Thrace - Greece, 3-5 July 2009.
2. Asset Management of Medium and Small Wastewater Utilities, International Water Association, Alexandroupolis, Thrace - Greece, 3-4 July 2009.
3. International Conference on Water and Wastewater Management in Ancient Civilisations (IWA), October 2006, Iraklio, Greece.
4. International Conference on Water Economics, Statistics, and Finance (IWA), 8-10 July 2005, Rethymno, Greece.
5. Regional Symposium on Water Recycling in Mediterranean Region, (IWA), 26-29 September 2002, Iraklio, Greece.

TEACHING

Graduate

- Agricultural Engineering (2008-today)
- Decentralised Wastewater Management and Effluent Reuse (2008-today)

Post-graduate

- Decentralised Wastewater Management and Effluent Reuse (2015-today)

PUBLICATIONS

A. THESIS

Influence of Rootstock, Irrigation level and recycled water on Growth, Nutrition and Physiology of Soultanina Grapevines. Dept of Natural Resources and Agricultural Engineering, Agricultural University of Athens Ph. D Thesis, p. 202.

B. BOOKS EDITION AND CONFERENCE PROCEEDINGS

1. Angelakis, A.N., Tsagarakis, K.P., Paranychianakis, N.V., Asano, T., 2002. *Water Recycling in Mediterranean Region*. Proceedings of Regional Symposium on Water Recycling and Reuse in Mediterranean Region. Iraklio, 26-29 September 2002, vol 1(p696) and vol 2(p180).
2. Angelakis, A.N., Paranychianakis, N.V., Tsagarakis, K.P., 2003. *Water Recycling in Mediterranean Region*. Water Science and Technology: Water Supply. vol 3.
3. Angelakis, A.N., Paranychianakis, N.V., 2011. Water Recycling and Reuse. *Water vol 4*

C. CHAPTERS IN BOOKS

1. Angelakis, A.N., Paranychianakis, N., 2003. Introduction. In: *State of the Art Report: Health Risks in Aquifer Recharge Using Reclaimed Water* (R. Aertgeerts and A.N. Angelakis, Eds). WHO, Water, Sanitation and Health Protection and the Human Environment WHO, Genova and WHO Regional Office for Europe, Copenhagen, Denmark, p.4-9.
2. Tsagarakis, K.P., Paranychianakis, N.V., and Angelakis, A.N. 2003. Country report Greece. In: *aqualibrium - European Water Management between Regulation and Competition* (Mohajeri S. et al. Eds), ISBN : 92-894-6428-3. European Commission, Directorate-General for Research, Brussels, pp. 153-169.
3. Paranychianakis, N.V., Salgot, M., Angelakis, A.N., 2010. Irrigation with Recycled Water: Guidelines and Regulations. In: *Treated Wastewater in Agriculture: Use and Impacts on the Soil Environments and Crops*, (Levy, et al., Eds) Wiley-Blackwell, pp 77-112.

D. REFEREED JOURNAL PUBLICATIONS

1. Chartzoulakis, K.S., Paranychianakis, N.V., Angelakis, A.N., 2001. Water resources management in the Island of Crete, Greece, with emphasis on the agricultural use. *Water Policy* 3, 193-205.
2. Tzanakakis V.A., Paranychianakis, N.V., Kyritsis, S., Angelakis, A.N., 2003. Evaluation of wastewater treatment and biomass production by slow rate systems using different plant species. *Water Science Technology: Water Supply* 3, 185-192.
3. Paranychianakis, N.V., Aggelides, S., Angelakis, A.N., 2004. Influence of rootstock, irrigation level and recycled water on the growth and yield of Soultanina grapevines. *Agric Water Manag* 69, 13-27.
4. Paranychianakis, N.V., Chartzoulakis, K.S., Angelakis, A.N., 2004. Influence of rootstock, irrigation level and recycled water on water relations and gas exchange of Soultanina grapevines. *Environmental and Experimental Botany* 52, 185-198.
5. Paranychianakis, N.V., Chartzoulakis, K.S., 2005. Irrigation of Mediterranean crops with saline water: From physiology to management practices. *Agriculture Ecosystems and Environment* 106, 171-187.
6. Borboudaki, K., Paranychianakis, N.V., Tsagarakis, K.P., 2005. Integrated wastewater management at touristic areas for water recycling purposes including a case study. *Environmental Management* 36, 610-623.

7. Safarikas, N., Paranychianakis, N.V., Kotselidou, O., Angelakis, A., 2005. Drinking water policy in the frame of the directive 2000/60/EC with emphasis to drinking water. *Water Science Technology: Water Supply* 5(6), 243-250.
8. Paranychianakis, N.V., Nikolantonakis, M., Spanakis, Y., Angelakis, A.N., 2006. The effect of recycled water on the nutrient status of Sultana grapevines grafted on different rootstocks. *Agric Water Manag* 81(1-2), 185-198.
9. Paranychianakis, N.V., Angelakis, A.N., Leverenz, H., Tchobanoglous, G., 2006. Treating wastewater through land treatments systems: A review of treatment mechanisms and plant functions. *Critical Reviews in Environmental Science and Technology* 36, 187–259.
10. Paranychianakis, N.V., Tsagarakis, K.P., 2006. Comment on: Qualitative monitoring of a treated wastewater reuse extensive distribution system: COD, TSS, EC and pH by Manios et al., 2006 (*Water SA* 32(1) 99-104, 2006) *Water SA* 32(3), 453-454.
11. Skopelitis, D.S., Paranychianakis, N.V., Paschalidis, K.A., Pliakonis, E.D., Yakoumakis, D., Delis, I.D., Kouvarakis, A., Papadakis, A.K., Stephanou, E., Roubelakis-Angelakis, K.A., 2006. Abiotic stress generated ROS signal expression of anionic glutamate dehydrogenases to form glutamate for proline synthesis. *Plant Cell* 18, 2767-2781.
12. Tzanakakis, V.E., Paranychianakis, N.V., Angelakis, A.N. 2007. Performance of slow rate systems for the treatment of domestic wastewater. *Water Science Technology* 55,139-47.
13. Skopelitis, D.S., Paranychianakis, N.V., Spyros, A., Kouvarakis, A., Stephanou, E., Roubelakis-Angelakis, K.A., 2008. The Isoenzyme Seven of Tobacco NAD(H)-Dependent Glutamate Dehydrogenase Exhibits High Deaminating and Low Aminating Activities *in vivo*. *Plant Physiology* 145, 1726-1734.
14. Paranychianakis, N.V., Angelakis, A.N., 2008. Water stress and rootstock affect the development of leaf burns in grapevines irrigated with saline effluent. *Agric Water Manag* 5, 375-382.
15. Tzanakakis, V.E., Paranychianakis, N.V., Angelakis, A.N. 2009. Nutrient removal and biomass production by different plant species irrigated with primary treated domestic effluent. *Ecological Engineering* 35, 1485–1492.
16. Moraetis, D., Stamati, F., Kotronakis, M., Fragia, T., Paranychianakis, N., Nikolaidis, N.P., 2011. Identification of hydrologic and geochemical pathways using high frequency sampling, REE aqueous sampling and soil characterization at Koiliaris Critical Zone Observatory, Crete. *Applied Geochemistry* 26, 101-104.,
17. Tzanakakis, V.E., Paranychianakis, N.V., Londra, P.A., Angelakis, A.N., 2011. Effluent application to the land: Changes in soil properties and treatment potential. *Ecological Engineering* 37, 1757-1764.
18. Kapellakis, I.E., Paranychianakis, N.V., Tsagarakis, K.P., Angelakis A.N., 2012. Treatment of olive mill wastewater with constructed wetlands. *Water* 4, 260-271.
19. Tsiknia, M., Tzanakakis, V.A., Paranychianakis, N.V., 2013. Insights on the Role of Vegetation on Nitrogen Cycling in Effluent Irrigated Lands. *Applied Soil Ecology* 64, 104-111.
20. Paranychianakis, N.V. Tsiknia, M., Giannakis, Nikolaidis, N.P., Kalogerakis, N., 2013. Nitrogen cycling and relationships between ammonia oxidizers and denitrifiers in a clayey soil. *Appl. Microbiol. Biotechnol.*,97, 5507-15.

21. Tsiknia, M., Tzanakakis, V., Oikonomidis, D., Paranychianakis, N., Nikolaidis, N., 2014. Effects of olive mill wastewater on soil carbon and nitrogen cycling. *Appl. Microbiol. Biotechnol.*, 98, 2739-2749.
22. Giannakis, G., Kourgialas, N., Paranychianakis, N.V., Nikolaidis, N.P., Kalogerakis, N., 2014. Effects of municipal solid waste compost on soil properties and vegetables growth. *Compost Science and Utilization* 22:3, 116-131.
23. Tsiknia, M., Paranychianakis, N.V., Varouchakis, E.A., Moraetis, D., Nikolaidis, N.P., 2014. Environmental drivers of soil microbial community distribution at the Koiliaris Critical Zone Observatory. *FEMS Microbiology Ecology* 90, 139–152.
24. Paranychianakis, N.V., Salgot M., Snyder, S., Angelakis, A.N., 2015. Quality criteria and Status of Effluent Recycling in EU-Countries: Need for a Uniform Approach. *Critical Reviews in Environmental Science and Technology* 45, 1409-1465.
25. Moraetis, D., Paranychianakis, N.V., Nikolaidis, N.P., Banwart, S.A., Rousseva, S., Kercheva, M., Nenov, M., Shishkov, T., de Ruyter, P., Bloem, J., Blum, W.E.H., Lair, G.J., van Gaans, P., Verheul, M. 2015. Sediment provenance, soil evolution, and carbon content in fluvial and manmade terraces at Koiliaris River Critical Zone Observatory. *J Soils Sediments* 15, 347-364.
26. Tzanakakis, V.A., Tsiknia, M., Vagiakis, G., Angelakis, A., Paranychianakis, N.V., 2015 Carbon Turnover during Effluent Application to the Land: A Potential Role for Vegetation? *Water* 7, 288-299.
27. Babatsouli, P., Fodelianakis, S., Paranychianakis, N.P., Venieri, D., Dialynas, M., Kalogerakis, N., 2015. Treatment of saline wastewater with a marine microbial consortium. *J. Hazardous Materials* 292, 155-163.
28. Tsiknia, M., Paranychianakis, N.V., Varouchakis, Nikolaidis, N.P., 2015. Environmental drivers of the distribution of nitrogen functional genes at a watershed scale. *FEMS Microbiology Ecology* 91(6), fiv052 DOI: <http://dx.doi.org/10.1093/femsec/fiv052>.
29. Papafilippaki, A., Paranychianakis, N.V., Nikolaidis, N.P., 2015 Effects of soil type and municipal solid waste compost as soil amendment on *Cichorium spinosum* (stamnagathi) growth. *Scientia Horticulturae* 195, 195-205.
30. Paranychianakis, N.V., Tsiknia, M., Kalogerakis, N., 2016. Pathways regulating the removal of nitrogen in planted and unplanted subsurface flow constructed wetlands. *Water Research* 102, 321-329
31. Kotronakis, M., Giannakis, G.V., Nikolaidis, N.P., Rowe, E.C., Valstar, J., Paranychianakis, N.V., Banwart, S.A., 2017 Modeling the impact of carbon amendments on soil structure, nutrient dynamics and plant growth using the 1D-ICZ model. *Advances in Agronomy* 142, 315-352.
32. Panakoulia, S.K., Nikolaidis, N.P., Paranychianakis, N.V., Menon M., Schiefer, J., Lair, G.J., Kram, P., Banwart, S.A., 2017. Factors controlling soil structure dynamics and carbon sequestration across different climatic and lithological conditions. *Advances in Agronomy* 142, 241-276.
33. Giannakis, G.V., Nikolaidis, N.P., Valstar, J., Rowe, E.C., Moirogiorgou, K., Kotronakis, E., Paranychianakis, N.V., Rousseva, S., Stamati, F.E., Banwart, S.A., 2017. Integrated Critical Zone Model (1D-ICZ): A tool for Dynamic Simulation of Soil Functions and Soil Structure. *Advances in Agronomy* 142, 277-314.

34. Tzanakakis, V.E., Paranychianakis, N.V., 2017. Divergent response of ammonia oxidizers to various amino acids. *Applied Soil Ecology* 114, 45-51.
35. Apostolakis, A., Panakoulia, S., Nikolaidis N.P., Paranychianakis, N.V., 2017. Shifts in soil structure and soil organic matter in a chronosequence of set-aside soils. *Soil and Tillage Research* 174, 113-119.
36. Tzanakakis V.E., Apostolakis, A., Nikolaidis, N.P., Paranychianakis, N.V., 2018. Ammonia oxidizing archaea do not respond to ammonium or urea supply in an alkaline soil. *Applied Soil Ecology* 132, 194-198.
37. Tsiknia, M.; Fodelianakis, S.; Nikolaidis, N. P.; Paranychianakis, N. V., Neutral processes and high inter-annual turnover shape the assembly of soil bacterial communities in a Mediterranean watershed. *bioRxiv* 2019, 542076.
38. Tzanakakis, V.A., Angelakis, A.N., Paranychianakis, N.V. Dialynas, Y.G., Tchobanoglous, G., 2020. Challenges and Opportunities for Sustainable Management of Water Resources in the Island of Crete, Greece. *Water*, 12, (6), 1538.
39. Tzanakakis, V.A., Paranychianakis, N.V., Angelakis, A.N. 2020. Water Supply and Water Scarcity. *Water*, 12(9), 2347.
40. Angelakis, A.N., Valipour, M., Ahmed, A.T., Tzanakakis, V., Paranychianakis, N.V., Krasilnikoff, J., Drusiani, R., Mays, L., Gohary, F.E., Koutsoyiannis, D., Khan, S., Del Giacco, L.G., 2021. Water conflicts: From Ancient to Modern Times and in the Future., *Sustainability* 13 (8), 4237.
41. Paranychianakis, N.V., Giannakis, G.V., Moraetis, D., Tzanakakis, V.A., Nikolaidis, N.P., 2021. Crop Litter Has a Strong Effect on Soil Organic Matter Sequestration in Semi-Arid Environments. *Sustainability*, 13(23), 13278

REVIEWS

FEMS Microbiology Ecology, Water Research, Environmental Science and Technology, Agriculture Ecosystems and Environment; Soil Biology and Biochemistry, Plos One, J. Hazardous Materials, J. America Society for Horticultural Science, Ecological Engineering, Ecological Indicators, Applied Soil Ecology.

PROJECTS

1. RESCHEDULE 07/2021-06/2024. Resilient to Climate Change Extremes Mediterranean Agricultural Systems: Leveraging the Power of Soil Health and Associated Microbiota. General Secretariat of Research and Technology, Greece. Total Budget 1.890,000 €. TUC Funding 250,000 € (Coordinator).
2. BIOME 07/2020-02/2023. Application of emerging biotechnological methods (microbiome engineering) in vegetable crops. General Secretariat of Research and Technology, Greece. Total Budget 450,000 €. TUC Funding 140,000 €.
3. Water4Crops. Integrating bio-treated wastewater with enhanced water use efficiency to support the Green Economy in EU and India, FP7-KBBE. Budget: 42,000€
4. Conceiving Wastewater Treatment in 2020. Energetic, environmental and economic challenges (Water_2020). COST Action.
5. Investigation of the presence and activity of anammox bacteria in terrestrial ecosystems. EAKE Technical University of Crete, 6,000€

6. SoilTrec: 12/2009 – 11/2014 EU-FP7, Total Budget 7,000,000 € - TUC Funding 705,400 € (Research Assistant).
7. EOX-DEDISA – Improving the Reclamation and Reuse of the Organic Fraction of Municipal Solid Wastes in Agricultural and Environmental Applications European Economic Space and Ministry of Economy (50-50%) Total 2,200,000 € - TUC Funding 260,000 €